

Lexical Constraints on the Acquisition of English Split Intransitivity

— An Experimental Investigation of Chinese-speaking L2 Learners

Lili Wu

School of Foreign Languages, Huaiyin Normal University, 111 West Changjiang Road,
Huai'an City, 223300, Jiangsu, China

Graduate School of International Cultural Studies, Tohoku University, 41 Kawauchi Aoba-ku,
Sendai City, 980-8576, Japan

Abstract

This study presents results of an experimental investigation into the acquisition of core-peripheral distinction in English split intransitivity. The purpose is to investigate whether L2 learners of English are sensitive to an aspectual and thematic hierarchy that underlies the core-peripheral distinction similarly to L2 learners of Romance languages who were found to be influenced by the Split Intransitivity Hierarchy (SIH) (Sorace, 2000, 2004, 2011). The SIH maintains that core verbs are consistently compatible with unaccusative diagnostics while peripheral verbs exhibit gradience to varying degrees. Two unaccusative diagnostics, the prenominal past participle (PPP) (Alexiadou et al., 2004) and cognate object (CO) construction (Levin and R. Hovav, 1995), were used to test native English speakers and Chinese-speaking L2 learners' gradient acceptability with respect to core-peripheral verb classes. The results show that both native speakers and nonnative speakers are sensitive to the core-peripheral distinction in PPP, but they do not exhibit same sensitivity in CO construction. These findings give partial support for the cross-linguistic plausibility of the SIH to split intransitivity.

1 Introduction

The Unaccusative Hypothesis (UH), initially proposed by Perlmutter (1978) within Relational Grammar and later elaborated on by

Burzio (1986) within Government and Binding Theory, classifies intransitive verbs into unergatives and unaccusatives based on their different syntactic and semantic properties. However, myriad empirical studies have repeatedly shown inconsistencies in the alignment between the syntactic and semantic properties of split intransitivity (Levin and R. Hovav, 1995; Borer, 2005). Thus, verbs with similar meanings in and across languages might be classified differently with respect to split intransitivity. The so-called “unaccusative mismatches” pose great challenges to the UH, a binary syntactic distinction that assumes a relationship of predictability between the syntax and semantics of intransitive verbs.

There are mainly three approaches to deal with these kinds of mismatches at the lexicon-syntax interface (Bard et al., 2010). The first approach is known as the “projectionist” approach, which claims that the lexical semantic features of a verb project its arguments as either internal or external through linking rules (Levin and R. Hovav, 2005). The second is called “constructionist”, and maintains that split intransitivity is a sentence-level property of the predicate instead of a lexical property of the verb, and that the unaccusative-unergative distinction is inherently unstable (Borer, 2005). However, neither the projectionist nor the constructionist approach have offered a valid explanation for the

consistent behaviour of certain verbs and the systematic variation of others. Drawing on a series of empirical studies on both L1 and L2 acquisition of auxiliary selecting languages, Sorace (2000, 2004, 2011) proposes a third approach, the Split Intransitivity Hierarchy (SIH). She argues that monadic intransitive verbs are modulated along a gradient by the aspectual feature of telicity of the verb as well as by the degree of agentivity of the argument of the verb. Sorace (2000) assumes that core verbs tend to be categorical and consistent in selecting *BE* and *HAVE*, whereas intermediate verbs are predicted to be variable.

The SIH is considered to be a potentially universal hierarchy of split intransitivity that may apply to many other syntactic diagnostics of unaccusativity in languages with or without auxiliary selection (Sorace, 2004). However, compared with other Romance and Germanic languages with auxiliary-selection, English presents relatively poor syntactic evidence for split intransitivity. Furthermore, it is also claimed that core verbs have primacy in acquisition in both L1 and L2 acquisition over peripheral ones (Sorace, 2004). Although Sorace (2000) suggests this is so, there is, however, little empirical evidence to show this. Thus, this paper aims to examine to what degree the core-peripheral distinction for split intransitivity is cross-linguistically consistent and if it is possible for L2 learners of English to acquire the distinction at the syntax-lexicon interface. Specifically, the present study examines whether native English speakers and Chinese-speaking L2 learners are sensitive to the lexical constraints underlying core-peripheral distinction by testing their judgments of core and peripheral verbs in two unaccusative diagnostics.

