Typological variation in encoding the manner, path, and ground components of a metaphorical motion event

Şeyda Özçalı¸skan
University of Chicago

The paper compares two typologically distinct languages with regard to their lexicalization patterns in encoding metaphorical motion events: (1) verb-framed (V-language, represented by Turkish), in which the preferred pattern for framing motion events is the use of a path verb with an optional manner adjunct (e.g., enter running), and (2) satellite-framed (S-language, represented by English), in which path is lexicalized in an element associated with the verb, leaving the verb free to encode manner (e.g., run in). The paper focuses on typological differences in encoding the manner, path, and ground components of metaphorical motion events, using data from novels written originally in English or Turkish, and further extends the applicability of the typological dichotomy to the metaphorical uses of the lexicon.

Keywords: motion events, metaphorical motion, verb-framed typology, satellite-framed typology, manner of motion, path of motion

1. Introduction

Spatial motion acts as an important source domain in structuring our thinking about a range of abstract concepts, from the everyday conception of time (e.g., years slip away, hours crawl by) to the formulation of our basic emotional experiences (e.g., fall into depression, burst out with joy, run into frustration). An earlier analysis of metaphorical extensions of spatial motion in English and Turkish has shown that both languages systematically use motion in space to structure a wide array of abstract concepts (e.g., Özçalı¸skan 2002, 2003a, b), and that the integration of these metaphorical motion events into our conceptual and linguistic system starts very early in development (Özçalı¸skan 2002, 2003c,
Spatial motion also constitutes a source domain that shows wide variation in linguistic expression across different languages, but which, at the same time, can be described by a limited set of underlying universal patterns (Talmy 1985, 2000). Talmy proposed a two-category distinction between languages of the world in terms their preferred lexicalization patterns of a literal motion event, which he labeled as verb-framed (V-language) and satellite-framed (S-language) languages. This paper focuses on the metaphorical extensions of motion events (e.g., hours pass by, the idea springs back into his mind), and compares the lexicalization patterns of two typologically contrastive languages (English, an S-language and Turkish, a V-language) in encoding different semantic components of a metaphorical motion event. The paper specifically addresses typological variation in encoding manner, path, and ground components of metaphorical motion events in the two languages. It examines if typological differences in literal uses of the lexicon extend to the metaphorical uses of the lexicon, and if so, how the degree of codability of a motion event component has an effect on its relative extent of expression in the two language types.

1.1 Outline of the typology

Talmy (2000) defines a motion event as being composed of a framing event and a co-event (i.e., subordinate event). The framing event provides the schematic structure for the motion event and can be analyzed into four components; (1) a moving figure, (2) a physical ground (i.e., a landmark) with respect to which the figure moves, (3) an activating process, namely motion, and (4) a path that relates the figural entity to the ground entity. The co-event, encoding of which is optional, provides a support relation to the framing event by elaborating or motivating the framing event. The co-event may take one of several forms, with the two most common forms being the manner event, which encodes the manner with which the motion is carried out (e.g., floating, running), and the causation event, which encodes the event originating the motion (e.g., kicking, throwing).

Among the four components of the framing event, Talmy (2000) designates path of motion as the core feature of the event, and groups languages into two categories in terms of their expression of path information: V-languages (of which Turkish is one) typically encode path of motion in the main verb of a clause (e.g., exit, enter, ascend), whereas S-languages (of which English is one) prefer to express path of motion in a satellite (particles, prefixes) associated with the main verb (e.g., go out, go down). The difference in the pre-
ferred lexicalization of path information (in vs. outside the main verb) has further consequences for the lexicalization of the activating process (i.e., motion), leading to different conflation patterns in the two language types. Since S-languages prefer to encode path by satellites, the main verb slot becomes available for a manner verb (e.g., walk, run, crawl...in, out, across...). This gives S-language speakers a more accessible and easily codable linguistic option to indicate the manner of motion, and S-language speakers typically conflate motion with manner in the main verb of a clause describing a motion event. As a consequence, S-language speakers encode manner habitually, develop a richer lexicon of manner verbs, and make finer lexical distinctions within domains of movement that involve manner (Slobin 2000, 2004). By contrast, in V-languages, the preferred pattern is to conflate motion with path in the main verb of a clause, and there is no other easily codable linguistic slot to encode manner of motion. Therefore, in contexts where attention to manner is salient, V-language speakers typically rely on either subordinated manner verb constructions (e.g., exit by running/ by crawling) or various adjunct manner expressions (enter in a haste/ quickly) to indicate manner information. The added processing load incurred by the use of such constructions renders them to be less likely to be used by V-language speakers (Slobin 2004); and as an outcome, in most instances, manner information is not expressed at all in V-languages.

The typological contrast in encoding the manner dimension of motion events has been the focus of much of the earlier research on motion event typology, which provided supporting evidence for the proposed typological differences in encoding manner of motion. These earlier studies have shown higher frequency of mention and greater lexical diversity with regard to the manner component of motion events by S-language speakers, for both literal (e.g., Ibarretxe-Antuñano 2004; Naigles et al. 1998; Oh 2003; Ohara 1999; Papafragou et al. 2002; Özlüskan & Slobin 1999a, b, 2000a, b, 2003; Slobin 1996, 1997, 2004) and metaphorical motion events (Özlüskan 2002, 2005). On the other hand, other semantic components of motion events (i.e., path, ground) have received relatively little attention and thus have not yet been quite as extensively studied, which is one of the goals of the present analysis. One of the major findings of the earlier work on literal motion – for encoding path and ground elements – pointed to a typological difference in the expression of motion events with extended path segments or multiple ground elements: S-language speakers were found to be more likely to attach multiple path segments and multiple ground elements to a single verb of motion than V-language speakers (Slobin 1996, 1997). However, the question as to whether the
reported differences in encoding path and ground elements for literal motion extend to the metaphorical uses of the lexicon still remains to be answered.

This paper, as an attempt in that direction, investigates whether the typological distinctions observed for literal motion events extend to the metaphorical uses of the lexicon, in a comparison between English (S-language) and Turkish (V-language). Following Lakoff and Johnson (1980, 1999), metaphor is defined as a conceptual-linguistic mapping from a source domain (e.g., motion in space) to a target domain (e.g., time, emotional states). The paper only focuses on metaphors that are structured by the source domain of motion in space (e.g., *hours crawl by, ideas run through my mind*), holding the source domain constant across the two languages. An earlier analysis of such metaphorical events in English and Turkish showed close cross-linguistic similarity both in terms of the target domains that are structured by motion in space and the types of mappings for each of these target domains. A cross-linguistic effect, on the other hand, became evident in the more detailed aspects of the source domain structure (i.e., details of the motion), suggesting the source domain to be the best candidate to observe systematic cross-linguistic variation in a metaphorical event (Özçalışkan 2002, 2003a).

