

Assigning meaning to light verbs in Turkish

Duygu Özge¹, Gülten Ünal², İsa Kerem Bayırlı³

ORCID: ¹0000-0002-1698-5479, ²0000-0003-1000-952X, ³0000-0002-5413-1837

¹ODTÜ Yabancı Diller Eğitimi Bölümü 06800, Ankara

²Ankara Yıldırım Beyazıt Üniversitesi 06010, Ankara

³TOBB Ekonomi ve Teknoloji Üniversitesi 06560, Ankara

¹duyguozge@gmail.com, ²gunal@ybu.edu.tr, ³ibayirli@etu.edu.tr

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ABSTRACT: Light verb constructions (e.g., give a kiss to somebody) syntactically reflect typical ditransitive structures (e.g., give a violin to somebody) yet it is not clear whether these two structures thematically similar as well. We tested Turkish-speaking adults on their construal of light verb constructions with respect to the number of thematic roles¹ they perceive in the event structure in a rating study. The light verb *give* with a different noun phrase was used in all critical utterances (e.g., *give a response* or *give an assignment*). The noun phrases of these constructions denominalized either by -IA or -IAn+dIr morpheme (e.g., *response-IA* and *assignment-IAn+dIr*) were also used as control items. The study concluded that the light verbs with their noun phrase complements contribute to the semantic construal of the event structure and the thematic role assignment processes for the denominalized versions of these structures reflect this meaning construal.

Keywords: light verbs, Turkish, interpretation of light verbs, thematic roles

Türkçede katkısız eylemlere anlam atanması

ÖZ: Katkısız eylemlerle kurulmuş yapılar (örn., birisine yanıt vermek), sözdizimsel olarak çift geçişli (örn., birisine keman vermek) yapılarla

¹ Throughout the text, we use the terms *argument roles*, *semantic roles*, and *thematic roles* interchangeably for ease of reading with no theoretical implications.

benzemektedir; ancak, bu yapıların tematik yapıları bakımından benzer olup olmadıkları tartışma konusudur. Katkısız eylemlerin anlamlandırılma süreçlerinde Türkçe konuşan yetişkinlerin, bu ifadelerin tematik yapısını nasıl kurduklarını ve olayı kaç tematik ögeden oluşan bir olay olarak tahayyül ettiklerini ortaya koymak amacıyla anadili Türkçe olan katılımcılara bir değerlendirme çalışması uygulanmıştır. Bu çalışmada, katılımcılar kendilerine verilen farklı sayıda ögesi olan ifadeleri okumuş ve her bir ifadede kaç eleman olduğuna karar vermişlerdir. Çalışmadaki tüm kritik ifadelerde *vermek* katkısız eylemi farklı bir ad öbeği (örn., *yanıt vermek* ve *görev vermek*) ile birlikte kullanılmıştır. Bu ad öbeklerinin iki farklı biçimbirimle (*-IA* ve *-IAn+dIr*) eylemleştirilmiş versiyonları (örn., *yanıtlamak* ve *görevlendirmek*) karşılaştırmak amacıyla kullanılmıştır. Sonuç olarak, katkısız eylemlerin birlikte kullanıldıkları ad öbekleriyle birlikte olay yapısının anlamlandırılmasına katkı sunduğu ve bu yapıların eylemleştirilmiş versiyonlarındaki biçimbirimlerin bu anlam bileşenini yansıttığı bulgulanmıştır.

Anahtar sözcükler: Türkçe, katkısız eylemlerin işlenme süreçleri, katkısız eylemlerde tematik yapı

1 Introduction

Give a hug, give a kiss, give an answer are examples of light verb constructions that have recently sparked a psycholinguistic interest as structures making possible the experimental investigation of syntax-semantic mapping theories (for a review see, Wittenberg and Snedeker, 2014). Light verbs mimic in their surface syntax ditransitive constructions encoding a transfer/change of possession such as *Defne gave the violin to Onur*. Such a structure is syntactically composed of a subject, a direct object, and an indirect object, which semantically corresponds to a possessor (*Defne*), a theme (*the violin*), and a recipient (*Onur*), so there is a one-to-one mapping between the syntactic and the semantic roles in these structures. For light verbs, on the other hand, it is not so clear whether there is a similar one-to-one syntax-semantics correspondence. That is, given a light verb construction like *Defne gave a kiss to Onur/Defne gave Onur a kiss*, it is under discussion whether we perceive this as a predicate with two semantic roles assigning the subject (*Defne*) the agent role and the indirect object (*Onur*) the recipient role while leaving the role of the direct object (*a kiss*) vacant or we perceive it as a predicate with three semantic roles where the direct object receives the theme role. Assigning two roles would make it semantically similar to the non-light² version of the sentence *Defne kissed Onur* that depicts a kissing

² When we use the term *non-light version of a light verb construction*, we adopt the terminology used in Wittenberg and Snedeker (2014) and refer to the denominalized form

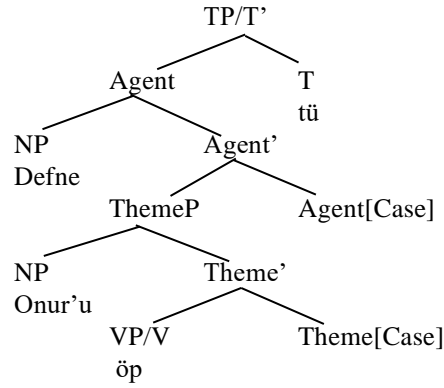
event assigning the subject the agent role and the object the theme role. Assigning three roles, on the other hand, would make it similar to a typical transfer of possession event assigning a possessor, recipient, and a theme role, respectively.

The first perspective is what we will refer to as two-semantic-role accounts, which include the canonical mapping accounts such as Hale and Keyser (1993) and non-canonical accounts such as Jakendoff (1997; 2002) and Culicover and Jakendoff (2005). According to the canonical mapping accounts, the syntax of the light verbs canonically reflects their semantics. Hale and Keyser (1993) state that a light verb construction (*give a kiss*) is a lexical item composed of a light verb (*give*) that does not occupy a regular verb position in the syntactic tree but it is instead treated as an abstract verb (an empty placeholder) into which the nominal complement (*a kiss*) is incorporated. Therefore, it is the nominal complement that determine the meaning and the valence of the resulting light verb structure, generating only two semantic roles (agent and theme/patient). Öztürk (2005, 2009) provides a two-semantic-role account for light verb constructions in Turkish that is a version of the canonical mapping approaches. Adopting a Neo-Davidsonian model for theta-role assignment, Öztürk argues that both case assignment and theta-role assignment in Turkish are mediated via functional heads in the extended projection of the verb. In a sentence like (1), with two case-marked NPs, the assignment of the ACC case and the THEME theta role are modulated by a functional projection, ThemeP, which hosts the theme NP in its specifier. Similarly, the assignment of the NOM case and the AGENT theta-role are achieved with the help of AgentP. The syntactic representation of (1), under these assumptions, is shown in (2).