2 Theoretical Background

2.1 The Split Intransitivity Hierarchy (SIH)

Intransitive verbs can be split into unaccusative and unergative in relation to their

different syntactic and semantic properties. Split intransitivity is semantically determined but syntactically represented (Levin and R. Hovav, 1995). The unaccusative-unergative distinction has been proven to be a universal phenomenon, though different languages display different syntactic and morphological realization of split intransitivity. All intransitive verbs are either unaccusative or unergative, which can be identified through language-specific unaccusative diagnostics. However, different unaccusative mismatches, as mentioned above, indicate that it is quite difficult to fit many verbs unambiguously into one class or the other. For instance, agentive verbs of manner of motion, which are generally considered as unergatives, are unaccusative in the presence of a directional phrase such as (1a). Moreover, sound emission verbs often function unergatively can appear in the unaccusative resultative construction (1b).

- (1) a. He ran into the classroom.
- b. The office door clicked open.

Similar phenomena can also be found in auxiliary-selection languages (Sorace, 2000). *BE* is prototypically associated with unaccusatives and *HAVE* with unergatives. However, across languages, some verbs tend to be consistent in auxiliary selection, whereas others are not. Within languages, some verbs are categorical in selecting the same auxiliary regardless of context, while others exhibit variation in different contexts. For example, the German verb *gelaufen* (*run*) takes *BE*, while its French equivalent *courir* takes *HAVE*.

To capture the systematic differences in auxiliary selection, both cross-linguistically and language-internally, Sorace (2000) proposes an Auxiliary Selection Hierarchy (ASH) for monadic verbs to select the auxiliary *BE* or *HAVE*. The ASH ranks verbs on the basis of two semantic factors which can distinguish core verbs from more peripheral ones. Core unaccusative verbs at one end of the hierarchy are most consistent in selecting *BE* and core

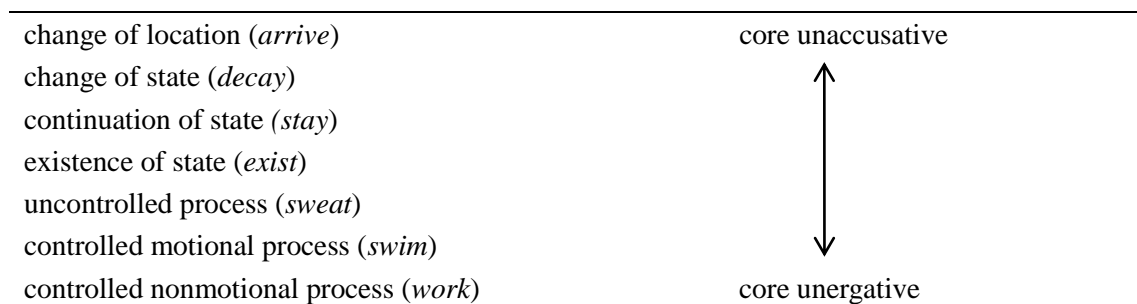


Figure 1. The Split Intransitivity Hierarchy (SIH) (adapted from Sorace, 2011, p 69)

unergatives at the other end are most consistent in selecting *HAVE*. Intermediate verbs are those in the middle that may be associated with either or both depending on the language. As the ASH is not only found in many auxiliary-selection languages (Cennamo and Sorace 2007; Acekema and Sorace, 2017), but also in other diagnostics of split intransitivity, such as qualifier floating in Japanese (Sorace and Shumora, 2001) and locative inversion in Chinese (Laws and Yuan, 2010), Sorace (2004, 2011) argues that ASH should be changed into the SIH because this model of gradience tends to be cross-linguistically universal as illustrated in Figure 1.