This paper, as an attempt in that direction, aims to provide a detailed account of the language-based variation (or lack thereof) in the source domain structure of a metaphorical motion event along typological lines of analysis. The paper focuses on typological variation in encoding three major components of metaphorical motion events, namely manner of motion, path of motion, and ground elements (i.e., landmarks) associated with the motion. Manner is used to refer to a broad set of factors including the motor pattern (e.g., *he runs into frustrations, hours crawl by*), or rate of metaphorical motion (e.g., *his mind plunges in an awkward thought, she bursts out with happiness*), or the degree of effort involved in the metaphorical motion (e.g., *he pulls himself out of depression, they climb out of poverty*). Path refers to the direction of motion, which, in its most elaborated sense, involves metaphorical motion from a source to a goal, passing through one or more milestones (e.g., *the fear in his eyes creeps from his gaze into her heart, making its way through the labyrinths of her unconscious*). Ground is defined as referring to the explicitly mentioned metaphorical landmarks (e.g., *the thought enters his mind, she falls in love*) that constitute either the goal to which, the source from which, or the medium within which, metaphorical motion takes place.

The expectation is that English will be more likely to conflate motion with manner, and Turkish will be more likely to conflate motion with path in the
Typological variation in encoding the manner, path, and ground components

main verb of a clause, describing a metaphorical motion event. This will, in turn, lead to a higher percentage of manner verb use in English and path verb use in Turkish. However, both languages will also be likely to use lexical items other than the verb to encode the manner and path components of a metaphorical motion event. English speakers are expected to rely heavily on path satellites (e.g., verb particles, prepositional phrases) to indicate direction of metaphorical motion, given that the verb is mainly reserved to encode manner information in English. Turkish speakers, on the other hand, may opt to use lexical items other than the verb (e.g., adverbs) to convey manner information, which they cannot easily express at the level of motion verbs. Ground information is likely to be encoded outside the verb in both languages, and based on earlier work (Slobin 1996, 1997), English speakers are expected to be more likely to attach multiple ground elements to a single verb of motion than Turkish speakers.

Statements of metaphorical mappings are capitalized throughout the text, and the linguistic metaphors in the examples are underlined. For the examples in Turkish, morpheme-by-morpheme glosses are provided in brackets for the underlined segment of the excerpt, and a free translation of the full excerpt is provided in single quotes, following the morpheme-by-morpheme glosses. An explanation of the abbreviated labels for the morphemes is provided in Appendix I.

2. Sample

The sample included randomly chosen instances of metaphorical motion events from 10 novels written originally in English and 10 novels written originally in Turkish. The novels included works of both contemporary and earlier writers, and an effort was made to include novels that were richer in metaphorical motion event descriptions in both languages.

3. Procedure

3.1 Procedure for data collection

Each novel was opened ten times randomly, and at each opening, the first five instances of metaphorical motion events were recorded, resulting in about 50
such instances from each novel. The total number of motion verbs was 617 for the novels in English and 643 for the novels in Turkish.3

3.2 Procedure for data analysis

Metaphorical motion events (e.g., the idea bounces back into his mind, he slowly sinks into depression) were taken as the unit of analysis, and the two languages were compared in terms of the extent to which they encoded the manner, path, and ground components of a metaphorical motion event. The data were analyzed in terms of various linguistic categories – verbs, nominalized verbs, adverbials, adjectives, nouns/noun phrases, prepositional/postpositional phrases, and verb particles – that encoded either the manner, path, or ground component of a metaphorical motion event. Motion verbs were divided into three categories (manner, path, neutral), based on the information encoded in the verb. A list of motion verb types included in the analysis is provided below.4

V: manner (manner verbs) = e.g., run, fly, jump, plunge, drag, launch, push, creep
V: path (path verbs) = e.g., enter, exit, ascend, descend, follow, approach, withdraw
V: neutral (verbs with no manner or path) = e.g., go, move

4. Results

4.1 Encoding the MANNER dimension of a metaphorical motion event

4.1.1 Encoding manner in the verb

Analysis of verbs and nominalized verbs of metaphorical motion shows a typological contrast. As can be seen in Figure 1, novels written in English include a significantly higher percentage of manner verbs (59%) as compared to novels written in Turkish (21%) ($\chi^2(1) = 18.05$, $p < .001$). Turkish writers, on the other hand, mainly use bare path verbs to describe metaphorical motion events (71%).

Some examples from the data are provided below that illustrate the difference between the two languages. The examples show a clear preference for manner verbs in English (fly, spring, walk), and path verbs in Turkish (spread, fall, exit) across different target domains, including emotions (1, 2), mind (3, 4), and life (5, 6).
Typological variation in encoding the manner, path, and ground components

Figure 1. Percentage of different types motion verbs used metaphorically. Percentages were computed by dividing the total number of manner, path, or neutral verbs by the total number of motion verbs, separately for each language.

(1) So engrossed was she that she had no consciousness of being observed, and one emotion after another crept into her face like objects into a slowly developing picture. (Fitzgerald 1986:125)

(2) Yüzüne suçluluk duygusu yayılmış olarak koştu ve Ada’ya sarıldı. (Uzuner 1997:297)

‘He ran towards Ada with the feeling of guilt having spread to his face,’ and he hugged her.

(3) And as he looked down at the face beside him, it was suddenly, out of nowhere, that Emma Bovary’s name sprang into his mind. (Fowles 1981:100)

(4) Sonra o anda censorship bir çağrışınla aklına Dalya geldi. (Yeğinobalı 1997:163)

‘...’
'Then Dalya came to her mind with an association that she could not understand.'

(5) Fiona’s ex-boyfriend, who had walked out of her life a few months before... had apparently returned after a change of heart... (Auster 1990:18)

(6) O ikisi yaşamından çıkarca ben ne yapacaktım, falan türünden tipik Tuna kuruntuları... (Uzuner 1997:226)

'When those two exit from my life, what I would do type of typical Tuna worries...'

The typological contrast is also expressed strongly in the diversity of the manner verb lexicon. Novels in English contain three times as varied a manner lexicon as novels in Turkish (95 to 30 types). The difference between the two languages is found to be significant at the $\chi^2(1) = 33.80, p<.001$ level. Lists of all manner verbs observed in the data are provided below.