- (1) Defne-Ø Onur-u öp-tü
 Defne-NOM Onur-ACC kiss-PST
 ‘Defne kissed Onur.’

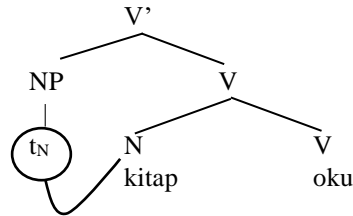
of the noun phrase complement of the light verb (i.e., *give a kiss* is a light verb construction while *kiss* is the non-light version of this construction).

(2)



As far as bare objects are concerned, one line of research analyzes them as being incorporated into the verb via N-to-V head movement (see Baker 1988 on head incorporation, see Knecht, 1986; Kornfilt, 1995, 2003 for various applications of this idea to bare objects in Turkish). Under such an analysis, a bare object forms a head-chain with the verb that it is associated with. An expression like *kitap oku*, which contains the bare object *kitap* ‘book’ and the lexical verb *oku* ‘read’, has the representation shown in (3).

(3)



Öztürk (2005, 2009) provides various arguments against such an analysis. Firstly, Öztürk observes that focus sensitive participles like *DA* ‘also’ and *bile* ‘even’ and the question particle *mı* can intervene between the head noun and the verb, as in (4) (Taylan, 1984). This suggests that the noun and the verb does not form a morphological unit as expected under a head movement analysis.

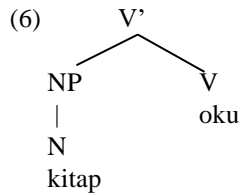
(4) Ali kitap mı okudu?
 Ali book Q read.PST
 ‘Did Ali read BOOK?’

Secondly, conjunction of two bare nouns to the exclusion of the verb is possible in Turkish, as in (5). The availability of such a coordination

construction is not expected under a head-movement analysis of bare (i.e. non-case-marked) objects.

- (5) Ali kitap ve dergi okudu
 Ali book and magazine read.PST
 ‘Ali read books and magazines.’

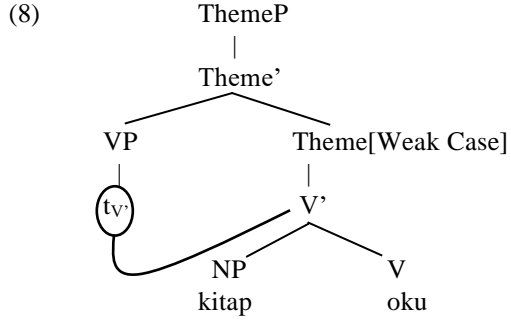
Öztürk argues that bare objects in Turkish exemplify a phenomenon known as pseudo-incorporation (Massam, 2001), where bare objects project a phrasal category, NP, and the NP projection of a bare object is licensed as a consequence of being sister to a verbal head. That is, the expression *kitap oku* ‘book read’ has the syntactic representation given in (6).



Observe that the bare object *kitap* is not introduced at the specifier of ThemeP but, instead, it is licensed as a sister to the verbal head, forming a complex predicate with it. This means that we can introduce an additional theme argument to a sentence containing this complex predicate. That is, (7) is expected to be an acceptable sentence of Turkish. This prediction is not borne out, however.

- (7) *Ali Anna Karenina'yı kitap okudu.
 Ali Anna Karenina-ACC book read.PST

In order to account for this observation (among others), Öztürk (2005) claims that ThemeP is introduced in the presence of (some) bare objects, too. The only difference is that the Theme head in the context of a bare object has a weak case feature (de Hoop, 1996), which can only be checked by nouns that lack an overt case morpheme. That is, an ACC-marked noun cannot check the weak case feature on the Theme head that we find in the context of bare nouns. The complex predicate [_V NP+V] undergoes movement to the Theme head as a result of which the weak case feature is checked and the NP inside V' obtains the THEME theta role.



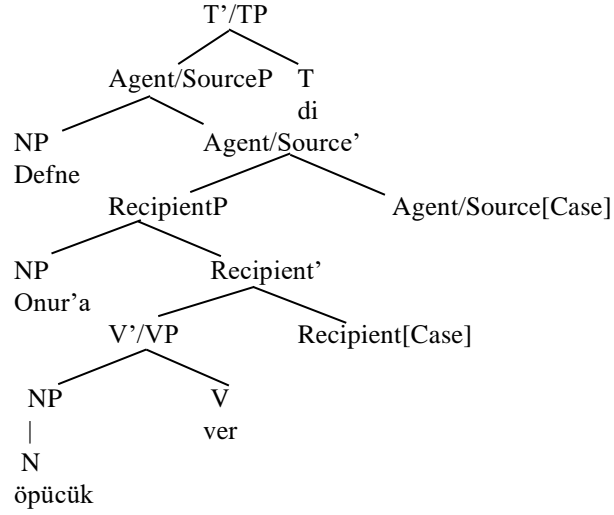
Returning now to light verb constructions, we first observe that focus sensitive participles can intervene between the noun and the light verb, too (9). This suggests that light verbs do not form head-chains with non-case-marked nouns.

- (9) Defne Onur'a öpücük mü verdi?
 Defne Onur-DAT kiss Q give.PST
 'Did Defne give a kiss to Onur?'

Öztürk argues that light verb constructions differ from other typical cases of pseudo-incorporation in that bare nouns inside light verb constructions cannot check the weak case feature, as a result of which they are not given any theta role. Under this assumption, the sentence in (10), which contains the light verb construction *öpücük ver* 'give a kiss', has the analysis shown in (11).

- (10) Defne Onur'a öpücük verdi.
 Defne Onur-DAT kiss give.PST
 'Defne gave a kiss to Onur.'

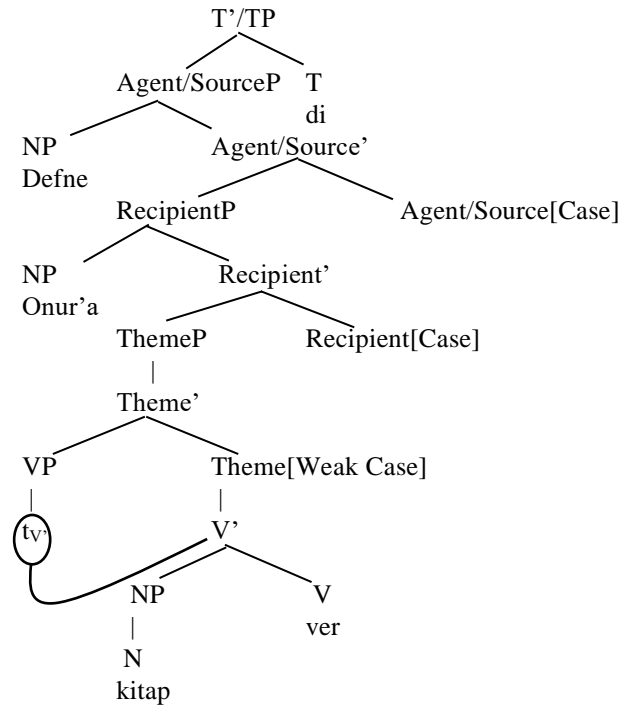
(11)



The minimal difference between light verb constructions and typical cases of pseudo-incorporation is that in the latter, the verbal complex involving the bare noun moves to the Theme head to check the weak-case feature, as a result of which the bare noun obtains a theta role. Given this difference, we see that the sentence in (12) has the representation in (13).