According to the SIH, intransitive verbs are organized in a hierarchy defined primarily by telicity and secondarily by degrees of agentivity. Telicity (goal-direcedness) is the primary feature that can separate the unaccusatives from the unergatives, with “telic change” at the core of unaccusativity. Thus, verbs of change of location, such as *arrive* and *fall* are mostly inherently telic and therefore exhibit more consistent unaccusative behavior than verbs of change of state such as *die* and *happen*, which do not encode delimitedness. Verbs of continuation of state such as *stay* and *remain*, as well as existence of state such as *exist* and *seem* are the least consistent in their unaccusative behavior, for they denote neither change nor telicity. Agentivity is the secondary feature that distinguishes core unergatives from peripheral unergatives, with “agentive atelic non motional activity” at the core of unergativity. Therefore,

verbs of controlled non-motional process such as *play* and *work*, which are inherently agentive, are more consistent in their unergative behavior than peripheral verbs of uncontrolled process such as *cough* and *sweat*. The core-peripheral distinction built on these two factors do not refer to gradients of unaccusativity/unergativity of verbs, because syntactic configurations of split intransitivity cannot have intermediate states. Instead, it refers to “their differential likelihood of allowing multiple syntactic behavior” (Bard et al., 2010, p.328). In short, the interaction of telicity and agentivity affects the syntax of split intransitivity and creates a gradient of diagnostics for split intransitivity.

The SIH, in comparison with the projectionist and constructionist approach, helps to account for both the consistency and flexibility of different intransitive verbs in their syntactic behaviors. Core verbs are predicted to be not only categorical and consistent in syntactic behavior across languages and within individual languages, but also elicit more determinacy of native speakers’ intuitions and primacy in acquisition. Peripheral verbs, on the other hand, are subject to a degree of inconsistency and thus are delayed in acquisition (Keller and Sorace, 2003).

Language acquisition, of both L1 and L2, is an important testing ground for theories of the lexicon-syntax interface. Sorace (1995) indicates that in the acquisition of Italian as a second language, core verbs are the first to be acquired, and peripheral verb types are gradually acquired later. This leads Sorace (2004) to the conclusion

that it is the position of verbs on the SIH that decides the order of acquisition of unaccusative syntax. However, it still remains unknown whether English, a language without auxiliary selection, also exhibits the same gradience in split intransitivity. Therefore, it is of great significance to carry out an experimental investigation to check whether core verbs in the SIH have primacy in acquisition and determinacy of both native English speakers and Chinese-speaking L2 learners' intuitions. In order to test this, unaccusativity diagnostics are especially helpful because they are always taken as the syntactic configurations that are sensitive to the semantic properties of the verb.

2.2 Unaccusative Diagnostics in English

In English, a number of phenomena are taken to be sensitive to split intransitivity. Locative inversion and *there-insertion* construction are often associated with surface unaccusativity diagnostics, though the validity of them as unaccusative diagnostics is controversial (Levin and R. Hovav, 1995). Among deep unaccusative diagnostics, five diagnostics *V one's way* (Marantz 1992), *V away* (Keyser and Roeper, 1984), *cognate object* (Massam, 1990), *agentive-er* (Burzio, 1981) and *prefix-out* (Keyser and Roeper, 1984) are claimed to be more compatible with unergative verbs, while resultative construction and prenominal past participle (Alexiadou et al. 2004) are considered to be only allowed by unaccusative verbs. In this study, we will only focus on two diagnostics as discussed above.

2.2.1 Prenominal Past Participle (PPP)

PPP was purported as a diagnostic of unaccusativity first in Dutch (Hoekstra, 1984). Participles are used as predicates over nouns which correspond to their initial (D-structure) objects. English PPPs are also found to be sensitive to the unaccusative-unergative distinction (Levin & R. Hovav, 1986), because this construction is allowed only by unaccusatives and transitives as illustrated in (2)

and (3).

(2) fallen leaves, frozen lakes, *worked man, *slept girl

(3) the newly built house, a well-served customer

In this construction, participles of transitive verbs can be used to modify the nouns comparable to their direct object. Unaccusatives are also compatible with this construction since the noun is originally an object in D-structure, while unergatives cannot be converted to such adjectival forms because the modified noun is originally a subject in D-structure. In summary, nouns that can be pre-modified by past participles are subjects of unaccusative verbs or objects of transitive verbs.