**English (95 types):** bob, bounce, burst, chase, clamber, climb, collapse, creep, crowd, dart, drag, drain, draw, drift, drive, dispel, ebb, eject, elude, escape, falter, filter in, flee, fleet, float, flood, flounce, flow, fly, hurry, jerk, jump, knock, leap, look, lunge, linger, lurk, March, meander, plummet, plunge, pop, pour, propel, pull, pursue, push, reel, ride, roam, roll, run, rush, rustle, scramble, shower, sink, skip, slide, slip, slop, soar, spill, spin, spring, spurt, stagger, step, stream, stride, stumble, surge, swarm, sway, sweep, swerve, swim, swing, throw, tip out, topple, track, tread, trip, tumble, twist one’s way, veer, walk, wallow, wander, wash over/through, whirl, worm one’s way, wrench.


As shown in the above analysis, English carves up the domain of manner of motion in a more fine-grained fashion, making finer lexical distinctions than Turkish. English speakers not only use a greater number and variety of manner verbs, but also are tuned to make finer lexical distinctions within domains of motion that involve manner. As Table 1 illustrates, for every domain of manner, English speakers use a greater variety of manner verbs than Turkish speakers in their metaphorical descriptions. The cross-linguistic differences observed for...
Table 1. Distribution of manner verbs by domain of manner in English and Turkish

<table>
<thead>
<tr>
<th>Manner domain</th>
<th>English</th>
<th>Turkish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid motion</td>
<td>burst, dart, eject, jerk, plunge, pop, surge, leap, lunge, lurch, plummet, sport, swerve, veer</td>
<td>atıl ‘leap’, dal ‘dive’, forla ‘dart’</td>
</tr>
<tr>
<td>Forced motion</td>
<td>drag, draw, drive, dispel, knock, propel, pull, push, spin, sweep, throw, tip out, topple, wrench</td>
<td>at ‘throw’, çek ‘pull’, it ‘push’, kapıl/kaptır ‘be taken away with force’ savrul ‘be hurled’, sırıkile ‘drag’</td>
</tr>
<tr>
<td>Leisurely motion</td>
<td>ebb, drift, linger, wander, sink,bob, wallow</td>
<td>bat ‘sink’, dolan/dola¸s ‘wander’, gez ‘stroll’</td>
</tr>
<tr>
<td>Obstructed motion</td>
<td>clamber, drain, falter, filter in, trip, twist one’s way, stumble, leak, stagger, tumble, worm one’s way</td>
<td>sız ‘leak’, takıl ‘trip’, syıril ‘squeeze away’</td>
</tr>
<tr>
<td>Furtive motion</td>
<td>Creep</td>
<td>☐</td>
</tr>
<tr>
<td>Manners of running</td>
<td>chase, flee, fleet, reed, run, rush, track</td>
<td>kaç ‘escape’, koş ‘run’</td>
</tr>
<tr>
<td>Manners of walking</td>
<td>hurry, march, meander, roam, rustle, step, stride, tread, walk</td>
<td>adım at ‘step’, yırı ‘walk’</td>
</tr>
<tr>
<td>Manners of jumping</td>
<td>bounce, jump, scramble, skip, spring</td>
<td>atla ‘jump’, suçra ‘bounce’</td>
</tr>
</tbody>
</table>

Note: Category names for manner domains are taken from Slobin (2000) with a few additions by the author.

metaphorical motion events – in terms of both the frequency and diversity of manner verb use – also replicate the patterns observed for literal motion events in the two languages (Özçalıskan & Slobin 1999a, 2003).

Manner of motion is likely to be perceptually salient for speakers of both V- and S-languages. However, as shown in the above analysis, the encoding of manner information relies largely on codability (Slobin 2000, 2004), and speakers of a language are more likely to pay linguistic attention to and elaborate manner if they use a language with high codability of this dimension. As discussed earlier, compared to Turkish, English allows for easier codability, where manner can be expressed using a single, finite, high frequency lexical item (i.e., a main verb) rather than a phrase or a nonfinite verb such as a subordinate construction (enter/exit by running; Slobin 2004). The added processing load incurred by the use of subordinated manner verb constructions renders
this option less likely to be used by Turkish speakers, and, not surprisingly, the analysis of metaphorical motion events in Turkish novels has shown no instances of such subordinated manner verb constructions.

The question then becomes how manner is typically expressed in Turkish. The analysis of motion verbs has clearly shown that Turkish speakers do not typically encode manner in the main verb due to the lexicalization patterns of their native language, where the main verb is mainly reserved to encode path information. Then, does this increase Turkish speakers’ tendency to leave out manner information in their metaphorical motion event descriptions, or do they use lexical means other than the verb to convey manner information? This will be the next step in the analysis.

4.1.2 Encoding manner outside the verb
English and Turkish use similar linguistic means to encode manner information outside the main verb of a clause describing a metaphorical motion event. The typical linguistic means include adverbials for motion verbs (e.g., The idea quickly passed through his mind) and adjectives for nominalized verbs of motion (e.g., His rapid fall to poverty). Thus, in both languages, a metaphorical event that only encodes path of motion (e.g., He entered her life) can be turned into an event with a manner component by adding an adverbial that indicates manner (e.g., He entered her life in a flash/violently/swiftly). The use of such manner adverbials is not constrained by the lexicalization patterns of either language, making them equally accessible to speakers of both languages. Thus, Turkish speakers may rely more heavily on these adverbials/adjectives to add manner to their metaphorical motion event descriptions, which they cannot easily encode at the level of the motion verb.

However, surprisingly, the results suggest otherwise. Analysis of metaphorical motion events in the two languages indicates that novels in English contain significantly more instances of adverbial/adjectival constructions that convey manner than novels in Turkish (57 to 35 instances, $\chi^2(1) = 5.26, p < .05$). Some sample instances of such adjunct manner expressions from the data are provided below (examples 7 to 12, adverbials/adjectives of manner are in bold).