- (12) Defne Onur'a kitap verdi.
 Defne Onur-DAT book give.PST
 'Defne gave a book to Onur.'

(13)



The analyses that we have described exemplify a two-semantic role account of light verb constructions with canonical mapping. Non-canonical mapping accounts, on the other hand, suggest that the semantic roles in light verbs are bleached or blurred (for different reasons depending on the theory). This means that not all of the observed surface syntactic roles could find a correspondence at a semantic level, resulting in a non-canonical mapping between semantics and syntax. For instance, according to the co-event hypothesis (Wittenberg, et al., 2014) modelled after Jakendoff's parallel architecture framework (Jakendoff, 1997; 2002; Culicover and Jakendoff, 2005), the nominal complement acts as a co-event of the light verb, which together act as a single semantic constituent assigning thematic roles based on the semantics (not syntax) of this construction as a whole (i.e., light verb + nominal). Both of these perspectives would assume only two semantic roles (agent and theme/patient) for light verb constructions.

Different from canonical and non-canonical mapping accounts, one other perspective would assume three-semantic-roles in light verb constructions. According to Bruening (2016), for instance, light verbs are just like regular verbs whose external argument 'controls the logical external argument of the

nominal' that is a regular eventive count noun (p. 57). Therefore, in '*X gives Y a kick*, *X* is the external argument of *give* and controls the external argument of *kick*' (i.e., *X*) (p. 57), which results in double-argument roles for the latter (i.e., the logical external argument of the nominal; *X*), namely the theme and the beneficiary. This control perspective therefore results in a three-role perspective for the light verb constructions (e.g., in *Defne gave Onur a kiss*, *Defne* would be the agent, *Onur* would be the beneficiary/theme, and *a kiss* would be the theme).

Previous experimental studies showed that although light verb constructions are judged as two-participant events most of the time, this pattern is not consistent given that there are cases where some light verbs are grouped as having three participants (Wittenberg & Snedeker, 2014). This indicates that the syntactic structure does have some influence on event construal. In line with this, Wittenberg & Snedeker's (2011) priming study showed that light verb ditransitive structures were not different from typical ditransitives in terms of their ability to prime ditransitives, suggesting a similar syntactic structure in these constructions. However, inconsistency in thematic role assignment strategies in light verbs also indicate that the mapping between semantics and syntax is not as straightforward in these constructions as in typical ditransitive constructions. Online studies using reaction time or ERP methodologies support this by revealing that light verb constructions pose more processing cost compared to typical ditransitive constructions (Embic, Hackl, Schaeffer, Kelepir, & Marantz, 2001; Pinango, Mack, & Jakendoff, 2006; Wittenberg & Pinango, 2011).

On the basis of the inconsistent interpretation of the light verb constructions as two- or three-argument structures reported in Wittenberg & Snedeker (2014), we conjecture that the meaning contributed by the light verb may not be totally vacant. In line with this, Bruening (2016) argues that the argument properties of the light verb constructions are not specified by its complement noun phrase as suggested by theories assuming complex predicate formation for the light verb structures (e.g., Jackendoff, 1974; Grimshaw and Mester, 1988; Butt, 1995; Goldberg, 1995) but these are specified by the verb itself. According to him, the noun phrase complement in the light verb constructions is similar in all manners to any event-denoting count noun and does not play a direct role in the determination of the argument roles (Bruening, 2016). First, the noun phrase of a light verb construction can appear as a noun phrase of a contentful verbs (e.g., *Take a careful look at this* vs. *I recommend a careful look at this*). Second, the noun phrase in the light verb construction is not necessarily indefinite all the time (e.g., *She gave the kind of sight that is the result of extreme disappointment*). Third, the noun phrase in the light verb construction can be passivized or relativized like any other noun phrase (e.g., *A deep sight was given as she slowly lay in the sand*; *She gave him a well-earned pat on the back*). Fourth, the light

verb and its noun phrase may allow conflicting adverbials (e.g., *The man's wings slowly gave a quick flap*), so they do not form a single event or a single predicate. Fifth, the noun phrase in the light verb construction can be a bounded and enumerable eventive noun phrase (e.g., *He gave a grunt; He gave two quick grunts* cf., *He grunted*). These features also hold for Turkish light verb 'ver' except for the fourth feature. To illustrate, the noun phrase of a light verb construction can appear as a noun phrase of a contentful verb (*Gazeteciler bakandan yanıt bekliyor; Gazeteciler plazadan görev istiyor*), it can be definite (*Bakan gazetecilere bekledikleri yanıtı verdi; Plaza görevi bir gazeteciye verdi*), it can be passivized or relativized (e.g., *Gazetecilere verilen yanıt herkesi şaşırttı*), and it can be a bounded and enumerable eventive noun phrase (e.g., *Bakan gazeteciye iki çelişen yanıt verdi*). For Turkish, different from English, using two conflicting adverbials modifying the noun and the light verb separately creates semantic anomaly (e.g., *Bakan gazeteciye iki hızlı yanıtı yavaşça verdi*). Bruening (2016) further claims that light verbs should be analyzed as a subcategory of obligatory control verbs and the arguments of the complement of the light verb are controlled by the arguments of the verb. The external argument of the light verb also controls the external argument of the noun phrase and the underlying internal argument of the of the light verb will control the internal argument of the light verb. In '*X gave Y a kick.*', *X* is the external argument of *give* and it is the one who *kicks* and *Y* is the internal argument of *give* and it is the one who is *kicked*. Yet, in control structures, the controller fills in two argument roles at the same time, so in these constructions *Y* is the benefactive of the verb and the patient of the kicking event. If the noun phrase has no logical internal argument as in '*X gave us a giggle*', the internal argument of the verb does not control anything and it is interpreted as the benefactive. Therefore, the noun phrase of the light verb seems to have a role in determining the argument structure but this feature actually comes from the fact that its arguments are controlled by the arguments of the light verb. In this account, there is no need for a separate grammatical category as a 'light verb', any specifications that would work for obligatory control verbs would also work for the light verbs. This perspective would expect that the semantics of the non-light version (e.g., *kick*) of the light verb (e.g., *give a kick*) is reflected in the determination of the argument roles in the light verb constructions while the light verb (e.g., *give a kick*) also exerts its argument role expectations as if it is a regular verb (e.g., *give a present*). This would predict processing difficulty in the interpretation of light verb constructions. The need for analyzing the noun phrase complement as an eventive one with control and assigning multiple thematic roles for the same argument would also be costly and this may cause the parser to assign inconsistent argument roles to the arguments in the light verb constructions (i.e., assuming an argument structure that is similar to the regular version of the verb – e.g., *give a present*) or assuming an argument structure that is similar to the

verb version of the eventive noun phrase (i.e., non-light version) – e.g., *kick somebody*).