In addition to the syntactic difference identified by PPP, one semantic property, telicity, is also claimed to be decisive in the formation of PPPs. Most unaccusative verbs that are found to be compatible with PPP are telic verbs (Zaenen, 1993; Levin and R. Hovav, 1998). Stative verbs, on the other hand, with no end-point, are not allowed in the formation as illustrated by the unacceptability of *remained files* and *stayed problems*.

It seems that there is a good correlation between the SIH introduced above and the verbs picked out by PPP. First of all, verbs of change of location are classified as core verbs because of their inherent telicity. For example, telic verbs like *arrive* and *escape* can occur prenominal in expressions like *the recently arrived guests* and *an escaped prisoner*. Furthermore, this construction is also possible with verbs of change of state. Since the SIH excludes the alternating change of state verbs like *break* and *open* from the hierarchy for their weak unaccusativity, this study will not discuss alternating unaccusatives. Non-alternating verbs of change of state like *decay* and *appear* are also allowed in the construction such as in *the decayed building* and *a recently appeared novel*. However, some monadic verbs of change of state such as *die* and

happen are incompatible with this construction as illustrated in (4).

(4) *the died man,* the happened accident

This variation actually causes no problem to the validity of the SIH because Sorace(2000) argues that not all verbs in the same class show the same behaviour and variability is governed by semantic regularities, particularly telicity. The class of verbs of change of state includes various verbs that encode telicity to variable degrees, and permission of a subset of change of state verbs in the construction holds up well for the whole verb class. Finally, because of the telicity restriction, peripheral verbs in the middle of the SIH and unergative verbs are much more restricted in the construction as shown in (5).

(5) *the existed problem, *the sweated man, *the run man

Thus, the different behaviors of core and peripheral verbs in the PPP construction provides evidence for the gradience of English split intransitivity.

2.2.2 Cognate Object (CO) Construction

CO construction is also a purported unaccusativity diagnostic that can be used to classify unergatives and unaccusatives (Massam, 1990). This construction refers to the configuration in which the verbs take their cognate nouns that are morphologically related to the verbs in their object positions such as those in (6) and (7).

(6) The baby smiled a sweet smile.

(7) The man slept a deep sleep.

Unaccusative verbs, however, are disallowed in this construction because unaccusative verbs cannot take any surface objects including cognate objects (Levin and R. Hovav, 1995).

According to the SIH, verbs of controlled non-motional process should be more compatible with the construction than peripheral verbs of uncontrolled process. Uncontrolled process verbs that are less agentive than the controlled verbs demonstrate mixed behavior. The uncertainty of some expressions such as *sweat a sweat* or

tremble a tremble indicate variation in peripheral verbs. Problems with this construction come from some unaccusative mismatches, because some alternating verbs like *drop* and non-alternating verbs like *die* are also possible in the construction as suggested by Kuno and Takami (2004):

(8) The stock market dropped its largest drop in three years today.

(9) The musician died a heroic death.

The mismatches seem to be predicted by the SIH approach, which claims that peripheral unaccusatives sometimes exhibit unergative behavior. Alternating unaccusative verbs are considered to be weak in unaccusativity and are subject to more variation compared to core verbs. Verbs of change of state such as *die* are less determinate than verbs of change of location along the hierarchy. In summary, the closer to the unergative end of the hierarchy, the more compatible the verbs are with the cognate object construction.

2.3 Research Questions

Given the correlation of CO construction as well as PPP construction with the SIH, it should then follow that split intransitivity will also manifest gradience in English and its acquisition as an L2.

Therefore, this paper poses the following research questions.

(1) For native English speakers, are core verbs more compatible with unaccusativity diagnostics than peripheral verbs?

(2) For Chinese-speaking L2 learners, do core verbs have primacy in acquisition compared to peripheral verbs?

