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## The Acquisition of English Unergative and Unaccusative Verbs: A Case Study of Lattakian Native Speakers

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### ABSTRACT

One of the goals of second language acquisition research is to find a theory which can predict and explain what second language learners can acquire. The acquisition of unergative and unaccusative verbs has been one of the issues addressed in second language acquisition. A number of studies indicated that these verbs pose an acquisition problem especially in English L2 acquisition. This study investigates the Lattakian Syrian Arabic speakers' acquisition of English unergative and unaccusative verbs based on the cross-linguistic, syntactic analyses of the structures involving these verbs across Lattakian Syrian Arabic and English. The paper reports on empirical findings from grammaticality judgment, translation, and picture description tasks in English as a second language. The grammaticality judgment task was meant to tap into learner's competence on the two verb types, whereas the latter two tasks on their performance. The findings largely support the theoretical position that argues for the existence of first language influence at the early stages of acquisition, and for no fundamental differences in native speaker and second language syntactic representations at later stages of acquisition, a position such as the Full Transfer Full Access hypothesis. The findings also unfold crucial factors which seem to be at play in the acquisition of intransitive verbs, ones such as learners' world knowledge, and the morphological structure of the verbs at question.

**Keywords:** Unergativity; Unaccusativity; Proficiency; Lattakian; NP Movement

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#### ARTICLE INFO

Received: 14 April 2025 | Revised: 29 May 2025 | Accepted: 10 June 2025 | Published Online: 18 June 2025  
DOI: <https://doi.org/10.30564/fls.v7i6.9495>

#### CITATION

Shaheen, B., 2025. The Acquisition of English Unergative and Unaccusative Verbs: A Case Study of Lattakian Native Speakers. *Forum for Linguistic Studies*. 7(6): 1120–1141. DOI: <https://doi.org/10.30564/fls.v7i6.9495>

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## 1. Introduction

One of the goals of second language acquisition (SLA henceforth) research is to find a theory which can predict and explain what second language (L2) learners can acquire. This paper aims to contribute to this goal by investigating the acquisition of unergative and unaccusative verbs by native speakers of Latakian Syrian Arabic (LSA) (a colloquial dialect of Arabic). The acquisition of unergative and unaccusative verbs has been one of the issues addressed in second language acquisition <sup>[1-5]</sup>. A number of studies indicated that these sub-classes of intransitive verbs pose an acquisition problem especially in English L2 acquisition. The present paper reports on an empirical study investigating L2 acquisition of English unergative and unaccusative verbs by LSA-speaking elementary and advanced learners of English. The paper also intends to test learners' sensitivity to NP movement involved in unaccusative structures. Three instruments were employed in the study: a grammaticality judgement task (GJT), a translation task (TT), and a picture description task (PDT). The GJT was meant to tap into learner's competence on the two verb forms, whereas the latter two on their performance.

The study analyzes the syntactic structure of unergative and unaccusative verbs in English and LSA. It also explores how speakers of LSA acquire English unergative and unaccusative verbs given that these verbs might be problematic for learners, and considering the common belief that observing L2 input, the frequency of occurrence, analogy, instruction, and transfer of L1 surface properties are ruled out as an explanation of the knowledge that L2 learners attain <sup>[6]</sup>.

This paper is organized in the following way. Section 2 states the study motivation. In section 3, a definition of unergative and unaccusative verbs is provided. This is followed by an analysis of the structure of English unergatives and unaccusatives. Unergatives and unaccusatives in LSA are introduced in section 5 and analysed in section 6. Section 7 and 8 present major SLA theories and the research hypotheses. In section 9, studies on unergativity and unaccusativity in LSA are reported. The methodology of the empirical study and the data analysis are presented in sections 10 and 11. Results of the study are presented in section 12. Finally, the discussion and conclusions are in section 13.

## 2. Study Motivation

The study is motivated by the need to develop a theory of SLA that can answer intriguing issues related to the role that the L1 plays in L2 development demonstrating the extent to which universal principles of linguistic organization (universal grammar (UG)) can guide the development of L2 learners' mental grammars for the target language, as well as the extent L2 learners can fully acquire syntactic properties of the L2.

Some crucial questions are considered to verify the status of the hypotheses that were advanced in order to investigate the availability of UG in SLA: (1) Why it is meaningful to examine LSA speakers' acquisition of English unergatives and unaccusatives? (2) The theoretical motivation for assuming that LSA speakers would, or would not, show sensitivity to NP movement in their interpretation of English unaccusative verbs? (3) In what ways, and to what extent, is the role of proficiency in L2 syntax acquisition considered in the existing literature?

The above theoretically grounded research questions are put to the test empirically by answering three questions given that there are various studies on L2 acquisition of unergativity and unaccusativity which show contradictory results.

- i. Can LSA learners reach native-like performance in the acquisition of English unergative and unaccusative verbs?
- ii. Are LSA learners sensitive to NP movement involved in the derivation of unaccusative verbs?
- iii. What is the role of proficiency in L2 acquisition of English unergative and unaccusative verbs?

The next section introduces and defines unergative and unaccusative verbs.

## 3. Unergative and Unaccusative Verbs

Unergative verbs as in (1) and unaccusative verbs as in (2) are intransitive verbs as they require one argument.

1. The girl laughed.
2. The car stopped.

The main difference between the two sub-classes is semantic in nature; the sole argument of unergative verbs bears an agent  $\Theta$  role that causes or performs the action. On the other hand, the sole argument of unaccusative verbs

bears a theme  $\Theta$  role that undergoes an action rather than performs it.

Unergative verbs include different types of verbs: those describing willed or volitional acts and involuntary bodily processes. In contrast, unaccusative verbs include verbs of existing and happening, verbs of non-voluntary emission of stimuli that impinge on the senses, in addition to aspectual predicates.

Unaccusatives allow causative/inchoative alternation. That is, some verbs can either be transitive or intransitive as in (3), where the theme thematic role, which is assigned to the argument *door*, is the same in both sentences (3a) and (3b). On the other hand, verbs that bear an agent thematic role, unergatives, cannot have this alternation as in (4):

3. a. The door opened.  
b. He opened the door.
4. a. Mary danced.  
b. \*John danced Mary<sup>[7]</sup>.

The semantic approach to these verbs was introduced by Perlmutter (1978) under the Unaccusative Hypothesis, but it was later extended into syntax by Burzio (1986)<sup>[8,9]</sup>. The main assumption is that unergative and unaccusative verbs have different syntactic structures.