(7) Extreme love is fed by everything. So it was that the shock of Georgie’s decision, once the immediate pain had been suffered, opened as it were a channel down which my desires with an increased violence ran in the direction of Honor. (Murdoch 1976:164)
(8) *The time passed with dream-like slowness, and he did not come.*  
(Lawrence 1980:129)

(9) ... *he suddenly found himself thinking back to that day in October when he and the kid had reached this point together, working their heads off in a manic burst of happiness.*  
(Auster 1990:205)

(10) *Yüzlerde okuyacağı ve yavaş yavaş içine gireceği dehşete işte böyle böyle yaklaştanuya başladı.*  
(Pamuk 1996:284)  
*yavaş yavaş iç-i-ne gir-eceğ-i dehşet-e...*  
[slow slow interior-poss:3sg dat enter-future-nom terror-dat... yaklaş-may-a başla-di.]  
*He started approaching the terror just like this, the terror that he would read in the faces of others and he himself would slowly enter into.*)

(11) *Hacının sesi tok, tepesine balyoz gibi iniyor.*  
(Kemal 1997:151)  
*yazı-başla-dı.*  
[Hac-poss voice-poss:3sg thick head-poss:3sg-dat balyoz gibi in-iyor sledge-hammer like descend-present]  
*Hadji's thick voice descends onto his head like a sledge-hammer.*

(12) ... *bir düşünce kafamdan yel gibi geçti, sonra durdum.*  
(Yeğinoğlu 1997:278)  
[yel gibi geç-ti]  
[one thought head-poss:1sg-abl wind like pass-present]  
*‘A thought passed from my head like the wind, then I calmed down.*

The analysis of adverbials and adjectives that encode manner still shows that English speakers pay more attention to the manner dimension of metaphorical motion events as compared to their Turkish counterparts. Even though the difference is not quite as pronounced as in the case of motion verbs – with Turkish novelists making quite an extensive use of adjunct manner expressions – nevertheless, English writers’ use of these manner adjuncts is still significantly higher than that of Turkish writers. Similar results have been reported for literal motion event descriptions in the two languages, with English and Turkish speakers making comparable use of such manner adjuncts (Özçalıskan & Slobin 2001, 2003).

A further analysis of these manner adverbials in the metaphorical descriptions in terms their distribution by motion verb type also shows that they are more likely to accompany manner verbs in English and non-manner verbs (i.e.,
path, neutral) in Turkish. As can be seen in Figure 2, in English 70% of manner adverbials accompany manner verbs, whereas in Turkish only 25% of such expressions come with manner verbs. The significant difference in the distribution of these manner adjuncts between the two languages ($\chi^2(1) = 21.31$, $p < .001$) may suggest that they may perform different functions in the two languages. Turkish speakers use them mainly with path verbs to add manner information, which they cannot easily express in the main verb. In contrast, English speakers use them mainly to strengthen the manner component of their metaphorical motion event descriptions that has already been conveyed by the verb itself. This pattern was also found to be true for literal motion events in the two languages, with English speakers using manner adjuncts predominantly with manner verbs, and Turkish speakers with path verbs in their literal motion descriptions (Özçalıskan & Slobin 2003). Furthermore, earlier research on spontaneous gestures that accompany speech about literal motion events in typologically-contrastive languages pointed to similar tendencies; Spanish speakers (V-language) tended to use gesture as a tool to add manner informa-

Figure 2. Percentage distribution of adverbials of manner by verb type. Percentages were computed by dividing the total number of manner and non-manner verbs with manner adverbials by the total number of motion verbs with manner adverbials. (V: manner = manner verb, V: non-manner = non-manner verb, A: manner = adverbial/adjective encoding manner)
Typological variation in encoding the manner, path, and ground components

4.1 Encoding the MANNER dimension of a metaphorical motion event

4.1.1 Encoding manner in the verb

Analysis of verbs and nominalized verbs of metaphorical motion suggests a clear typological dichotomy in encoding manner. In contrast, English speakers (S-language) used their gestures as a means to modulate the manner that has already been conveyed by a great variety of manner verbs in their speech (McNeill 2000).

In summary, analyses of written texts at the level of motion verbs and other lexical means of conveying manner indicate a clear typological difference between English and Turkish. Overall, English pays greater linguistic attention to the manner dimension of motion events as compared to Turkish. Texts in English not only use a greater amount and variety of manner verbs, but also include various other adjunct manner expressions to strengthen the manner component of metaphorical motion events, which has already been encoded by a great variety of manner verbs.

4.2 Encoding the PATH dimension of a metaphorical motion event

4.2.1 Encoding path in the verb

Analysis of verbs and nominalized verbs of metaphorical motion suggests a clear typological dichotomy in encoding path of motion. As can be seen in Figure 1, novels in Turkish include a significantly higher percentage of path verbs (71%) as compared to novels in English (34%) ($\chi^2(1) = 13.03, p<.001$).

This is an expected result given that Turkish speakers typically conflate path with motion in the main verb of a clause describing a metaphorical motion event, conforming to the lexicalization patterns of their native language.

Of interest, however, the typological effect disappears when we look at the diversity of the path verb lexicon. The number of different types of motion verbs encoding path are comparable in English (20 types) and Turkish (24 types), without any significant differences. The most likely reason for the lack of a difference in the diversity of the path verb lexicon is that path verbs – unlike manner verbs – form a closed lexical category that does not provide many options for elaboration to speakers of either language type. Thus, both languages rely on a limited set of path verb types, but only Turkish speakers use them at higher rates than English speakers due to the lexicalization patterns of their native language. A list of all path verbs observed in the novels in the two languages is provided below.

**English (20 types):** approach, arrive, come, cross, descend, desert, drop, emerge, enter, fall, follow, land, leave, pass, reach, return, spread, stray, trespass, withdraw.

As shown in the above summary, English speakers do not typically encode path of motion in the main verb of a clause, describing a metaphorical motion event. Instead, they express path information using various directional particles and prepositions that are typically attached to a manner verb. The next question then is whether encoding path as a satellite to the verb (rather than in the verb itself) leads to a difference in the linguistic attention paid to path of motion. This is an effect we have clearly observed in encoding manner of motion, where the easier codability of the main verb for manner in English has led to a higher amount and diversity of manner expressions. However, different from manner, path of motion constitutes the core feature of a motion event in any language, even if it is expressed by using different linguistic means (Talmy 1985, 2000). Thus, unlike manner, which is optional, path constitutes an obligatory component of a motion event; and without a path verb or a path satellite, one cannot really talk about a motion event (Slobin 2004). Therefore, both English and Turkish are equally likely to encode this core feature in their metaphorical motion event descriptions, but only via different linguistic means. As the next step, I will look at the expression of path information outside the main verb of a clause in the two languages.