To our knowledge, the empirical plausibility of Bruening’s (2016) account has not been tested so far. This study aims to fill this gap by investigating how speakers interpret Turkish light verb constructions, which have hardly received any attention in the previous research. Bruening (2016) predicts that double thematic roles would be assigned for light verb constructions as a consequence of the two distinct selectional requirements of the light verb and its noun complement. This is in direct opposition to two-semantic role accounts, which consistently predict regular reflection of the selectional requirements of the noun phrase complement without any influence of the light verb itself.

Turkish light verb constructions are similar to English in that a light verb that such as *ver-* (*give*) (e.g., *görev vermek*), *et-* (*do/make*) (e.g., *yardım etmek*), *at-* (*throw*) (e.g., *yalan atmak*) is combined with nominal complement to form a complex predicate (Uçar, 2010). Here we only focus on one of these light verbs *ver* (*give*). This light verb has also been tested in English, so we can provide a cross-linguistic comparison. The light verb *ver* (*give*) is a ditransitive construction syntactically similar to a transfer of possession verb *ver* (*give*) so it enables us to test whether they are also similar with respect to their thematic structure. The non-light version of this light verb (i.e., denominalized versions of the eventive noun phrase complements of the light verb) is formed by an attachment of a verb-deriving suffix to the nominal, two of which (-IA and -lAn+dIr) are exemplified in (14) and (15).

(14) Type 1 Light Verbs formed with *vermek/to give* requiring -IA on their non-light version

a. Öğrenci öğretmen-e yanıt ver-di.
student-NOM teacher-DAT answer give-PST
‘The student gave an answer to the teacher.’

b. Öğrenci öğretmen-i yanıt-la-dı.
student- NOM teacher-ACC answer-IA- PST
‘The student answered the teacher.’

(15) Type 2 Light Verbs formed with *vermek/to give* requiring -lAn+dIr on their non-light version

a. Öğretmen öğrenci-ye görev verdi.
teacher-NOM student-DAT assignment/position give-PST
‘The teacher gave an assignment to the student.’

- b. Öğretmen öğrenci-yi görev-len-dir-di.
 teacher-NOM student-ACC assignment-*lAn*-CAUS-PST
 ‘The teacher assigned the student a task.’
 (Lit: The teacher made the student to have an assignment).

It is not exactly clear on what basis each of these verbal morphemes are assigned. It is our intuition that while *-lA* can be analyzed as marking the direction at which the object/idea is transferred (e.g., *yanıt-la-dı* in (14b), where the response is directed at the teacher), *-lAn+dIr* is composed of two suffixes marking endowment and causation (i.e., causative) respectively (i.e., compositionally meaning *making somebody be endowed with something*; e.g., *görev-len-dir* in (15b), where the student was endowed with an assignment or a position). It may be the case that although the former (i.e., *-lA*) leads to a more abstract meaning (i.e., *marking the direction of an abstract entity*; e.g., *response, answer, support, desire, impression*), the latter (i.e., *-lAn+dIr*) could have both an abstract and a concrete transfer of possession meaning (i.e., *making somebody possess something*; e.g., *position, prize, courage, worry, hope*). The causative suffix in *-lAn+dIr* might also be influencing our interpretation of these events similarly to other transfer of possession events. This semantic distribution between *-lA* and *-lAn+dIr* holds for our test items as well. If our intuition and observation is correct, then we might observe a difference between the two-types of light verb constructions with respect to the number of roles assigned to them despite the fact that both types of constructions are formed by the very same light verb (*give*). Hence, we wanted to control for this factor in our experiment.

To summarize, our aim for this study is two-fold. First, we aim to investigate different mapping accounts in a language whose light verb constructions are under-studied, and particularly address Bruening’s (2016) account in relation to two-participant-role accounts. While the two-participant-role accounts would expect no difference between light-verbs and their non-light versions, Bruening’s (2016) account would expect greater number of three-role assignments for light verb constructions compared to their non-light versions and more inconsistencies in the assignments of argument roles in general. Neither of these accounts would expect to see any effect of the semantic field in which the light verb and its NP complement belongs to and any related systematicity between these semantic fields and the denominalizing morpheme used to turn these NP complements into a non-light verb. Second, we aim to test this possibility and see if the morpheme on the verb version of the eventive NP complements of the light verb (*give an answer/yanıt vermek – answer-lA/yanıtla; give a task/görev ver – task-lAn+dIr/ görev-len-dir*) would influence the argument roles to be assigned to the light verbs. If this is the case, then we would expect the two types of light verb constructions to have different semantic contributions to the thematic structure.

2 Experiment Methods

2.1 Participants

This study used the convenient sampling for participant selection, as most of the psycholinguistic or cognitive psychology studies. A total of 200 undergraduate students participated in this study in exchange for course credit. Because of incomplete (51 participants) or spending more than 1 hour to complete the test (7 participants), finally 142 participants (%16.2 male; $M_{age} = 22.15$, $SD = 1.47$) remained. These participants were students either at a Language Teaching (FLE; % 52.8) or the Psychology departments of two state universities in Ankara (METU and Ankara Yıldırım Beyazıt University). The former group of participants had taken two introductory-level linguistics courses prior to their participation in this experiment while the latter group had no such background. This is why, we will also report whether their background (i.e., whether or not they have linguistic knowledge) would influence their perception of thematic roles for light verb constructions.

2.2 Materials and Procedure

Our test items were composed of 16 critical items (see Appendix 1) and 44 control items (see Appendix 2), so we had 60 items in total.

The critical items included the 8 light verb constructions that were formed with the same light verb *give* but composed of a different noun complement (e.g., *yanıt vermek*, *cevap vermek*, *destek vermek*, *selam vermek* vs. *görev vermek*, *cesaret vermek*, *kaygı vermek*). All light verbs required a dative case on its direct object and all of the nominal complements in the light verb constructions had a logical object. For instance, in *X gave Y a kiss*, the nominal complement *kiss* is logically directed at/sent to the object argument *Y* but this is not the case in a structure like *give a giggle*. Also, we controlled for the animacy and concreteness of all of our items for consistency, as well as ensuring that all critical items had singular subjects.