Later, Levin and Rappaport Hovav (1995) introduced the notion of internally and externally-caused eventualities to account for these subclasses<sup>[10]</sup>. Levin and Rappaport Hovav argue that externally-caused eventualities correspond to unaccusative verbs and internally-caused eventualities are unergative verbs. In the latter, properties inherent to the arguments of the verb are responsible for bringing out this eventuality<sup>[10]</sup>, and no external force is involved. For example, the action in verbs like *play* and *speak* is a result of the will or the volition of the one performing the action. These verbs cannot participate in causative alternations: *He spoke*/\**His father spoke him*. On the other hand, externally-caused eventualities happen as a result of an external causer. *The window broke* subsumes an external force that is responsible for breaking the window. This external causer which can be an agent, an instrument, a natural force or a circumstance, is unspecified. However, these intransitive externally-caused verbs have transitive counterparts where the external causer is specified, for example, *The boy broke the window*. Typical examples are verbs of *change of state*: *bake*, *open*, *break*, *close*, *cook*,

*dry*, *freeze*, *melt*, and verbs of *motion*: *move*, *roll*, *rotate*, *spin*.

The syntax of the intransitive verbs in English and LSA will be dealt with in the subsequent sections. The more evidence that is accumulated from the investigation of different L1–L2 pairings where features underlying syntactic constructions differ, using different methodologies, the more chance there will be of deciding between competing hypotheses about the role of UG and the L1 in L2 acquisition. Since these intransitive verbs show constrained differences in realization cross-linguistically (as will be shown later), and implicate principles of UG, they are a good area in which to pursue research.

## 4. A Minimalist Analysis of the Structure of English Unergatives and Unaccusatives

The syntactic theory that will be adopted for analyzing the verbs is minimalism. The consequences of adopting this theory and the correlation between the syntax of unergative and unaccusative verbs in English and LSA and learners' performance will be made clear at the end of section 6.

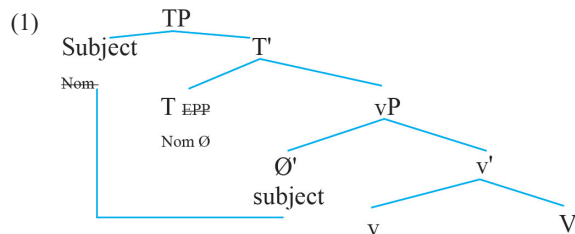
It is assumed that there is a direct relationship between thematic roles and the structural positions they occupy. This makes it easy to predict the position of the agentive subject of unergative verbs in a vP according to the Uniformity of Theta Assignment Hypothesis (UTAH): identical thematic relationships between predicates and their arguments are represented syntactically by identical structural relationships at Merge<sup>[11]</sup>. The unergative construction *The boy laughed* encodes causality and can be represented as *The boy is the cause of the event of laughing*.

However, UTAH is problematic for unaccusative verbs whose sole argument is assigned a theme  $\Theta$  role because the theme appears in two different positions, spec-V position in a ditransitive structure, and the complement position in a transitive structure. Adger (2002) argues that the theme is the daughter of VP in both structures<sup>[11]</sup>, and the goal in the ditransitive structure is the daughter of V'. He presents the following rules:

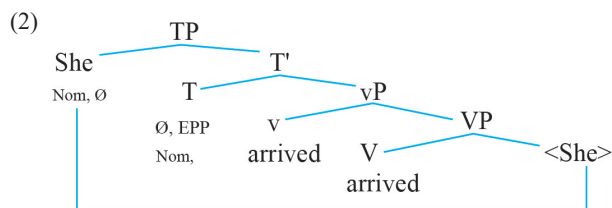
- NP daughter of VP interpreted as Theme.
- PP daughter of V' interpreted as Goal<sup>[11]</sup>.

The derivation of the unergative structures as in (1) involves the verb V merging with the light verb *v* construct-

ing a v'. v' merges with the argument in the specifier of verb (spec-v) position forming a vP. vP merges with Tense (T) forming a T'. The EPP feature (specifies that a finite tense constituent must be extended into a TP projection containing a subject) on T attracts the argument in spec-v position into spec-T constituting a TP. Having its  $\emptyset$  features (number, person, gender features) unchecked, T sets an agreement relation with its goal which is the subject in the specifier position of TP (spec TP). The Agree relation between the two checks and deletes the uninterpretable  $\emptyset$  features of T as well as the uninterpretable nominative case feature of the subject in spec-T.



In an unaccusative structure, the theme argument occupies the complement position within VP, and it does not carry [nom] feature. The EPP feature that requires its specifier position to be filled with a nominal attracts the theme argument in unaccusative structures to spec-T as shown in (2).



The following section introduces unergatives and unaccusatives in LSA.

## 5. Unergative and Unaccusative Verbs in LSA

Based on their semantics, LSA intransitive verbs can be sub-divided into unergatives and unaccusatives. Unergative verbs take agentive subjects: [nām] *slept*, [rakad] *ran*, [ibtasam] *smiled*, [haka] *said*, [bikī] *cried*, [daras] *studied*, [liṣib] *played*, [raʔaʃ] *danced*, [iʃtaḡal] *worked* and so on. On the other hand, the subject of unaccusative verbs bears a theme theta role: [wiʔiʃ] *fell*, [ḡiriʔ] *drowned*, [dāb] *melted*, [zād] *increased*, [niʔiʃ] *decreased*, [māt] *died*, [inkasar] *broke*, [inʔabax] *cooked*, [infataḥ] *opened*.

Unaccusative verbs in LSA can be used transitively. However, these verbs take different morphological forms from their intransitive counterparts. For example, unaccusative verbs which take the basic forms [faʕal] and [fiʕil] change into [faʕʕal] as in (5b) and (6b) when used transitively:

5. a. dāb i-ttalij.  
melted the snow  
The snow melted.
- b. dawwabit i-ššamis i-ttalij.  
melted the sun the snow  
The sun melted the snow.
6. a. zād i-rrateb.  
increased the salary  
The salary increased.
- b. zawwad l-mudūr i-rrateb  
increased the manager the salary  
The manager increased the salary.

On the other hand, unaccusative verbs which take the complex morphological form [infaʕal] ([inkasar] *broke*, [infataḥ] *open*, [inʔabax] *cooked*, [intaʔal] *moved*) change into the basic form [faʕal] as in (7b) and (8b), when used transitively.

7. a. inkasar l-ballūr.  
broke the glass  
The glass broke.
- b. ahmad kasar l-ballūr.  
Ahmad broke the glass.
8. a. Infataḥ l-bāb.  
opened the door  
The door opened.
- b. Ahmad fataḥ l-bāb.  
Ahmad opened the door.

Some unergative verbs can be used transitively. Morphologically, some unergative verbs which take [fiʕil] form can be used transitively ([liṣib], [laʕʕab]) but others cannot ([ḥilim], \*ḥallam). The same applies to verbs which take [iftaʕal] form: ([iʃtaḡal], [šaḡḡal]) and ([ibtasam], \*[basam]).