4.2.2 Encoding path outside the verb

English and Turkish use different linguistic means to encode path information outside the main verb of a clause, describing a metaphorical motion event. The typical linguistic devices in English include verb particles (e.g., The conviction drags him down/ in/ out), prepositional phrases (e.g., He runs through/ across/ over many ideas in his mind), and various path adverbials (e.g., closer, further). In Turkish, on the other hand, nouns and noun phrases with directional suffixes (e.g., Düşüncenin içinden geçer ‘idea head’s interior-ABL passes’, Kaşkuya düş ‘doubt-DAT fall’), and postpositional phrases with directional suffixes (e.g., aşk a doğru ilerle ‘love-DAT towards advance) constitute the most typical linguistic means of conveying path information outside the main verb of a clause.
A comprehensive analysis of path satellites in the two languages shows that both English and Turkish use these expressions quite extensively. As can be seen in Table 2, the most commonly used linguistic forms to encode path outside the verb are directional prepositional phrases in English and directional nouns or noun phrases in Turkish. English also tends to use a significantly higher amount of path satellites than Turkish (540 to 440 instances, $\chi^2(1) = 10.20, p<.002$). This is an expected outcome given that Turkish speakers typically encode path information in the main verb of a clause, and thus will be less likely to use path satellites than English speakers. However, at the same time, any further specification of the path of a motion event necessitates path expressions other than the verb itself, which only conveys limited path information (e.g., enter, exit, ascend, descend). The inflectional morphology of Turkish—which allows for easy encoding of path outside the verb—is likely to increase Turkish speakers’ tendency to include additional path information outside the verb as well. Therefore, both languages use a variety of path expressions outside the verb, even at significantly different rates. The patterns observed for metaphorical motion events in the two languages—in terms of both type and token frequency of path verbs—replicate the patterns outlined for literal motion events in earlier work (Özçalışkan & Slobin 1999a, 2003). There is no existing research that looks at the frequency of verbs with path satellites for literal motion events in Turkish, making its comparison to metaphorical motion events untenable at this point. However, the high incidence of verbs with path satellites in Turkish metaphorical events shows close parallels to some other V-languages (e.g., Basque), but not to others (e.g., Spanish, see Slobin 1996). Earlier research on literal motion event descriptions in Basque (a V-language) has also shown high incidence of motion verbs with path satellites (Ibarretxe-Antuñano 2004). Similar to Turkish, Basque also relies on an extensive set of morphemes encoding features of location and direction, which in turn increases Basque speakers’ tendency to encode both the source and the goal of translational motion events outside the verb, using path satellites, even in cases where such information is redundant (Ibarretxe-Antuñano 2004; Slobin 2004). Metaphorical motion descriptions in Turkish seem to follow a similar pattern; they specify either the goal or the source of metaphorical motion, typically by adding nouns or noun phrases with ablative and dative inflections.

Another important typological difference reveals itself at the level of event granularity in expressing complex paths, where S- and V-languages contrast with each other in the number of path segments they attach to a single verb of motion. Earlier work on literal motion has shown that V-languages prefer to
Table 2. Frequency distribution of different types of path expressions in English and Turkish

<table>
<thead>
<tr>
<th></th>
<th>PreP</th>
<th>P</th>
<th>A</th>
<th>NP-suffix</th>
<th>PostP-suffix</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>387</td>
<td>143</td>
<td>10</td>
<td>N/A</td>
<td>N/A</td>
<td>540</td>
</tr>
<tr>
<td>Turkish</td>
<td>N/A</td>
<td>8</td>
<td>1</td>
<td>427</td>
<td>4</td>
<td>440</td>
</tr>
</tbody>
</table>

PreP: directional prepositional phrase, P: verb particle, A: path adverbial, NP-suffix: noun/noun phrase with a directional suffix, PostP-suffix: postpositional phrase with a directional suffix, N/A: not available as an option in the language.

use a series of separate clauses, each with a separate motion verb, to describe the path components of a motion trajectory, while S-languages typically use a series of directional particles and prepositional phrases attached to a single verb of motion to describe a similar motion trajectory (Slobin 1997, 2004). This means, as a V-language, Turkish will be more likely to conform to the pattern exemplified in (13a) by using three separate motion verbs (spread, pass, reach) to describe the different path components of a metaphorical motion trajectory; while English will display a pattern similar to (13b), by compacting several path components into a single motion event (spread from...to...up...to...).

(13) a. Hastalık önce akciğerine yayıldı, sonra kemiklerine geçti, sonra da beyni-ne kadar ulaştı.
   [sickness first lung-poss:3sg-dat spread-past then bone-plu-poss:3sg-dat pass-past then also brain-poss:3sg-dat up.to reach-past]  
   'The illness first spread to his lungs, then it passed to his bones, then eventually it reached up to his brain.'

b. The illness spread from his lungs to his bones and up all the way to his brain.

Analysis of metaphorical motion events in English and Turkish for the expression of complex path segments shows similar patterns as suggested by earlier work on literal motion (Slobin 1997). As shown in Figure 3, English writers have a greater tendency to add multiple path segments to a single verb of motion than Turkish writers. Even though the relative percentage of motion verbs with a single path segment is comparable in the two languages (53% in English, 60% in Turkish), accumulation of more than one path segment per motion verb is found to be relatively infrequent in Turkish. The percentage of
Typological variation in encoding the manner, path, and ground components

Figure 3. Percentage distribution of the number of path segments attached to a single verb of metaphorical motion. Percentages were computed by dividing the total number of motion verbs with none, one, two, three, or more than three path segments by the total number of motion verbs, separately for each language.

Motion verbs with more than one path segment are found to be 15% for English and only 4% for Turkish, revealing a significant difference ($\chi^2(1) = 6.36$, $p < .02$) between the two languages. Some examples from the data with multiple path segments in both languages are provided below (14 to 19, path segments are in bold).

(14) Then she fell back almost voluptuously into a world of undifferentiated flapping things where words were silent and colors became textures. There were blossonings and explosions. From where she had floated far down the coastline of her consciousness, she called out. (Bowles 1966:116)

(15) Her mind stumbled backwards to other embraces of his, and back all the way to that night in Florida years ago. (Oates 1967:244)

(16) It was sharply different from the West, where an evening was hurried from phase to phase toward its close, in a continually disappointed anticipation or else in sheer nervous dread of the moment itself. (Fitzgerald 1986:13)

(17) Kulaklarına uzak bir ut taksimi geliyor sanki, çocukluğundan, gecelerden... (Mungan 1993:54)
Kulak-lar-ı-na uzak bir ut taksim-i
[ear-PLU-POSS:3PL-DAT far.away one lute melody-POSS:3SG
gel-iyor çocuklug-u-ndan gece-ler-den come-PRESENT childhood-POSS:3SG-ABL night-PLU-ABL]
'İt is as if a far away lute melody is coming to her ears, from her childhood, from the nights ...'