We also included 8 items where the verb was the denominalized form of the noun complement of the light-verb construction whose denominalization was carried either with -IA or -IAn+dIr morpheme (e.g., *yanıtlamak*, *cevaplamak*, *desteklemek*, *selamlamak* vs. *görevlendirmek*, *cesaretlendirmek*, *kaygılandırmak*, *gayretlendirmek*) (see Appendix 1). These structures required the accusative case on their object argument. Therefore, although the light verb constructions did not differ with respect to the light verb used in the construction, the morpheme on the non-light version of these structures differed, see (14) and (15) for sample test items. Hence, for convenience, we will refer to the light verb constructions whose non-light versions are carried by -IA morpheme (14a) as Type 1 light verbs and we will refer to the ones whose non-light versions are

carried by -lAndIr morpheme (15a) as Type 2 light verbs. Accordingly, (14b) and (15b) used the denominalized forms of the noun phrase complement of the light verb as its verb, and for convenience we will refer to them as non-light versions of these light verbs (also see Wittenberg and Snedeker, 2014 refers to *kiss* as the non-light version of *give a kiss*). There were 44 control items with different structures and thematic roles. We had 4 reciprocal sentences with a reflexive verb, 4 reciprocal events with a non-reflexive verb, 12 intransitive sentences with one clear participant, 4 intransitive sentences with multiple participants, 4 physical action events with two participants, 4 psychological state events with two participants, 4 causative sentences with two thematic roles but three logical participants, 8 ditransitive sentences with transfer of possession verbs encoding benefactive or goal roles (see Appendix 2).

The intransitive, transitive, and ditransitive predicates were clear with respect to the number of arguments/thematic roles they required (i.e., they required one, two, and three respective arguments). Reciprocal events and events with three logical participants, on the other hand, were more ambiguous as the former could be perceived either as an intransitive or a transitive structure and the latter could be perceived either as a transitive or a ditransitive structure. A sample item for each type of control items is exemplified in (16)

- (16) a. Reciprocal events with reflexive verbs: *Oyuncuyla aktör boşandılar.*
 b. Reciprocal events with nonreflexive verbs: *Oyuncu aktörü boşadı.*
 c. Intransitive structures with one participant: *Çocuk yürüdü.*
 d. Intransitive structures with multiple participants: *Kardeřler tartıştı.*
 e. Physical action events with two participant roles: *Dede torunu gıdıkladı.*
 f. Psychological state predicates with two participant roles: *Garson aşçıyı övdü.*
 g. Causative sentences with two thematic roles but three logical participants: *Memur aşıkları evlendirdi.*
 h. Ditransitive transfer of possession events: *Sekreter müdüre raporu gönderdi.*
 i. Ditransitive benefactive events: *Anne çocuęa kek yaptı.*

To do this, we designed a study modelled after Wittenberg and Snedeker (2014). Similar to their study, we trained our participants on the number of thematic roles using various sentence structures asking them to specify the number of participants they construe reading about these events and by giving them feedback about the correct answer after their response (see Appendix 3 for the training phase). Also similar to Wittenberg and Snedeker (2014), we followed this training phase with the test phase, where we asked our participants to specify the number of roles they perceive in various light verb

and non-light verb constructions. The test phase included no feedback. Different from their study, we did not employ a visual task that provided participants with a picture of a typical one-, two-, and three-participant events (e.g., jumping, chopping, serving) during the training phase and asked their participants to sort the test utterances they read into one of these categories, so the participants sorted the events on the basis of a sample sentences for each category. Participants in our study were given 4 choices about the number of event participants and they were asked to choose the correct answer from multiple choice answers for each question. The sentences were not given in a context but presented as isolated ones. A sample for how the task looked like is given in (17). We adapted the training and the instruction used in Wittenberg and Snedeker (2014) (see Appendix 3 for the training and the instruction).

- (17) Aşağıdaki cümlede kaç rol vardır?
(How many theta roles are there in the following sentence?)

Müdür sekretere cesaret verdi.
Manager-NOM secretary-DAT courage give-PST.2SG
'The manager encouraged the secretary'

- a. 1
b. 2
c. 3
d. 3'ten fazla (More than three)

Participants did not have any time restrictions and they completed the study online and individually by using their personal computers during the day when they were ready for participation. The online program tracked the time each participant took to complete the task and we excluded the participants who took more than 1 hour to complete the study. The study took an average of 10-15 minutes.

This study was approved by Ankara Yıldırım Beyazıt University Ethics Committee.

3 Results

In total, the data of 142 participants were used in the analysis. Firstly, the results for the control items were analyzed in order to check whether the participants understood the control items that have one-to-one correspondence between their thematic roles and syntactic representation. For these items, we determined a success value as 80% correct responses, which indicates sufficient knowledge according to Bloom's (1968) cut-off point of point of ≥ 80 . That is, if the

participant were able to answer 80% of all questions correctly, then it would be assumed that s/he could successfully determine the number of roles in an event structure. For intransitive sentences, as a result of one-sample t-test, mean correct score ($M = .98$, $SD = 0.09$) was higher than the expected score of .80, which was a statistically significant mean difference of 0.18, 95% CI [0.17 to 0.19], $t(141) = 24.518$, $p < .001$. That means the participants were correct to judge intransitive structures as one-participant events. For transitive sentences, mean correct score ($M = .93$, $SD = 0.20$) was higher than the expected score of .80 a statistically significant mean difference of 0.13, 95% CI [0.10 to 0.16], $t(141) = 7.900$, $p < .001$. For ditransitive sentences, mean correct score ($M = .89$, $SD = 0.26$) was higher than the expected score of .80 a statistically significant mean difference of 0.10, 95% CI [0.05 to 0.13], $t(140) = 4.161$, $p < .001$. Therefore, it could be stated that overall participants could rate the number of arguments in the straightforward control items, which sets a baseline for our interpretation of the critical items.

More vague cases among the control items, namely the reciprocal events with reflexive verbs (16a) and transitive events with three logical participants (16g) were analyzed separately. For reciprocal verbs, participants rated the event as two-role event ($M = .93$, $SD = 0.21$) higher than the expected score of .80 a statistically significant mean difference of 0.13, 95% CI [0.09 to 0.17], $t(141) = 7.236$, $p < .001$. That is, the participants judged the reciprocal events more as a transitive structure with two roles. For transitive events with three logical participants, mean score of judging it as a two-role event ($M = .82$, $SD = 0.29$) was lower than the expected score of .80 a mean difference of 0.02, 95% CI [-0.03 to 0.07], $t(141) = .926$, $p = .356$. Although the participants mostly (87.3%) rated these events as two-role events, it was below the significance level.