Semantically, it seems that the unergative verbs that can be used transitively such as [iʃtaḡal] *worked*, [liṣib] *played*, [sibiḥ] *swam*, [diḥik] *laughed*, [nām] *slept*, [širib] *drank*, [ʔakal] *ate*, [daras] *studied* describe willed or volitional acts as in (9b). However, other unergative verbs which describe willed or volitional acts cannot be used

transitively, such as [ʔāl] *said*, [ʕabas] *frowned* as in (10b).

9. a. dīḥik l-walad.  
laughed the boy  
The boy laughed.  
b. daḥḥak l-ʔab l-wallad.  
made laugh the father the boy  
The father made the boy laugh.
10. a. saʕal l-marīd.  
coughed the patient  
The patient coughed.  
b. \*l-ḡabra saʕʕalet l-marīd.  
The dust made-cough the patient.  
The dust made the patient cough.

The following section provides a minimalist account of the syntactic structure of unergatives and unaccusatives in LSA.

## 6. The Syntactic Structure of Unergatives and Unaccusatives in LSA

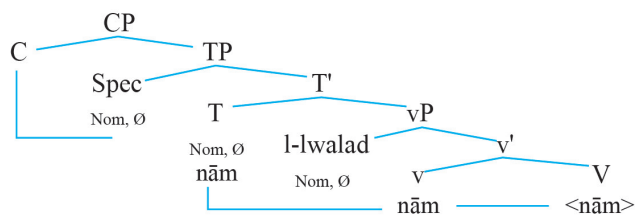
The syntax of unergative and unaccusative structures in LSA is not widely approached. One major difference between English and LSA structures is that LSA employs two-word orders (SVO/VSO) so the subject can appear either before or after the verb.

11. a. l-lulād nāmū. (SV)  
The children slept.  
b. namū l-lulād. (VS)  
slept the children.

The fact that there are two-word orders in LSA suggests that there are two syntactic processes for each order. The syntactic derivation of VS unergative structures in LSA as in (13) is based on Chomsky's (2005) notion of phases and feature inheritance<sup>[12]</sup>.

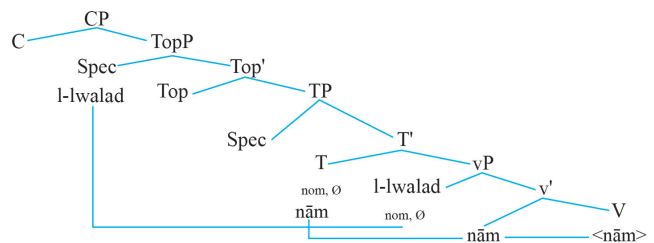
12. nām l-lwalad.  
slept the boy  
The boy slept.

13.



As for the SV order, building on Musabhién's (2009) analysis, the derivation of the SV order requires one further syntactic movement where the subject moves from spec-v to spec Top. Here Musabhién<sup>[13]</sup> combines Rizzi's (1997) Split Complementizer (C), and Chomsky's (2005) feature inheritance model<sup>[12-14]</sup>. CP is split into further projections including Topic Phrase (TopP) that is located above tense (T). TopP inherits the edge feature from C and attracts the subject to spec-Top. The derivation SV unergative structure [l-lwalad naam]. *The boy slept* is illustrated in (14).

14.



Before analyzing unaccusatives, it should be noted that unaccusative and passive structures are not clearly distinguished in Arabic since the internal theme argument of both structures appears as an external argument with nominative case marking. This issue can be accounted for by resorting to the semantic properties of both passive and unaccusative verbs. Even though both verbs share the property of lacking an agent argument and having a theme argument in the subject position, only passive sentences indicate the existence of an implicit agent (15a), while unaccusative verbs do not allow an agent (15b)<sup>[15]</sup>.

15. a. The window was broken by the gang.  
b. \*The window broke by the gang<sup>[15]</sup>.

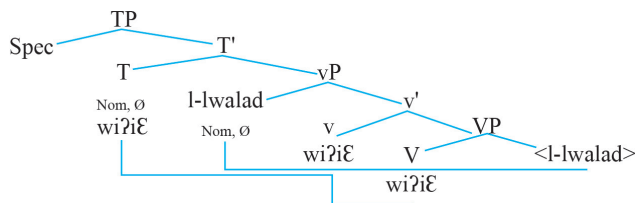
A similar analysis applies to LSA. For example, in [nišif l-ḡasīl] *The laundry dried* and [itnaššaf l-ḡasīl] *The laundry was dried*, the former is probably a result of the weather, and the latter is a result of an agent intervention. Passive verbs are always morphologically complex in the sense that they include more morphemes, and that they suggest an implicit agent that is responsible for bringing out the event denoted by the verb. Unaccusative verbs, on the other hand, can be morphologically either simple [nišif] *dried*, or complex [inkasar] *broke* and they do not involve an agent. It will be assumed that passive and unaccusative verbs share the same syntactic derivation in LSA. The idea is that both verbs have a theme thematic role appearing in the subject position and bearing nominative case marking. The evidence for this assumption comes from the grammaticality of (16a) and (16b) where nominative pronouns

appear in the subject position in both passive and unaccusative structures:

16. a. huwe wiʔiɛ hūn. (unaccusative)  
He(nom) fell here.  
b. huwe itraʔʔa bil- šigil. (passive)  
He(nom) was-promoted in the work.

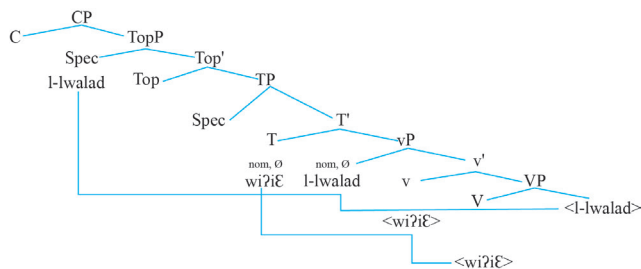
Musabbien's analysis will be adopted for both SV and VS unaccusative verbs. The VS unaccusative structure *wiʔiɛ l-walad* is derived as in (17).

17.



The derivation of SV unaccusative structures has one additional movement of the subject from T to a higher projection spec-Top to satisfy the edge feature of Top which is inherited from C. The SV unaccusative structure [*l-lwalad wiʔiɛ*] can be represented as in (18).

18.



After presenting an analysis of the syntactic structure of unergatives and unaccusatives in both languages, the syntactic similarities and differences are summarized as follows:

Points of similarity between English and LSA unergatives and unaccusatives:

In both English and LSA, the subject of unergative verbs has an agent theta role, and the subject of unaccusative verbs has a theme theta role

In both languages, the subject of unergative and unaccusative verbs bears nominative case marking.

Points of difference:

Unlike LSA, English unergative verbs cannot be used transitively.

Unlike LSA, English unaccusative verbs can be used transitively without any morphological changes on their form.

Unlike LSA, English employs only one-word order (SVO).