3 Methodology

3.1 Participants

A total of 143 subjects participated in the study: a group of 26 native speakers of English (henceforth NS), a group of 59 low level Chinese-speaking L2 learners of English (henceforth LL learners), and a group of 58 advanced Chinese-speaking L2 learners of

Verb types	Low Level (LL) Learners				Advanced Level (AL) Learners				Native Speakers (NS)			
	PPP		CO		PPP		CO		PPP		CO	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
changL	3.81	1.29	2.75	1.30	4.07	1.17	2.37	1.21	4.08	1.07	1.44	.68
changS	3.93	.98	2.91	1.12	3.48	1.16	2.56	1.34	3.77	.85	1.38	.80
contiS	3.43	1.29	2.84	1.32	2.50	1.27	2.69	1.39	1.75	.99	1.52	.70
existS	3.16	1.34	2.71	1.21	2.62	1.32	2.41	1.27	1.35	.64	1.73	.86
uncP	3.63	1.42	2.86	1.26	3.00	1.70	2.70	1.46	1.29	.65	2.58	1.40
conMP	1.93	1.14	2.66	1.12	1.39	.68	2.94	1.12	1.17	.45	2.46	1.40
conNP	2.40	1.41	3.31	1.32	2.00	1.24	3.20	1.30	1.33	.47	2.94	1.31

Table 1. Mean grammaticality judgment score on different verb types in two different diagnostics

English (henceforth AL learners). All the participants first took a proficiency test (Quick placement test [QPT], 2001). The average QPT score of LL learners is 33.48, and the average QPT score of AL learners is 45.58. An Independent T test indicates the QPT scores between two levels of learners are statistically significant ($t = -18.46$, $p < .000$). Chinese participants are all undergraduate and graduate students from the same Chinese university Huaiyin Normal University. All of the Chinese participants were regarded as adult L2 learners because they were all first exposed to English in the classroom environment.

3.2 Materials and Procedures

A Grammaticality Judgment test was used to examine both English native speakers and Chinese-speaking L2 learners' knowledge of acceptability of different verb types in unaccusative diagnostics. All sentences were organized randomly. Participants were required to judge the grammaticality of each sentence on a 5-point Likert scale: 1 for "not correct", 2 for "probably incorrect", 3 for "cannot decide", 4 for "probably correct" and 5 for "correct". For native speakers, the test was conducted through a Google Form. For Chinese-speaking L2 learners, the test was carried out in a classroom setting. Detailed instructions were given in Chinese in advance to make sure the students know the requirements.

Verbs chosen for the test were mostly

monadic verbs with dyadic verbs excluded for their weak unaccusativity (Sorace, 2000). The SIH classifies unaccusative verbs into 4 subtypes: change of location (*arrive, fall*), change of state (*decay, appear*), continuation of state (*stay, last*) and existence of state (*exist, sit*), and unergative verbs into three subsets: uncontrolled process (*cough, tremble*), controlled motional process (*swim, run*) and controlled non-motional process (*talk, play*). Two words were selected from each subclass (listed as examples in the previous sentence) and were used respectively in PPP and CO construction. There are all together 56 sentences generated including 28 fillers. By means of an ANOVA test, the overall lexical frequency of the seven verb classes were controlled. Information on the lexical frequency of individual verbs was checked through the COCA corpus.

4 Results

The mean judgment score for two diagnostics, PPP and CO construction, are reported in Table 1. For reference, PPP is claimed to be compatible with unaccusative verbs and CO construction is considered to be compatible with unergative verbs. The results of native English speakers and Chinese-speaking L2 learners' judgments are reported in order. Throughout the analyses reported below, the significance level used was .05.

4.1 Results of PPP

Table 1 shows that native speakers'

judgments of core verbs of change of location and state are much higher than that of continuation and existence of state. AL learners similarly exhibit higher scores for core verbs than peripheral verbs in the middle. LL learners, however, score core verbs similar to verbs of uncontrolled process. For native speakers, judgments on verbs of location and state are not statistically significant from each other ($t = 1.38, p = .18$), so they are combined together as core verbs, and verbs of continuation and existence of state were also combined as peripheral verbs because of a lack of significant difference ($t = 2.00, p = .57$). A Paired-Sample T test shows that these groups of core verbs were statistically different from peripheral verbs ($t = 13.13, p < .000$), which confirms that native speakers are sensitive to the core-peripheral distinction in PPP.