In order to investigate the results related to the critical items, we first analyzed if there is a difference between light verbs and their non-light counterparts with respect to the number of roles attributed to these structures. As a result of independent-sample t-test, we found that there was a significant difference ($t(141) = -16.569$, $p < .001$) between light verbs ($M = .45$, $SD = 0.34$) and non-light verbs ($M = .95$, $SD = 0.20$) with respect to the number of roles assigned to them. That is, participants were more likely to judge non-light verb constructions as a two-role event more than they do it for light verb constructions. Similarly, they were more likely to judge the light verb constructions as a three-role event ($M = .54$, $SD = 0.36$) more than they do it for the non-light verbs ($M = .01$, $SD = 0.08$), $t(141) = 17.528$, $p < .001$.

Secondly, we wanted to see if there was a difference between Type 1 and Type 2 light verb constructions. We found that Type 1 light verb constructions (i.e., the light verb constructions whose non-light versions are carried by -IA morpheme) ($M = .54$, $SD = 0.40$) were significantly judged as two-participant events compared to the Type 2 light verb constructions (i.e., ones non-light

versions are carried by -lAn+dİr morpheme) ($M = .32$, $SD = 0.35$), ($t(141) = 8.878$, $p < .001$).

This difference, however, was not observed in the non-light versions of these constructions ($t(141) = -.894$, $p = .373$) such that the rate of two-participant role assignments for the verbs marked with -lA morpheme ($M = .94$, $SD = 0.20$) was not significantly different from those marked with -lAn+dİr morpheme ($M = .95$, $SD = 0.20$).

We further analyzed whether the magnitude of the response differences between Type 1 light verbs and their non-light counterparts with -lA morpheme was different from the magnitude of difference between the Type 2 light verbs and their non-light counterparts with -lAn+dİr morpheme. This indeed showed a greater amount of difference in the latter group (Cohen's $d = 1.63$, $r = 0.63$; large effect) compared to the former (Cohen's $d = 0.98$, $r = 0.44$; medium effect). This shows the former type of light verb constructions behaved more similarly to their non-light versions compared to the latter type of light verbs.

Finally, we further wanted to investigate how the background of the participants (i.e., whether or not they had linguistic knowledge) would influence their perception of thematic roles for light verb constructions. We found that for Type 1 light verbs, language teaching undergraduates selected two-participant role (for FLE students $M = .62$, $SD = 0.38$ vs. for PSY students $M = .44$, $SD = 0.40$) significantly more than psychology undergraduates did (for FLE students $M = .37$, $SD = 0.39$ vs. for PSY students $M = .49$, $SD = 0.41$) ($R^2 = .048$ $F(1, 141) = 6.983$, $p = .009$). For other conditions (i.e., Type 2 light verbs, non-light verbs marked with -lA, non-light verbs marked with -lAn+dİr), no effect of background was found.

4 Discussion

We set out to investigate how Turkish light verb constructions that are formed with *vermek* (to give) are interpreted with respect to the number of thematic roles assigned as compared to the non-light version of these light verbs. We conducted a rating study where participants determined the number of roles they perceived in light verb constructions and their non-light counterparts as well as control items of various sentence types. We found that the control items with clear requirements about the number of the thematic roles were all assigned consistent number of roles across participants. This indicates that native speakers reliably judged intransitive, transitive and ditransitive structures with straightforward thematic requirements. Especially, the fact that they reliably construed the ditransitive constructions as three-role events acts as a baseline for our critical light verb items. However, when the role requirements of the predicate are not very straightforward, we observed that they did not have clear-cut judgements. They interpreted intransitive constructions involving reciprocal events as two-

participant events while having difficulty interpreting the number of roles required for the events with three logical (but two syntactic) arguments. Thus, we can state that native speakers may not always have a solid analysis for structures with conflicting syntax-semantics mapping. This piece of finding rules out the possibility that participants determine the number of arguments merely on the basis of the nouns but they rather pay attention to the number of participants logically required by the event, which is consistent with the pattern in Wittenberg & Snedeker (2014). The results for the critical items further confirmed this pattern that participants assigned three roles to light verb constructions more consistently than they did for their non-light counterparts. This is partly in line with three-semantic-role accounts suggesting that light verbs act just like an ordinary predicate and the direct object in these constructions receive one role from the light verb (i.e., benefactive) and another from the nominal complement (i.e., theme/patient). It is not immediately clear how the relative consistency with which light verb constructions are analyzed as having three theta roles can be accounted for within a canonical mapping approach with two semantic roles (as in Hale and Keyser, 1993 and Öztürk, 2009). One potential prediction of such analyses would be that light verb constructions are consistently analyzed as containing two theta roles, a prediction that is not immediately supported by our findings. One confounding factor that is worth taking into account is that, under a two-theta-role canonical mapping approach, the light verb and its noun complement undergo an additional operation of predicate formation, which might have complicated the process of judging the valence of such predicates.

Moreover, this pattern was not uniform across the light verb types. Type 2 light verbs elicited significantly more three-role encodings compared to the Type 1 light verbs. The only difference between the two types of light verb constructions comes from the meaning it receives with their particular noun phrase complements. Thus, the present pattern from Turkish indicates that the light verb *ver-/give* does not have a static or a frozen meaning in light verb constructions but its meaning changes with the noun complement it takes, which contributes to the semantic structure in a combinatorial manner. For instance, when it is used with a noun phrase that involves an act of verbal or nonverbal communication (e.g., *selam/regard*, *yanıt/response*, *cevap/answer*, *destek/support*), the light verb *ver-/give* becomes synonymous with *direct*, so this becomes distant in meaning from an actual *giving* event. However, when it involves a transfer of possession of a psychological state or a concrete object (e.g., *kaygı/anxiety*, *gayret/encouragement*, *cesaret/courage*, *görev/task*) it becomes closer in meaning to an actual *giving* event, hence its similarity to typical transfer of possession events where *give* is not a light verb in its thematic structure. This perspective is essentially different from canonical and non-canonical mapping accounts suggesting that the light verb is vacant but the whole

meaning comes from the noun complement and predicting only two roles for the light verb structures. This is also different from the three-semantic-role account presented in Bruening (2016) where the light verbs are analyzed as control structures, where the controller occupies two simultaneous roles as the benefactive of the verb and the patient of the event depicted by the eventive noun phrase complement. Here in our findings, the light verb is not always vacant but the extent to which it exerts its basic meaning as *give* (i.e., with a transfer of possession feature) changes according to its noun phrase complement.