In English, the subject of unergative verbs is in spec-v, and moves to spec-T to satisfy the EPP feature on T. In LSA, in VSO order, the subject of unergative verbs is base-generated in spec-v. It remains in situ because T lacks EPP feature.

In English, the subject of unaccusative verbs rises from the complement position of VP to spec-T in order to satisfy the EPP feature. In LSA, in VSO order, it moves from the complement position of VP to spec-v so as to fill the empty position. In SVO order, it moves from the complement position to spec-v, and then it rises to spec-TopP.

In English, nominative case is assigned to the subject of unergative and unaccusative verbs as a result of the agreement between the uninterpretable nominative case feature on T with its matching feature on the subject in the local domain (spec-T). In LSA, nominative case is assigned to the subject of unergative and unaccusative verbs as a result of the long-distance agreement between the uninterpretable nominative case feature on T with its matching feature on the subject in spec-v where it remains in situ.

The rationale for choosing unergatives and unaccusatives for investigating the acquisition of this phenomenon can now be made clear. The LSA-English pairing gives the opportunity to address relevant research questions, and the structural properties of LSA are advantageous for studying the acquisition of these intransitive verbs, in particular studying (i) L1 transfer in the early stages of acquisition, and at later stages of acquisition if it is persistent, (ii) the possibility of full access to UG, particularly in terms of the disparity in a functional feature (EPP feature which is present in English but not LSA). Variation between English and LSA can be viewed as different selections of features (interpretable and uninterpretable). For some theories functional features remain stumbling blocks to learning and for other theories they might be acquired at later stages of acquisition.

The next section reviews the major acquisition theories, and later it presents some of the studies conducted on the acquisition of these structures.

## 7. Major Second Language Acquisi-

## tion Theories

Two main camps are there in the literature, and they are widely divergent. The first camp assumes that L2 learners can ultimately attain full target-like representations for the target language. In case L2 learners diverge, the situation could be that learners have an output problem or a processing problem. The second camp argues for an existing gap in L2 mental representation; that is, there are some features in the target language which might be stumbling blocks for learners so that they remain impaired after the critical period.

One important part of this empirical paper is to test the existing acquisition theories. Three competing theories, namely the Full Access, the Partial Access, and the No Access are listed here. The assumptions of these three theories, the predictions and research questions will be addressed below.

### 7.1. Full Access to UG

According to this view, L2 acquisition is UG constrained, and L2 learners have access to UG through developmental stages. The Full Access view argues for the possibility of resetting the L1 parameters during the process of L2 acquisition. The interlanguage grammar is not limited to the parameter settings of the L1, L2 parameter values are accessible for L2 learners. Some of the hypotheses which fall within this view include: Full Transfer Full Access (FT/FA) Hypothesis, Full Access (FA) Hypothesis, the Minimal Tress (MT) Hypothesis, and the Valueless Features (VF) Hypothesis.

### 7.2. FT/FA Hypothesis

FT/FA hypothesis states that the starting point of L2 acquisition is the L1 grammar. That is, L2 initial state encompasses all the principles and parameter values as instantiated in the L1 grammar. With more exposure to L2 input, L1 grammar fails to assign representation to the L2 data, and therefore, it has to restructure itself; and this “restructuring” is drawn from options available in UG<sup>[16]</sup>.

Schwartz and Sprouse hypothesize that the process of “restructuring” varies from learner to learner; it can happen either rapidly or slowly. Moreover, convergence on the

L2 grammar is not guaranteed in the sense that L2 learners may not arrive at L2 grammar because the data needed to force restructuring is either ineffective, or very complex and obscure<sup>[16]</sup>.

### 7.3. FA Hypothesis (Without Transfer)

Full Access suggests that UG in its entirety constitutes the initial state and it is available from early stages of L2 acquisition including functional categories<sup>[17]</sup>. This clashes with FT/FA which hypothesizes that the initial state is L1 grammar.

### 7.4. MT Hypothesis

The MTH is proposed by Vainikka and Young-Scholten (1994, 1996)<sup>[18]</sup>. Similar to the FT/FA hypothesis, the MTH argues that the initial state is a grammar that is based on L1. However, in contrast to the FA/FT hypothesis, only parts of L1 grammars are used in the initial state. L1 transfers lexical categories but not functional categories. Functional categories emerge gradually when L2 learners are exposed to L2 input. Interlanguage development takes the form of a gradual development of functional structure. Lower-level functional projections, such as IP, appear before higher-level projections such as CP.

### 7.5. The VF Hypothesis

Eubank (1996) proposes the valueless feature hypothesis in which the initial state maintains the L1 grammar with weak transfer<sup>[19]</sup>. L1 lexical and functional categories are present in the early interlanguage grammar. However, the feature values of L1 functional categories do not transfer; features are valueless or ‘inert’ in the initial state. L2 feature strengths will be acquired during the L2 acquisition.

### 7.6. Partial Access to UG

According to this view, not all parameter values are available in L2 acquisition; only certain aspects of UG are available. One of the hypotheses which adopts the partial access view is the Failed Functional Feature Hypothesis (FFFH) of Hawkins and Chan (1997)<sup>[20]</sup>, which claims that the features associated with functional categories are inaccessible. L1 parameters become inaccessible to mod-

ification, or resetting, after the critical period, so it is impossible for adult L2 learners to reset new parameter values other than those acquired in L1 acquisition. However, principles of UG are still accessible in post-childhood L2 grammar. When adult L2 learners encounter a situation where L2 parameter values are different from their L1, they will either adopt L1 values, or with sufficient exposure to L2, they will recognize the difference between the two grammars, adopting solutions that may be distinct from both grammars though compatible with UG<sup>[20]</sup>.

This hypothesis was reformulated later based on work by Hawkins and Hattori (2005)<sup>[21]</sup>. It posits that uninterpretable functional features are subject to maturation constraints, and therefore, if such features are not instantiated in L1 prior to critical period, they become no longer accessible.

### 7.7. No Access to UG

Interlanguage grammar is not constrained by UG. In L2 acquisition, there are no parameters at all in the interlanguage grammar as the properties associated with each parameter are acquired separately<sup>[6]</sup>. Interlanguage grammar may demonstrate properties which are not otherwise characteristic of natural language; they are in some sense defective or wild<sup>[6]</sup>.

## 8. Research Hypotheses

Based on the syntactic similarities and differences between the two languages, and the major assumptions of the theories discussed above, the predictions of each one of these theories are formulated.

**FT/FA:** If UG is available in L2 acquisition, LSA learners must be able to acquire the unergative/unaccusative distinction. Learners will be sensitive to NP movement involved in unaccusative structures. However, they rely on their L1 at early stages of acquisition. With more exposure to L2 and as proficiency increases, learners diverge from their L1, and UG is fully accessed. Proficiency will have a positive effect according to FT/FA.