(18) O\ck koridor\llarında ç\nlayan sesi, duvarlara, camlara çarpa çarpa yankılanır,
yankılanan korku ba\g\lamamış çocuk yüreklerinden miskin hademe uykul\r\narna yayılır. (Soysal 1996:36)
korku kabuk,ba\g\lamamış çocuk yürek-ler-in-den miskin hademe uyku-lar-ı-na yayılır-dı
janitor sleep-PLU-POSS:3PL-DAT spread-PAST
'Her voice that pitches in the hallways of the school echoes by hitting on the walls and the windows, the echoed fear would spread from the unhardened hearts of children to the lazy sleeps of janitors.'

(19) Menapoz\a giren kad\ınn\a ya\şama co\şkus\u0131 ve taş\kınlı\ği km\anyor; büyükanneli\ği\nin, hanımefendi\gli\inin dar, sıkıcı alan-ın-dan dışarıya doğru at-tiği her adım uygunsez bulunuyor. (Aral 1999:55)
büyükanneli\ğ\i\nin hanımefendi\gli\inin dar sıkıcı [grandmotherhood-POSS:3SG ladyhood-POSS:3SG narrow boring alan-ı-dan dışarı-ya doğru at-tiği her adım area-POSS:3SG-ABL outside-DAT toward take-NOM every step]
'The living joy and exuberance of every woman who entered menopause are condemned: every step that she takes from the narrow and boring area of grandmotherhood or ladyhood towards outside is judged as improper.'

In summary, as shown in the above analysis, path information in a metaphorical motion event is typically conveyed by path verbs in Turkish, and by path satellites in English. The typological difference becomes evident not only in the amount of path satellites speakers use in describing the path components of a metaphorical event, but also in the expression of complex paths. Overall, English speakers use a significantly higher amount of path satellites and show a greater tendency to attach more path segments to a single verb of metaphorical motion than Turkish speakers.
4.3 Encoding the GROUND dimension of a metaphorical motion event

The information about the ground component of a motion event is typically encoded outside the verb in both languages. Most of the times the path segment carries information about the landmark (i.e., ground) as well. Thus, ground can be conveyed with linguistic forms that also encode path, such as directional prepositional phrases or noun phrases with directional suffixes (see examples 14 to 19). However, some linguistic forms may only encode the landmark, but not the direction of motion (i.e., path). Some of these forms include uninflected nouns/noun phrases (e.g., hasta düs ‘fall sick, enter his head’), where the direction of motion is encoded in the verb (e.g., fall, enter) rather than in the noun phrase. Others include noun phrases with locative marking (e.g., kafanın içinde dolaş ‘wander inside-LOC one’s head’), and prepositional phrases that do not encode direction of motion (e.g., swim in happiness). These grounds typically co-occur with activity verbs (e.g., walk, swim, wander, drift) that are non-telic, and that do not encode direction of motion.

<table>
<thead>
<tr>
<th></th>
<th>PreP</th>
<th>NP</th>
<th>NP-suffix</th>
<th>PostP-suffix</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>411</td>
<td>72</td>
<td>N/A</td>
<td>N/A</td>
<td>483</td>
</tr>
<tr>
<td>Turkish</td>
<td>N/A</td>
<td>68</td>
<td>427</td>
<td>4</td>
<td>499</td>
</tr>
</tbody>
</table>

PreP: prepositional phrase, NP: noun/noun phrase with no suffix or with a locative suffix, NP-suffix: noun/noun phrase with a directional suffix, PostP-suffix: postpositional phrase with a directional suffix, N/A: not available as an option in the language

A comparison of English and Turkish for expression of ground information shows that both languages include ground elements at comparable rates (483 instances in English, 499 instances in Turkish) in their metaphorical motion event descriptions, with no significant differences. As can be see in Table 3, the most commonly used linguistic forms to encode ground elements are prepositional phrases in English (411 instances) and noun phrases with directional suffixes in Turkish (427 instances).

Earlier work on literal motion has suggested a typological difference in the expression of motion events with multiple ground elements, where S-languages (e.g., English) are found to be more likely to attach multiple grounds to a single verb of motion than V-languages (Slobin 1997). However, the analysis of metaphorical motion events in English and Turkish suggests otherwise. As can be seen in Figure 4, English and Turkish are found to be almost identical in
the number of grounds they attach to a single verb of motion. Both languages largely use only one ground element per motion verb (64% in English, 67% in Turkish). Attaching two or three grounds to a single motion verb is found to be quite infrequent in both languages, and none of the languages is found to attach more than three grounds to a single motion verb.

The disparity between the findings for literal and metaphorical motion events regarding ground segmentation may be attributable to event type; overall metaphorical motion events may accumulate fewer ground elements than literal motion events due to the added processing load of mapping each of these grounds onto target concepts. Thus, Turkish speakers remain faithful to the pattern that they display in their literal descriptions, producing verbs mainly with zero or one ground element. English speakers, on the other hand, move towards a pattern similar to a V-language, reducing their use of verbs with multiple ground elements, thus reducing the processing load. Some examples of ground expressions from the data are provided below (examples 20 to 27, ground expressions are in bold).
Typological variation in encoding the manner, path, and ground components

(20) “You may be entering the threshold of a new life. A new life, “ he whispered.
(Oates 1967:90)

(21) For what had crossed her mind... was a sexual thought: an imagining, a kind of dimly glimpsed Lacoon embrace of naked limbs. (Fowles 1981:29)

(22) No, no, she would give up her hard bright female power; she was weary of it, stiffened with it: she would sink in the new bath of life, in the depths of her womb and her bowels that sang the voiceless song of adoration.
(Lawrence 1980:144)

(23) She stood there, looking out at the road and the trees swimming in the moonlight. (Bowles 1966:186)

Yorgun düş-tün
[tired fall-PAST]
‘You were exhausted. You fell tired.’

hafta son-lar-ı-nı Dostoyevski Turgenyef ya da
[week end-PLU-POSS:3PL-ACC Dostoyevsky Turgenyev or]
Çehov-un dünya-sın-da geç-ir-me-yi Chekhov-POSS:3SG world-POSS:3SG-LOC pass-CAUS-NOM-ACC
yeği-yor prefer-PRESENT]
‘She prefers to make pass (spend) her weekends in the world of Dostoyevsky, Turgenyev or Chekhov.’