This finding and our present interpretation is consistent with Uçar & Kurtoğlu's (2012) corpus analysis showing that *ver-* 'give' in Turkish is polysemous in collocation with different noun complements. Although Uçar & Kurtoğlu (2012) do not provide an explanation of why different meanings are granted depending on the collocation of the light verb *ver-* 'give', they provide a list of semantic fields the light verb *ver-* 'give' could appear depending on its different collocations (i.e., noun phrase complements). According to this, *ver-* 'give' can indicate transfer of possession of a concrete or an abstract entity, mental or emotional state, emission of a physical entity, change of state, transfer of a communicative message, granting a permission, and so on depending on its collocation.

We agree with Uçar & Kurtoğlu (2012) that the meaning of the light verb construction would change in line with its noun phrase complement and we further argue that this meaning would be reflected in how this noun phrase complement is denominalized (-IA vs IAn+dIr) and how thematic roles are assigned for these structures. We contend that the choice between -IA and -IAn+dIr morpheme is not completely arbitrary. When the light verb is combined with a particular noun phrase assigning a transfer of possession meaning to the construction, this event is more likely to be construed as a three-role event and this noun phrase is denominalized with -IAn+dIr that marks endowment and cause. On the other hand, when the light verb is combined with a particular noun phrase assigning a direction meaning to the construction, this event is more likely to be construed as a two-role event and this noun phrase is more likely to be denominalized with -IA that marks direction. Analyzing the semantic fields presented in Uçar & Kurtoğlu (2012) on the basis of the two morphemes we picked in our study (i.e., -IA and -IAn+dIr), we realize that the collocations of *ver-/give* with the meaning of transfer of possession of a concrete or an abstract entity, mental or emotional state, emission of a physical entity, or a change of state can be denominalized by -IAn+dIr morpheme (along with other morphemes such as -se, as in *önemsemek*, -t as in *işitmak*, -laş-tır as in *bulanıklaştırmak*) but there are not any items within these semantic fields that can be denominalized by -IA. However, we cannot see such a clear pattern for other semantic fields such as the transfer of a communicative message or granting a permission (i.e., there are items in these semantic fields that can be nominalized both by -IA or -

lAn+dIr). This is fully in line with our findings where (i) the light verb constructions with noun phrases indicating a transfer of possession of an abstract or a concrete entity behaved more similarly to typical transfer of possession events in receiving three roles, and (ii) the light verb constructions with noun phrases indicating a direction meaning were more like a two-role event while being less consistent in their thematic expectations. This is a novel piece of finding which might also be explaining the previous pattern reported in Wittenberg and Snedeker (2014), where some light verbs acted as a three-participant event the others behaved a pattern similar to transitive structures. Wittenberg and Snedeker (2014) suggested that this may be due to the ambiguity of the light verb give creating an incremental thematic role slots thereby leading to a garden-path effect or due to two simultaneous/shared argument structures activating an agent/patient and source/theme/goal structures (Butt, 2010; Jakendoff, 1974). This may play a factor in verb-initial languages like English but would not explain the observed effects for verb-final languages. We believe the semantic field the light verb is categories in depending on its noun phrase complement, as we outlined above would be an approach that is cross-linguistically more viable.

The present study has been an initial step to experimentally investigate light verbs in Turkish and we believe it has some novel observations providing a ground for further cross-linguistic and experimental analysis of the phenomenon. The present findings have some limitations. First, it tested only one light verb (i.e., *give*), we call on further research to test whether other light verbs would lead to a similar pattern. Also, the noun phrase complements we used with our light verb were also limited in that they can be denominalized by two of the many denominalizing morphemes. Thus, in future studies it would be useful to test how the noun phrase complements that assign different meanings from the ones observed here (e.g., the larger fields presented in Uçar & Kurtođlu, 2012) would change the meaning of the light verb and influence the thematic structure that is construed. Also, it would be useful to test how these light verb constructions with different meaning fields (e.g., change of state, emission, existence) influence denominalizing morpheme used in their non-light counterparts. Second, the data is collected via convenience sampling method and it comes from university students studying language teaching and psychology. We found that the former group of participants who received linguistic training preferred two-role construal for Type 1 light verbs more than psychology students did; however the groups behaved similarly in all other item types. Unfortunately, this is a typical limitation that is observed in psycholinguistic or cognitive psychology studies. Participants with different backgrounds or participants with no university education might show a different pattern in all of such studies. Future studies could aim to capture the larger population for more reliable results. Finally, the present study was based

on an explicit rating task asking participants how many roles they construed for each event. Despite this, our findings are similar to the previous studies employing similar tasks (Wittenberg & Snedeker, 2014; and references therein) as well as to the ones with more subtle online tasks (for a review, see Wittenberg, Jakendoff, Kuberberg, Paczynski, Snedeker, & Wiese, 2014). Nevertheless, it would be useful to address the questions raised here using more subtle online tasks in future research.

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Appendix 1 (Critical Items)

Condition 1: two-participant-events formed with vermek NP-DAT & light verb

Öđrenci öđretmene yanıt verdi.

The student gave an answer to the teacher.

Politikacı gazeteciye cevap verdi.

The politician gave a response to the journalist.

Sekreter müdüre selam verdi.

The secretary gave a greeting to the manager. (i.e., The secretary greeted the manager)

Kadın adama destek verdi.

The woman gave a support to the man.

Condition 2: two-participant-events formed with NP+ACC & VERB+la morpheme

Öğrenci öğretmeni yanıtladı.
The student answered the teacher.
Politikacı gazeteciyi cevapladı.
The politician responded to the journalist.
Sekreter müdürü selamladı.
The secretary greeted the manager.
Kadın adamı destekledi.
The woman supported the man.

Condition 3: two-participant-events formed with NP-DAT & light verb

Adam kadına kaygı verdi.
The man gave anxiety to the woman. (i.e., The man made the woman anxious)
Gazeteci politikacıya gayret verdi.
The journalist gave an encouragement to the politician.
Müdür sekretere cesaret verdi.
The manager gave courage to the secretary (i.e., The manager encouraged the secretary)
Öğretmen öğrenciyi görev verdi.
The teacher gave a task to the student.

Condition 4: two-participant-events formed with NP-ACC & VERB+Causative morpheme

Adam kadını kaygılandırdı.
The man made the woman anxious.
Gazeteci politikacıyı gayretlendirdi.
The journalist encouraged the politician.
Müdür sekreteri cesaretlendirdi.
The manager encouraged the secretary.
Öğretmen öğrenciyi görevlendirdi.
The teacher assigned a task to the student.

Appendix 2 (Control Items)

Reciprocal Verbs

Psikologla danışan sarıldılar.
The psychologist and the advisee hugged.
Doktorla hasta yakını görüştüler.
The doctor and the patient's relative met.
Oyuncuyla manken boşandılar.
The actor and the model divorced.
Senatörle sanatçı öpüştüler.
The senator and the artist kissed.

Psikolog danıřana sarıldı.
The psychologist hugged the advisee.
Doktor hasta yakınını gördü.
The doctor met the patient's relative.
Oyuncu mankeni boşadı.
The actor divorced the model.
Senatör sanatçıyı öptü.
The senator kissed the artist.