**FA (without Transfer):** Since the hypothesis suggests that UG constitutes the initial state, LSA learners will acquire the unergative/unaccusative distinction at early stages of acquisition and they will be sensitive to NP move-

ment involved in unaccusative structures. This means they will have native-like proficiency.

**FFFH:** LSA learners will not be able to achieve native-like performance of English unergative and unaccusative constructions since EPP feature, which attracts the subject into spec-T position in English, does not take place in the derivation of LSA structures. There will be no sensitivity to NP movement even at advanced stages.

**No Access Hypothesis:** LSA learners will not be able to acquire the difference between unergative and accusative verbs, because UG is not available in L2 acquisition. Proficiency does not play a role, there will be substantial differences between L2 and native syntactic representations.

## 9. Unergativity and Unaccusativity in SLA

There are various studies on L2 acquisition of unergativity and unaccusativity, and most of the work is devoted to the acquisition of L2 English unergatives and unaccusatives. The results of these studies are contradictory in some respects, namely with regards to the L2 learners' accessibility to UG and the role of L1. For example, Park and Lakshmanan (2007)<sup>[22]</sup>, Ariamanesh and Rezai (2012)<sup>[23]</sup>, Dolgormaa and Lee (2012)<sup>[22]</sup>, and Hirakawa (2001) argue that learners have full accessibility to UG<sup>[5]</sup>, while Pongpairaj and Kijparanich (2012) argue for partial access to UG<sup>[24]</sup>, yet Oh (2011) for a no access view<sup>[25]</sup>.

There was also no consensus over the role of L1. For instance, while Park and Lakshmanan (2007)<sup>[22]</sup>, Ariamanesh and Rezai (2012)<sup>[23]</sup>, and Oh (2011) argue for a positive role of proficiency<sup>[25]</sup>, Can (2009) and Hirakawa (2001) argue for a negative role of proficiency<sup>[5,26]</sup>.

The next section is concerned with reporting the empirical study conducted to examine the acquisition of unergatives and unaccusatives in English by speakers of LSA. The empirical investigation homes in on finding a satisfactory account of convergence and divergence in the L2 initial state and endstate.

## 10. Materials and Methods

In order to test the reliability and validity of the test design, two groups of LSA speakers of L2 English were in-

cluded in the study. A native control group is also used for comparison. Using a standardized general test of proficiency, the Oxford Placement Test (1992), LSA subjects were classified into two proficiency levels. Three tests were constructed aimed specifically at eliciting information on the competence and use of these two types of intransitive verbs: a grammaticality judgment task (GJT) to test the learners' competence, a translation task (TT) and a picture description task (PDT) to test their performance.

The final version of the tests followed extensive piloting. The pilot study aimed at enhancing the validity, adequacy and reliability of the instruments implemented in the full study and the administration procedures.

### 10.1. Research Instruments

When designing the tests, a number of general principles were taken into account.

- i. Consistency within the same test and between the tests, the number of test items were considered (the tasks involved a balanced number of sentences that belong to each of the three types: unergatives (3), alternating unaccusatives (3), and non-alternating unaccusatives (3)), the time allowed to participants to answer the tests, the way test items were presented, and the ordering of the items.
- ii. All vocabularies were checked for their frequency so that infrequent vocabularies would not distract participants from the main purpose of the task. Frequency was checked using a program called Compleat Lexical Tutor. Within the Compleat Lexical Tutor, the British National Corpus (BNC-20) was used to check the frequency of words.
- iii. Semantically, sentences were constructed to be acceptable as independent clauses.
- iv. There were no split main clauses to eliminate any possible ambiguity in the sentence.
- v. All the sentences used had either the simple present or simple past tenses.
- vi. No successive items tested the same property to eliminate the likelihood that participants would recognize the properties being tested.
- vii. Sentences used in the translation task and the grammaticality judgment task are simple sentences.
- viii. Fillers were included in the three tasks to distract par-

ticipants from the main aim of each task.

### 10.2. GJT

The main purpose of this task is to examine how learners judge the different structures, and whether they achieve native-like judgments by accepting the grammatical structures while rejecting the ungrammatical ones. If participants accept the use of passive in type 6 (see types below) over the use of passive in type 3, that might indicate their sensitivity to the parallelism between passive and unaccusative structures and; hence their sensitivity to NP movement.

In addition to 8 fillers, the task includes 9 different structures. Each verb type (unergative, alternating unaccusative, non-alternating unaccusative) appears in three contexts (intransitive, transitive, and passive):

**Type 1:** Unergative verbs in transitive sentences: \*He cried the baby.

**Type 2:** Unergative verbs in intransitive sentences: The baby cried.

**Type 3:** Unergative verbs in passive sentences: \*The baby was cried.

**Type 4:** Non alternating unaccusative verbs in transitive sentences: \*Sunlight appeared the ship.

**Type 5:** Non alternating unaccusative verbs in intransitive sentences: The ship appeared.

**Type 6:** Non alternating unaccusative verbs in passive sentences: \*The ship was appeared.

**Type 7:** Alternating unaccusative verbs in transitive sentences: The boy broke the window.

**Type 8:** Alternating unaccusative verbs in intransitive sentences: The window broke.

**Type 9:** Alternating unaccusative verbs in passive sentences: The window was broken.

The task included 27 sentences and the participants were given four different choices for each sentence, they were asked to choose between:

**Correct** if the construction sounds OK in English for them.

**Possible** if the construction might be OK in English.

**Incorrect** if the construction is not OK in English.

**I cannot decide** if participants felt confused and unable to choose an answer.

See **Appendix A** for the full GJT.

### 10.3. PDT

The aim of the task is to find out whether participants use passive structures over unaccusatives when describing certain pictures. This might also indicate their sensitivity to NP movement.

In this task, participants were presented with nine pictures, each of which shows an activity or a state and they were asked to describe each picture using the verb next to each picture. In addition to 5 fillers, the task included 3 unergative verbs (**Appendix A Figure A1**), 3 alternating unaccusatives (**Appendix A Figure A2**), and 3 non-alternating unaccusatives (**Appendix A Figure A3**). See **Appendix A** for the full PDT.

### 10.4. TT

The aim of this task is to measure whether participants translate unergative structures as their equivalent in English, and to test whether they translate unaccusative verbs as passives and avoid doing the same with unergative verbs.

Passivization is used in the TT and GJT as a diagnostic for movement. The rationale for using passivization is because there is a tendency among L2 learners of English from a variety of L2 backgrounds to use passive morphology with unaccusative verbs but not with unergative verbs. This tendency is understood as an indication of L2 learners' sensitivity to NP movement.

The task includes 9 Arabic sentences to translate into English: 3 unergatives, 3 alternating unaccusatives, and 3 non-alternating unaccusatives in intransitive contexts. This is in addition to 5 fillers. See **Appendix A** for the full TT.