(26) Ölüncmeye kadar mutluluklar içinde yüzeceksiniz bahçecreisi Temel Reis gibi. (Kemal 1997:197)
Mutluluk-lar iç-in-de yüz-ecek-siniz
[happiness-PLU inside-POSS:3SG-LOC swim-FUTURE-2PL]
‘You will swim inside happiness until you die, like the fisherman Temel Reis.’

(27) Onların tatsız ve yavan masallarının değil de, kendi hayallerimın bahçesinde gezinmekten öyle memnundum ki, koltukta sehpaya doğru uzanın ince bacaklarınız, zavallı ayaklarınız bile zevgile bakıyors, dumanını tavana işlendik şehir gibi ağzımı gottürüp getiren beceriksiz ve çirkin elimi bile horgörüyle süzüyordum. (Pamuk 1996:174)
hayal-ler-im-in bahçe-sin-de gezin-mek
[dream-PLU-POSS:1SG-POSS:3SG garden-POSS:3SG-LOC wander-INF]
'I was so content with wandering in the garden of my dreams instead of the garden of their ugly and distasteful tales that I was gazing at my thin legs that were stretching from the chair to the coffee table, and my poor feet with love, and I was scrutinizing my clumsy and ugly hands with approval that were bringing the cigarette back and forth to my mouth, which I puffed to the ceiling.'

In summary, the analysis of ground elements in English and Turkish shows that both languages encode ground information at comparable rates, with no significant differences in either the amount of ground expressions produced in the two languages, or the number of ground expressions attached a single verb of metaphorical motion.

5. Conclusions

The paper compared lexicalization options provided by an S-language (i.e., English) and a V-language (i.e., Turkish) in their metaphorically extended uses of motion events. Turkish and English differ in their preference to encode path of motion in either a verb (e.g., enter, exit, ascend, descend), or an associated satellite to the verb (e.g., run in/ out/ up/ down), respectively. The preference to encode path information in or outside the verb has significant effects on the relative codability of other semantic components of a motion event. The paper focused on three of these semantic components – namely manner, path, and ground – all of which had been shown to display typological variation in linguistic expression in the two languages for literal motion events. The paper investigated if typological differences observed for literal motion events extend to the metaphorical uses of motion in space, and whether the degree of codability of a motion event component has an effect on its relative extent of expression in the two language types. The data included randomly chosen instances of metaphorical motion events from novels originally written in English or Turkish.

The analysis showed a strong typological difference between English and Turkish in their lexicalization of metaphorical motion events. English writers expressed manner of motion typically in the main verb of a clause and conveyed path information by path satellites; whereas Turkish writers used the main verb slot mainly to encode path information. The difference in encoding path of motion in or outside the verb had a significant effect on the relative
degree of expression of manner of motion in English and Turkish. Overall, English writers, in comparison to Turkish writers, encoded manner of motion at a higher rate, in terms of both token and type frequency of manner-of-motion verbs, as well as a more elaborate use of various other lexical means of indicating manner. Thus, the data suggested that the codability of a semantic dimension has an effect on its extent of expression in the language. In contrast to Turkish, in English, manner of motion constitutes a highly codable motion event component that can be expressed by a high frequency lexical item such as the main verb (Slobin 2003), and the higher codability of manner in the verb has a spill over effect on the choice of other lexical items. Since English speakers can easily encode manner in the verb and use this option extensively, the manner dimension becomes a conceptually salient category for them. Thus, English speakers use not only a higher rate and variety of manner verbs, but also a greater amount of other lexical items that encode manner (adverbials), pointing to their greater awareness of this dimension as a salient conceptual category.

Unlike manner of motion, the two languages were comparable in their extent of expression of path information, with Turkish using a significantly higher percentage of path verbs and English using a significantly higher amount of path satellites in their metaphorical motion event descriptions. Analysis of the data for overall patterns of manner and path expressions showed that 63% of all metaphorical motion event descriptions in English contained some indication of manner (i.e., a manner verb or a manner adverbial attached to a non-manner verb), whereas in Turkish only 24% of metaphorical motion events carried some manner information. On the other hand, the percentage of metaphorical motion event descriptions that contained some indication of path (i.e., a path verb or a path satellite attached to a manner or neutral verb) was almost the same for the two languages (81% for English, 84% for Turkish), suggesting the conceptual salience of path information for speakers of both language types (see Figure 5). This is an expected outcome given that path of motion, unlike manner, constitutes the core feature of a motion event (Talmy 2000) – be it literal or metaphorical – and is likely to be encoded by speakers of both languages, even by different linguistic means.

The typological effect in encoding path of motion became evident in the expression of motion events with complex path segments, where English had a significantly higher incidence of multiple path segments attached to a single verb of motion than Turkish. Earlier work on literal motion (e.g., Slobin 1996) attributed this difference to the “boundary-crossing constraint.” In V-
languages crossing a physical boundary (i.e., go across, in or out of a bounded region) is conceived of as a change of state, and each change of state requires an independent motion predicate in such languages (Aske 1989; Slobin 1996). Therefore, in a language like Turkish, speakers are more likely to introduce a new motion predicate when they have to convey boundary crossing, thus decreasing their chances of accumulating multiple path segments attached to a single verb of motion. This could be one likely explanation for the difference in the expression of complex path segments in metaphorical motion event descriptions in English and Turkish. On the other hand, the two languages did not differ in the number of ground elements they attached to a single verb of motion. My contention is that the availability of an extensive set of directional verb particles in English (e.g., in, out, up, down) that only encode path, but not ground information, allowed English speakers to add multiple path segments – but not ground elements – to a single motion predicate in their metaphorical descriptions. Turkish does not have such an extensive system of verb particles, and thus Turkish writers were less likely to attach more than

Figure 5. Percentage distribution of metaphorical motion events with manner or path information. Percentages were computed by dividing the total number of motion events with any indication of manner (i.e., a manner verb or a manner adverbial) or path (i.e., a path verb or a path satellite) by the total number of motion events, separately for each language.
one path segment to a single verb of motion than English writers. Overall, the
data clearly showed that typological differences observed in the lexicalization
of literal motion events extend to the metaphorical uses of the lexicon.