One-participant events

Memur uyudu. The officer slept.
Sporcu koştu. The sportsman ran.
Bebek ağladı. The baby cried.
Hırsız kaçtı. The burglar ran away.
Boksör zıpladı. The boxer jumped.
Psikolog şaşırdı. The psychologist got surprised.
Danıřan konuştu. The advisee spoke.
Hasta bayıldı. The patient lost consciousness.
Büyücü dans etti. The wizard danced.
Dede horladı. The grandpa snored.
Danıřan konuştu. The advisee spoke.
Hakem güldü. The referee laughed.

Events with one argument but multiple participants

Arkadařlar buluştu. The friends met.
Iřıklar yandı. The lights went on.
Bayraklar dalgalandı. The flags whipped.
Tavuklar yumurtladı. The hens laid eggs.

Two-participant action events

Elektrikçi manavı itti. The electrician pushed the grocer.
Manav elektrikçiyi dövdü. The grocer beat the electrician.
Dede torunu gıdıkladı. The grandpa tickled the grandchild.
Torun dedeyi tekmeledi. The grandchild kicked the grandpa.

Two-participant psychological states

Bilim insanı yazarı beğendi. The scientist liked the author.
Aşçı garsonu üzdü. The cook made the waitress sad.
Garson aşçıyı övdü. The waitress praised the cook.
Sihirbaz izleyiciyi büyüledi. The magician amazed the audience.

Three-participant events with causative morpheme

Memur aşıkları evlendirdi. The officiant pronounced the lovers married partners.
Büyücü çifti ayırdı. The wizard separated the couple.
Hakem boksörleri uyardı. The referee warned the boxers.
Anne ikizleri doğurdu. The mother gave birth to twins.

Three-participant events with benefactive verbs

Anne çocuğa kek yaptı. The mother made a cake for the child.
Öğretmen öğrenciye hikaye okudu. The teacher read a story for the student.
Politikacı gazeteciye yat aldı. The politician bought a yacht for the journalist.
Adam kadına kahve yaptı. The man made coffee for the woman.

Three-participant events with transfer of possession verbs

Suçlu hakime belge iletti. The criminal submitted a document to the judge.
Sekreter müdüre rapor gönderdi. The secretary forwarded a report to the manager.
Psikolog danışana kitap yolladı. The psychologist sent a book to the advisee.
Hasta doktora tahlilleri götürdü. The patient brought the results to the doctor.

Appendix 3 (Training Phase and Instructions for the Study)

We used the same training and instructions as Wittenberg and Snedeker (2014), which is given in (i) but we adapted it to our culture and study as in (ii).

(i) “In this study, we are interested in different types of actions and events that involve different types of roles in the event. Your task here is to classify events.

Just imagine a theater play, where in one scene, a bishop crowns a king: If you are the director, you need to cast for the role of the one getting crowned, and the crown-er. It doesn’t really matter though whether you have one or two crowners – the play is still about the crowning event. Or, you have a chasing scene, with a policeman (or even a group of policemen!), chasing one or more criminals. No matter how many people are involved, you need to cast for two roles: The chasers and the chas-ees.

Now, events in the real world are a bit different from plays, because not only people can have roles, but also things – or even abstract things, like ideas or thoughts!

Look at this picture of jumping. There is one role involved, namely one or more people jumping. You don’t need anything else or anyone else for this to be a jumping event!

Look at this picture of chopping: We have two roles, a chef who’s doing the chopping, and the onion who is being chopped. Now, you need both roles for it to be a chopping event – if the chef is missing, the onion is doing nothing, and if the onion is missing, the chef isn’t doing anything that makes sense. Note though that it doesn’t matter how many chefs chop how many onions – there are two roles involved, the chopping role and the role of the one(s) being chopped.

Finally, look at this picture of serving, where we need three roles: one doing the serving, one being served, and one, what is served. In this particular picture, there's only one participant playing the role of serving (the waitress), but the role of what is served is played by several plates of food. Also, the role of "being served" is played by several customers. You need all three roles being cast for it to be a serving event!

Your job is now to sort all one-role events into one pile, all two-role events into another pile, and all three-role events into a third pile. You have to be careful though: Sometimes, there are lots of things in the picture that don't contribute much to the event. For example, it doesn't matter if the chef chops the onions at a table, or at the countertop; or whether the waitress serves people at the bar or while they are hanging out at a reception. So try to ignore the background, and focus on the bigger type of event!

Let's start with a training phase. Here are the cards you sort as training for the actual experiment. Whenever you get one card wrong, we start all over again. Do you have any questions?"

(ii) "In this study, we are interested in different types of actions and events that involve different types of roles in the event. Your task here is to classify events.

Just imagine a theater play, where in one scene, a mother tickles her child: If you are the director, you need to cast for the role of the one who is tickling (tickler), and the other who is being tickled (ticklee). It doesn't really matter though whether you have one or two ticklers – the play is still about the tickling event. Or, you have a chasing scene, with a policeman (or even a group of policemen!), chasing one or more criminals. No matter how many people are involved, you need to cast for two roles: The chasers and the chasees.

Consider jumping. There is one role involved, namely one or more people jumping. You don't need anything else or anyone else for this to be a jumping event, just the jumpers!

Now consider chopping: We have two roles, a chef who's doing the chopping, and the onion who is being chopped. Now, you need both roles for it to be a chopping event – if the chef is missing, the onion is doing nothing, and if the onion is missing, the chef isn't doing anything that makes sense. Note though that it doesn't matter how many chefs chop how many onions – there are two roles involved, the chopping role and the role of the one(s) being chopped.

Finally, consider serving, where we need three roles: one doing the serving, one being served, and one, what is served. In this particular picture, there's only one participant playing the role of serving (the waitress), but the role of what is served is played by several plates of food. Also, the role of "being served" is played by several customers. You need all three roles being cast for it to be a serving event!

Your job is now to decide about the number of roles in the events you read in each sentence you will see in the screen. You will see four choices as a response for each item, choose the correct option. Choose 1 as correct if you think there are one role in the event, 2 as correct if you think there are two roles in the event, 3 as correct if you think there are three roles in the event, and 4 as 1 as correct if you think there needs to be more than 3 roles in the event.

You have to be careful though: Sometimes, there are lots of things in the sentence that don't contribute much to the event. For example, it doesn't matter if the chef chops the onions at a table, or at the countertop; or whether the waitress serves people at the bar or while they are hanging out at a reception. So try to ignore the background, and focus on the bigger type of event!

Let's start with a training phase. Here are the sentences you sort as training for the actual experiment. You will be given feedback about the correct answer only for the training phase, you will then move on to the actual test where you do not receive any feedback. Do you have any questions?"