### 10.5. Participants and Procedures

The participants are native speakers of LSA. They are students at the department of English at Tishreen University/Syria. They were all selected after conducting the oxford placement test. Native speakers of English who formed the control group were all university educated and spoke British English. **Table 1** summarizes the information about participants.

**Table 1.** Participants.

Participant Group	Number of Participants	Age Range	Starting Age of L2 Learning
Elementary	30	18–22	9
advanced	30	25–28	9
Native speakers of English (control group)	10	30–45	

It was difficult to recruit a big number of native speakers of English. Many of the people whom the author contacted did not accept to take part in the study, while others asked for a lot of money for their participation. The small number of the control group might have certain limitations; one of which is generalizability of results.

All LSA subjects involved in this study did the three tests: the GJT, the PDT, and the TT. These tests were given to subjects within a period of three weeks in three sessions, each task was conducted in a different week. Since test environment can affect performance, testing took place in a classroom familiar to participants using a method (paper and pen) with which they were also familiar. The staff involved in administering the test was known to the participants, and testing took place during time when they nor-

mally have classes.

They were instructed not to think thoroughly about the questions and to go with their first impression. They were also instructed not to revise nor correct their answers. In the TT and PDT, participants were asked not to change the structure of sentences except when the change was necessary to produce a proper English sentence. Participants were allowed to ask about the meaning of words that might be ambiguous for them.

## 11. Data Analysis

Data from each of the tasks used were scored and analyzed using the statistical package SPSS (v24). It was decided to use parametric inferential statistics (one-way

ANOVA and T-tests), which is a common practice in the analysis of data in L2 studies.

The reliability of each test item was measured using *Cronbach's alpha*. Results were all positive. (To further check the validity of all items in the three tasks, an Exploratory Factor Analysis (EFA) was conducted using Principal Axis Factoring extraction with Varimax rotation. The number of factors was determined based on the Eigenvalue criterion (Eigenvalue > 1). Items with loadings below 0.5 or those that cross-loaded on two factors were excluded.).

## 12. Results

The results of the three tasks are reported below.

**Table 2.** Mean Rating for Unergatives in Transitive, Intransitive, and Passive Contexts.

Structure	*Unergatives/ Transitive		Unergative/ Intransitive		*Unergative/Passive	
Participants	M	sd	M	sd	M	sd
Elementary (n=30)	2.31	0.68	1.42	0.51	2.55	0.58
Advanced (n=30)	2.60	0.55	1.35	0.47	2.93	0.22
Native speakers (n=10)	2.93	0.14	1.60	0.14	3	0.0

### 12.1.2. Non-Alternating Unaccusative Verbs in Transitive, Intransitive and Passive Sentences

Mean scores of the native group were higher than the

## 12.1. The Results of the GJT

The results of mean ratings for each type (unergatives, alternating unaccusatives, non-alternating unaccusatives) will be presented separately. (See also mean scores for each item and response in **Appendix B Tables A1–A9**).

### 12.1.1. Unergative Verbs in Transitive, Intransitive and Passive Sentences

The mean scores of natives were higher than the elementary and advanced groups in all contexts. The advanced group's scores were higher than the elementary's except in the intransitive context (**Table 2**).

other groups in the ungrammatical transitive and passive contexts, but less than them in the intransitive context. Advanced group rated the structure higher than the elementary group (**Table 3**).

**Table 3.** Mean Rating for Non-Alternating Unaccusatives in Transitive, Intransitive, and Passive Contexts.

Structure	*Non-alternating/Transitive		Non-alternating/Intransitive		*Non-alternating/Passive	
Participants	M	sd	M	sd	M	sd
Elementary (n=30)	2.02	0.53	1.57	0.48	1.97	0.63
Advanced (n=30)	2.75	0.48	1.67	1.22	2.71	0.40
Native speakers (n=10)	3	0	1.03	0.10	2.90	0.16

### 12.1.3. Alternating Unaccusative Verbs in Transitive, Intransitive and Passive Sentences

The mean scores of natives were less than that of the

advanced group in the intransitive and passive contexts. The elementary group rated the transitive context higher than the advanced group (**Table 4**).

To check whether the differences between groups are

significant, One-way Anova was conducted. The results are shown in **Table 5**.

**Table 4.** Mean Rating for Alternating Unaccusatives in Transitive, Intransitive, and Passive Contexts.

Structure	Alternating/Transitive		Alternating/Intransitive		Alternating/Passive	
Participants	M	sd	M	sd	M	sd
Elementary (n=30)	1.40	0.39	1.80	0.59	1.21	0.28
Advanced (n=30)	1.35	0.40	2	0.65	1.42	0.66
Native speakers (n=10)	1.96	0.36	1.76	0.22	1.16	0.23

**Table 5.** Significant Differences Between Groups in GJT.

Structure	Elementary*Advanced	Elementary*Natives	Advanced*Natives
Unergative/transitive	0.058813	0.004660	0.121488
Unergatives/intransitive	0.579033	0.296915	0.152982
Unergative/passive	0.000751	0.004521	0.660809
Non-alternating/transitive	9.369E-8	3.6469E-7	0.162872
Non-alternating/intransitive	0.000501	0.000183	0.173928
Non-alternating/passive	3.3238E-7	0.000004	0.305667
Alternating/transitive	0.663531	0.000197	0.000068
Alternating/intransitive	0.190963	0.876743	0.279684
Alternating/passive	.093016	0.8000531	0.149355

Output of One-way Anova showed that in the case of unergative verbs, there is a significant difference between responses of the elementary group and other groups except for the grammatical structure in transitive structures. No significant differences were found between the advanced group and the native group.

One-way Anova revealed significant differences between the elementary group and other groups in the case of non-alternating unaccusatives, but no differences between the advanced group and the native group.

Finally, in the case of alternating unaccusative verbs, there was no significant difference between the groups ex-

cept for alternating unaccusatives in transitive structures where a significant difference was found between the elementary and advanced groups as compared with the native groups.

Further within-group comparisons were also conducted using mean scores and standard deviation to check whether there were individual variations within each group. No within-group differences were found; see **Appendix C Tables A16–A18**.

The effect size was also assessed. Eta squared is used to measure the extent proficiency is affecting the performance of all three groups. The results are shown in **Table 6**.

**Table 6.** Effect Size of Proficiency in GJT.

Structure	Eta squared $\eta^2$
Unergative/transitive*proficiency	$\eta^2=0.124$
Unergatives/intransitive*proficiency	$\eta^2=0.030$
Unergative/passive*proficiency	$\eta^2=0.190$
Non-alternating/transitive*proficiency	$\eta^2=0.428$
Non-alternating/intransitive*proficiency	$\eta^2=0.243$
Non-alternating/passive*proficiency	$\eta^2=0.389$

Table 6. Cont.