The data also pointed to some similarities between English and Turkish,
especially in encoding path and ground elements. The percentage of motion
verbs carrying one path or ground element is found to be comparable in
the two languages. This finding contrasts with data from another V-language,
namely Spanish, which has a greater tendency to have verbs with no accompa-
nying ground elements (Slobin 1996), suggesting the potential effect of intra-
typological variation in the lexicalization of motion events. The inflectional
morphology of Turkish seems to play a role here; the dative, locative and abla-
tive morphemes in Turkish make it possible to encode further details about the
path or ground components of a metaphorical event outside the verb. Thus,
a more in-depth analysis of the interaction between the patterns of lexical
conflation and morphosyntax seems necessary for a more complete account
of typological similarities and differences within and between typologically
contrastive languages.

Notes

1. The satellite-framed construction type applies to Germanic, Slavic and Finno-Ugric lan-
guages. Verb-framed languages include Turkic, Semitic, and Romance languages, along
with Japanese, Korean, Basque, and American and Netherlands signed languages (Slobin
1997, 2003). In his revision of the typology, Slobin (2004) also adds another category
of languages – which he called equipollently-framed languages, and these include serial
verb (Niger-Congo, Hmong-Mien, Sino-Tibetan, Tai-Kadai, Mon-Khmer, Austronesian),
bipartite verb (Alegonquian, Athabaskan, Hokin, Klamath-Takelman), and Jaminjungan
languages.

2. The typological dichotomy as presented in this paper, provides a general outline, without
going into an in-depth account of some of the more recent attempts to revise the binary
typology. This is mainly because English and Turkish – as demonstrated by earlier work on
literal motion – constitute good exemplars of the two language types in terms of the typo-
logical distinctions outlined by Talmy. For the interested reader, however, some of the more
recent work suggests a revision of Talmy's typological dichotomy, by ranking languages on
a continuum of manner salience rather than assigning them to one of the two typological
categories (Slobin 2004). Some languages even show patterns characteristic of both lan-
guage types (e.g., serial-verb languages, bipartite verb languages), suggesting a trichotomy
of language types (Slobin 2004).
3. Some metaphorical motion event descriptions included multiple verbs of motion, and these additional motion verbs were also included in the counts.

4. Some of these manner of motion verbs also encode ground (e.g., fly, swim) or path information (e.g., plunge, soar), along with manner. The author classified such manner-path or manner-ground conflated verbs as manner verbs for both languages, following earlier work on literal motion (e.g., Özçalıskan & Slobin 1999a, b, 2000a, b). Thus, the category of manner verbs includes both bare manner verbs, manner verbs conflated with path, and manner verbs conflated with ground. The category of path verbs, on the other hand, includes only bare path verbs (i.e., verbs that only encode direction of motion). There is no separate category of ground verbs, because no instance of motion verb was observed that only encoded ground information, except for a few that encoded both manner and ground (e.g., sink, swim, fly). And these few instances are subsumed under the category of manner verbs. Lastly, the category of neutral verbs include verbs that do not indicate either direction, manner, or ground information (e.g., go, move).

5. As pointed out earlier (Note 4), both languages use a few verbs that encode ground information along with manner (e.g., sink, soar, fly, bat ‘sink’, yüz ‘swim’). The occurrence of these verbs is fairly limited and comparable in the two languages. Therefore, no separate analysis of such verbs is conducted in the paper.

6. There is no existing work that has looked at the relative amount of ground information encoded in the two languages for literal motion events, thus no comparison is possible at this time.

References


Typological variation in encoding the manner, path, and ground components


Source texts

Typological variation in encoding the manner, path, and ground components


Appendix: List of abbreviated morphemes

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABIL</td>
<td>abilitative suffix</td>
</tr>
<tr>
<td>ABL</td>
<td>ablative suffix (from)</td>
</tr>
<tr>
<td>ACC</td>
<td>accusative suffix</td>
</tr>
<tr>
<td>CAUS</td>
<td>causative suffix</td>
</tr>
<tr>
<td>CONV</td>
<td>converb suffix</td>
</tr>
<tr>
<td>DAT</td>
<td>dative suffix</td>
</tr>
<tr>
<td>FUTURE</td>
<td>future tense suffix</td>
</tr>
<tr>
<td>INF</td>
<td>infinitive suffix</td>
</tr>
<tr>
<td>LOC</td>
<td>locative suffix</td>
</tr>
<tr>
<td>NEG</td>
<td>negation suffix</td>
</tr>
<tr>
<td>NOM</td>
<td>nominalization suffix</td>
</tr>
<tr>
<td>POSS</td>
<td>possessive suffix (suffix varies by subject type)</td>
</tr>
<tr>
<td>POSS:1SG</td>
<td>first person singular possessive suffix</td>
</tr>
<tr>
<td>POSS:3SG</td>
<td>third person singular possessive suffix</td>
</tr>
<tr>
<td>POSS:1PL</td>
<td>first person plural possessive suffix</td>
</tr>
<tr>
<td>POSS:2PL</td>
<td>second person plural possessive suffix</td>
</tr>
<tr>
<td>POSS:3PL</td>
<td>third person plural possessive suffix</td>
</tr>
<tr>
<td>PLU</td>
<td>plural suffix</td>
</tr>
<tr>
<td>PASSIVE</td>
<td>passive voice suffix</td>
</tr>
<tr>
<td>PAST</td>
<td>past tense suffix: simple past or past progressive</td>
</tr>
<tr>
<td>PRESENT</td>
<td>present tense suffix: generic or present progressive</td>
</tr>
<tr>
<td>Q.TAG</td>
<td>question tag</td>
</tr>
<tr>
<td>1SG</td>
<td>subject suffix: first person singular</td>
</tr>
<tr>
<td>2SG</td>
<td>subject suffix: second person singular</td>
</tr>
<tr>
<td>3SG</td>
<td>subject suffix: third person singular</td>
</tr>
<tr>
<td>1PL</td>
<td>subject suffix: first person plural</td>
</tr>
<tr>
<td>2PL</td>
<td>subject suffix: second person plural</td>
</tr>
<tr>
<td>3PL</td>
<td>subject suffix: third person plural</td>
</tr>
</tbody>
</table>
Author’s address

Şeyda Özçalıskan
University of Chicago
Department of Psychology
5848 S. University Avenue G-317
Chicago, IL 60637
seyda@uchicago.edu

About the author

Şeyda Özçalıskan received her PhD in Developmental Psychology from the University of California, Berkeley in 2002. She currently works as a research associate at the University of Chicago. Her primary research area is spatial language and cognition, with a focus on how children learn to talk and think about literal and metaphorical motion. Her more recent work deals with spontaneous gestures produced online when talking about literal and metaphorical motion in typologically contrastive languages.