We compared Chinese-speaking L2 learners' data with native speaker data to examine whether or not learners behave similarly to native speakers for PPP. We conducted a mixed ANOVA with verb type as the within-subject factor and group as the between-subject factor. The test showed a main effect of verb type, $F [6, 840] = 91.82, p < .000$, a main effect of group, $F [2, 140] = 22.86, p < .000$, a significant interaction of verb type and group, $F [12, 840] = 8.06, p < .000$. A post-hoc Turkey test revealed that L2 learners' judgments are different from native speakers for all the verb types ($p < .001$). A further ANOVA test performed only on unaccusative sub-types reveals that all three groups' judgments on core verbs are not statistically significant, $F [2, 140] = 0.32, p = .73$, while they differ from each other on their judgments on peripheral verbs, $F [2, 143] = 26.51, p < .000$.

4.2 Results of CO Construction

The mean score for CO construction was generally under 4 for all groups, which means no participants were very accepting of this construction. Despite the uncertainty, Table 1 still

shows that all three groups rank core unergative the highest among all the verb types, which is consistent with our prediction. For native speakers, there was, as predicted, a statistically significant difference between unergative verbs and other verb types ($t = -7.89, p < .000$). There is, however, no statistically significant difference between the three subsets of unergatives, which is contrary to our prediction.

As for Chinese-speaking L2 learners, they seem to judge core unergatives much higher than native speakers. A mixed ANOVA test showed a main effect of verb types, $F [6, 840] = 16.30, p < .000$, a main effect of group, $F [2, 140] = 8.69, p < .000$, a significant interaction of verb type and group, $F [6, 840] = 3.66, p < .000$. A further post-hoc Turkey test revealed that there was no significant difference between LL and AL learners ($p = .50$), but that both groups differ from native speakers ($p < .000$ and $p = .003$) respectively. A further ANOVA test performed only on the unergative sub-types revealed that all three groups' judgments of core and peripheral verbs were not statistically significant. This indicates that Chinese-speaking L2 learners have acquired unergative verbs in CO construction similarly to native speakers.

5 Discussion and Conclusion

The results of the judgments of the unaccusative verbs in PPP conform to the prediction of the SIH. English native speakers are more determinate in their judgments on the acceptability of core verbs than in peripheral verbs. Chinese-speaking L2 learners, though not native like in the judgments of all verb types, also showed similar differences in judgments of core verbs. It is on the peripheral verbs that the three groups differ from each other in their judgments. For LL learners, they have indeterminate intuitions not only about peripheral unaccusative verbs, but also about peripheral unergatives. This can be also explained by the SIH, which indicates that peripheral unergatives sometimes exhibit unaccusative behavior. AL

learners came to distinguish core and peripheral verbs, but still showed preference for verbs of uncontrolled process, which are neither telic nor agentive. Chinese-speaking L2 learners do not exhibit the same gradience in their judgments as native speakers, but they seem to develop in the direction of the SIH pattern. In short, core unaccusative verbs have primacy in L2 acquisition.

The results of judgments on unergatives in CO construction presents, however, a different picture. The native speaker subjects generally judged that unergatives are unacceptable in CO construction. Native speakers do not distinguish core unergatives from peripheral unergatives statistically, nor do Chinese-speaking L2 learners. Two plausible reasons might be relevant to the unpredicted pattern. One is that the CO construction might not be sensitive to agentivity (Baker, 2018), and the other is that agentivity is not a crucial semantic factor to determine split intransitivity in English, as suggested by Levin and R. Hovav (1995). Despite the statistic insignificance, native speakers as well as L2 learners all tend to rank verbs of controlled nonmontional process the highest among all the verb types, which partially corresponds to the prediction of the SIH. Chinese-speaking L2 learners, interestingly, are found to be more native like in judgments of unergatives than unaccustives, which demonstrates that unaccusatives pose a greater learning problem than unergatives, which is in accordance with research such as Chung (2014).