Structure	Eta squared $\eta^2$
Alternating/transitive*proficiency	$\eta^2=0.224$
Alternating/intransitive*proficiency	$\eta^2=0.032$
Alternating/passive*proficiency	$\eta^2=0.053$

Results show a large-sized effect for proficiency in the case of transitive and passive unergatives, large-sized effect for proficiency in the case of non-alternating unaccusatives, and a small-sized effect for proficiency in the case of (transitive and passive) alternating unaccusatives.

## 12.2. The Results of PDT

Mean scores for each item and response (see **Appendix B Tables A10–12**) show that the sentences which participants produced to describe the pictures using unergative

and non-alternating verbs were almost native-like. They hardly transivized or passivized them. On the other hand, most of the sentences that described alternating unaccusatives were passive and transitive structures.

**Table 7** shows mean ratings for the three types.

Results of One-way Anova output showed no significant differences between groups in all different structures except for the significant difference between elementary and advanced groups in the case of unergative structures (**Table 8**).

Table 7. Mean Ratings for Unergative, Alternating Unaccusative, Non-Alternating Unaccusative Verbs.

Structure	Unergative		Alternating		Non-alternating	
Participants	M	sd.	M	sd	M	sd
Elementary (n=30)	1.08	0.26	2.95	0.63	3.02	0.26
Advanced (n=30)	1	0	3.06	0.48	3	0.0
Native speakers (n=10)	1	0	2.83	0.59	3	0

Table 8. Significant Differences Between Groups in PDT.

Structure	Elementary*Advanced	Elementary*Natives	Advanced*Natives
Unergative	0.053111	0.205705	1.0000000
alternating	0.450853	0.590051	0.305121
Non-alternating	0.624039	0.750324	1.0000000

To check the effect size, an eta squared measure was conducted to show the effect of proficiency on the per-

formance of all three groups. The results are shown in **Table 9**.

Table 9. Effect Size of Proficiency in PDT.

Structure	Eta squared $\eta^2$
Unergative *proficiency	$\eta^2=0.063$
Non-alternating*proficiency	$\eta^2=0.004$
Alternating*proficiency	$\eta^2=0.019$

Results show a small-sized effect of proficiency in the case of non-alternating unaccusatives, but a medium-sized

effect of proficiency in the case of unergatives and alternating unaccusatives.

### 12.3. Results of TT

Mean scores for each item and response (see **Appendix B Tables A13–15**) show that in the case of unergative sentences, participants' translations were 100% accurate and no use of the passive was observed. As for the non-alternating unaccusative sentences, (happen, disappear) were more likely to be passivized by the participants as well as to be transvized. Some participants produced sentences

like *There has been an accident* instead of *An accident happened*. It was noticed that the percentage of advanced learners who passivized and transvized the non-alternating unaccusatives is larger than that of the elementary group.

Participants of both groups tended to passivize and transvize alternating unaccusative verbs as well. Advanced participants also showed a greater tendency towards passivization and transvization.

Mean ratings for the groups are in **Table 10**.

**Table 10.** Mean ratings for Unergative, Alternating Unaccusative, Non-Alternating Unaccusative Verbs.

Structure	Unergative		Alternating		Non-alternating	
Participants	M	sd	M	sd	M	sd
Elementary (n=30)	1	0	2.62	0.64	3.04	0.11
Advanced (n=30)	1	0	2.48	0.46	3.02	0.086

An independent samples T-Test was conducted to check for significant differences between the two groups with the result that there are no significant differences between them (**Table 11**).

**Table 11.** Significant Differences Between Groups in TT.

Structure	Elementary*Advanced
Unergative	<sup>1</sup>
alternating	0.520834
Non-alternating	0.558860

<sup>1</sup> T cannot be computed because the standard deviation of both groups is 0.

To check the effect size, a Cohen's D measure was conducted. The results are shown in **Table 12**.

**Table 12.** Effect Size of Proficiency in TT.

Structure	Cohen's d
Unergative *proficiency	d=0. 0
Non-alternating*proficiency	d=0.2512
Alternating*proficiency	d=0.2026

Results show a small effect for proficiency in the three types of verbs.

### 13. Discussion and Conclusions

The above results seem to suggest that there are four crucial factors at play in the acquisition of the intransitive verbs: proficiency, L1 influence, world knowledge, and morphological structure of the verbs.

Overall, the results show that there were variations between the two groups in their performance of the three

tasks especially when compared with the native group in the GJT. The advanced learners performed better than the elementary group and they were sensitive to NP movement. At the same time, the advanced group were up to native-like performance. Results of the study lead to the conclusion that language proficiency is deterministic in the acquisition of the syntactic forms in question. The results are close to Can (2009) in the sense that the performance of the advanced group was better than the elementary group's <sup>[26]</sup>, which suggests that performance of LSA learners developed as proficiency increased. So, performance

was largely proficiency-related. Should other factors be involved rather than proficiency? L1 has an influence. As mentioned earlier, the structure of English unaccusatives and passives is similar in the sense that their arguments are basically internal arguments that underwent an NP movement. In LSA, unaccusative and passive structures are not clearly distinct since the internal theme argument of both structures appears as an external argument with nominative case marking. In this study, participants were sensitive to NP movement as shown from the results of the three tasks (this is more evident in mean scores (**Appendix B**)). In GJT, they accepted the passivized non-alternating unaccusative structures and rejected the passivized unergative structures even though both categories are ungrammatical. This parallelism between the passive and unaccusative might be an indication to the participants' sensitivity to NP movement. The same tendency to passivize and transivize unaccusative verbs is found in TT and PDT, which is again taken as evidence for NP sensitivity since the argument is placed in the internal position and another argument is inserted as a subject in the external position.

Learners' world knowledge affected L2 acquisition. Mean scores (**Appendix B**) show that the alternating unaccusative category was a problematic category for the advanced group. It was remarkably the most passivized category. In the GJT, a noticeable percentage marked this category ungrammatical. Can (2007) attributes this to that the production of speech initially takes place in the mind where speakers figure out the arguments required by the action/eventuality of the verb and assign semantic roles for them<sup>[27]</sup>. Can posits that this unconscious ability is part of the world knowledge rather than a linguistic knowledge. For example, speakers realize that the eventuality of the verb *read* cannot take place without a reader and something that is read. Learners start unconsciously reaching some generalizations about the association between the semantic roles of the arguments and the syntactic positions they occupy. In other words, they reach [subject/agent], [object/patient] generalizations. With more exposure to language, learners confront grammatical structures that contradict the generalizations which they have already internalized. For examples, the following sentence *The book reads easily* poses a conflicting situation for learners since it was internalized in their mental lexicon that *a book* is not something that can perform the action. It is worth mention-

ing that alternating unaccusatives are less frequent in the input than their transitive counterparts which are very frequent and productive in the input. This productivity leads learners to internalize the [subject/agent], [object/patient] generalizations.