The present study, adopting a lexicon-syntax interface approach, sets out to investigate whether the core-peripheral distinction is cross-linguistically valid. The first question aims to find out whether native English speakers are sensitive to the distinction. The second question examines whether the acquisition of split intransitivity is lexically constrained by the SIH. The results, on the whole, provide an affirmative answer to the two

questions as far as unaccusatives are concerned. Native English speakers' judgments are more determinate for core verbs, and Chinese-speaking L2 learners tend to acquire core verbs earlier than peripheral ones. However, only two unaccustivity diagnostics are discussed in this study. More research, therefore, needs to be conducted to see whether other diagnostics are conditioned by the SIH as well.

References

- Ackema, P. and Sorace, A. 2017. Auxiliary selection. In M. Everaert and H. van Riemsdijk (eds.) *The Wiley Companion to Syntax*, John Wiley & Sons.
- Baker, James. 2018. Split intransitivity in English. *English Language & Linguistics*, 1-33.
- Burzio, L. 1986. Italian syntax: a government-binding approach. Dordrecht : Reidel.
- Borer, Hagit. 2005. *The Normal Course of Events. Structuring Sense*, vol. 2. Oxford: Oxford University Press.
- Cennamo, M., & Sorace, A. 2007. Auxiliary selection and split intransitivity in Paduan. *Split Auxiliary Systems*. Amsterdam: John Benjamins, 65-99.
- Chung, Taegoo. 2014. Multiple factors in the L2 acquisition of English unaccusative verbs. *De Gruyter Mouton* 52(1): 59-87.
- Hoekstra, T., and R. Mudler. 1990. Unergatives as Copula Verbs: Locational and Existential Predication. *The Linguistics Review* 7: 1-79.
- Keyser, S. J., & Roeper, T. 1984. On the middle and ergative constructions in English. *Linguistic inquiry*, 15(3), 381-416.
- Keller, F., & Sorace, A. 2003. Gradient auxiliary selection and impersonal passivization in German: An experimental investigation. *Journal of Linguistics*, 39(1), 57-108.
- Kuno, Susumu., and Ken-ichi Takami. 2004. *Functional Constraints in Grammar: On the Unergative-Unaccusative Distinction*. Amsterdam: John Benjamins.
- Laws, J., & Yuan, B. 2010. Is the core-peripheral distinction for unaccusative verbs cross-linguistically consistent? *Empirical*

- evidence from Mandarin. *Chinese Language and Discourse*, 1(2), 220-263.
- Levin, B. and M. Rappaport. 1986. The formation of adjectival passives. *Linguistic Inquiry* 17(4), 623–61.
- Levin, B., & M. R. Hovav. 1995. *Unaccusativity: at the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.
- Levin, B., & M. R. Hovav. 1998. Morphology and lexical semantics (pp. 248-271). Blackwell Publishing Ltd.
- Marantz, A. 1992. The way-construction and the semantics of direct arguments in English: A reply to Jackendoff. In T. Stowell and E. Wehrli (Eds.), *Syntax and Semantics*, Volume 26. New York: Academic Press.
- Massam, D. 1990. Cognate objects as thematic objects. *Canadian Journal of Linguistics* 35(2): 161–90.
- Perlmutter, D. 1978. Impersonal passives and the unaccusative hypothesis. In *Proceedings of the 4th Berkeley Linguistics Society*. Berkeley: University of California.
- Sorace, A. 2000. Gradients in auxiliary selection with intransitive verbs. *Language*, 76: 859-890.
- Sorace, A. 2004. Gradience at the lexicon-syntax interface: evidence from auxiliary selection. In A. Alexiadou, M. Everaert, & E. Anagnostopoulou (eds.), *The Unaccusativity Puzzle*, 243-268. Oxford: Oxford University Press.
- Sorace, A. 2011. Gradience in split intransitivity: the end of the unaccusative hypothesis. *Archivio Glottologico Italiano*, 96: 67-86.
- Zaenen, A. 1993. Unaccusativity in Dutch: Integrating syntax and lexical semantics. In *Semantics and the Lexicon*, 129-161. Springer, Dordrecht.