Finally, the morphological structure of the intransitive verbs seems to be at play. In TT, it was noticed that Arabic complex verbs were more passivized than other simple verbs. It might be the case that LSA learners may subconsciously associate the complex form of the verb with the passive. This is because passive verbs are always morphologically complex in that they include more morphemes, and suggest an implicit agent that is responsible for bringing out the event denoted by the verb. Unaccusative verbs can be morphologically either simple or complex and they do not involve an agent. This can tentatively explain why participants passivized certain verbs and not others. However, caution is necessary here because the present study homed in on the investigation of the acquisition of the syntactic structure of English unergatives and unaccusatives, but not the morphological structure of these verbs. In future work, it might be useful to focus on the acquisition of the morphological and semantic aspects of these verbs. This is to give a comprehensive picture about the L2 acquisition of these verbs.

The above discussion has the following implications for a number of competing theories of SLA. Light is shed on the direct link that exists between the results of the study and the predictions of SLA theories. L1 influence is present at the early stages of acquisition since the elementary group highly accepted transitive unergative and transitive non-alternating structures. These ungrammatical English structures are possible in LSA. The performance of the advanced group was native-like. Therefore, the results of this study largely support the Full Transfer Full Access Hypothesis. The results of the advanced group in the GJT cannot be explained in light of the Failed Functional Feature Hypothesis. The advanced group could decide on the ungrammaticality of transitive unergative structures, transitive and passive non-alternating unaccusatives suggesting that they have acquired the uninterpretable EPP feature that is not present in their L1. In LSA, the subject of unergatives and unaccusatives appears after the verb in Spec-v position or preceding it in Spec-Top position. EPP feature does not take place in the derivation of LSA struc-

tures contrary to English where EPP plays an essential role in attracting the subject to Spec-T position including the subject of unergative and unaccusative verbs. This is also evident in the fact that there were no significant differences in the performance of all groups in the case of alternating unaccusatives in intransitive contexts. The results of this study are in conformity with Hirakawa (2001) <sup>[5]</sup>, Dologormaa and Lee (2012) <sup>[22]</sup>, Ariamanesh and Rezai (2012) <sup>[23]</sup>, Park and Lakshmanan (2007) which support the Full Transfer Full Access Hypothesis <sup>[28]</sup>.

## Funding

This work received no external funding.

## Institutional Review Board Statement Conflicts of Interest

Not applicable.

The author declares no conflict of interest.

## Appendix A

### Grammaticality Judgement Task

#### Type 1: unergative verbs in transitive sentences (ungrammatical)

The mother slept the baby.

The darkness shivered us

I loved when the groom danced his bride

#### Type 2: unergative verbs in intransitive sentences (grammatical)

We laugh on her jokes.

I smile when I see him

He lies about everything.

#### Type 3: unergative verbs in passive sentences (ungrammatical)

Children are happy because they were swum by their father

The street is run on by children every day.

She was cried because of you

#### Type 4: Non-alternating unaccusative verbs in transitive sentences (ungrammatical)

The boy fell his sister from the bed

The sunlight appeared the ship.

The government existed the crisis.

#### Type 5: Non-alternating unaccusative verbs in intransitive sentences (grammatical)

An accident happened when I was driving to work.

I remained silent when they started questioning me

She stays in my house when she is in town

#### Type 6: Non-alternating unaccusative verbs in passive sentences (ungrammatical)

Guests were arrived in Limo cars.

## Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

## Data Availability Statement

The research data can be found in Appendices B and C.

## Acknowledgments

I would like to thank all the students who accepted to take part in the study without being paid for their participation. I wish to extend my gratitude to all the native speaker of English for their wonderful participation and cooperation.

I loved when the rabbits were disappeared.

The wind blew hard, so the leaves were fallen.

**Type 7: Alternating unaccusative verbs in transitive sentences (grammatical)**

The storm drowned the boat.

The sun melted the snow.

She started the fight.

**Type 8: Alternating unaccusative verbs in intransitive sentences (grammatical)**

She is a good writer and her books sell well.

Their house burned last night.

The rice cooks easily with me.

**Type 9: Alternating unaccusative verbs in passive sentences: (grammatical)**

The police discovered that the house was burnt by the neighbor.

The dinner was great especially the dishes which were cooked by Hasan.

The window was broken when I entered the room.

Translation Task

**3 unergative sentences**

بالطلال عم ذاتس ألأ كحض

ليلال لوط دلولا يكب

ةعاس صرن تضر كمر

**3 alternating unaccusatives**

براقلا قرغ

ريتك يبتار داز

ةرايسلا كالبش رسكنا

**3 non-alternating unaccusatives**

فصلاب بل اطلال يقب

قيرطلال عثداح راص

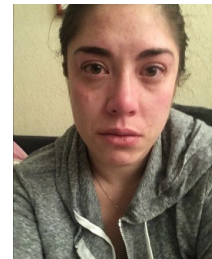
تال حملال نم زبخلال يفتخا



(A)



(B)



(C)

**Figure A1. 3 Unergative Verbs: (A) Swim, (B) Sleep, (C) Cry.**



(A)



(B)

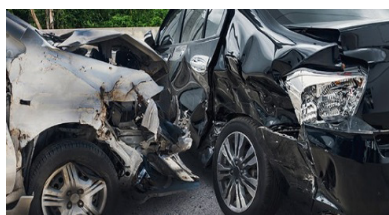


(C)

**Figure A2. 3 Alternating Unaccusatives: (A) Break, (B) Drown, (C) Burn.**



(A)



(B)



(C)

**Figure A3.** 3 Non-Alternating Unaccusatives: (A) Fall, (B) Happen, (C) Disappear.

## Appendix B

Mean Scores for Each Tested Property and Selected Answer.

### 1. Mean Scores of the GJT

**Table A1.** Unergative Verbs in Transitive Sentences (an Ungrammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	37.77%	8.88%	37.77%	15.55%
Advanced	11.11%	20%	62.22%	6.66%
Natives	-	6.66%	93.3%	-

**Table A2.** Unergative Verbs in Intransitive Sentences (a Grammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	88.88%	2.22%	6.66%	2.22%
Advanced	75.55%	15.55%	6.66%	2.22%
Natives	66.6%	6.6%	26.6%	-

**Table A3.** Unergative Verbs in Passive Sentences (an Ungrammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	17.77%	11.11%	64.44%	6.66%
Advanced	4.44%	8.88%	75.55%	11.11%
Natives	-	-	100%	-

**Table A4.** Non-Alternating Unaccusative Verbs in Transitive Sentences (an Ungrammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	44.44%	20%	31.11%	4.44%
Advanced	4.44%	13.33%	66.66%	2.22%
Natives	-	-	100%	-

**Table A5.** Non-Alternating Unaccusative Verbs in Intransitive Sentences (a Grammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	64.44%	15.55%	17.77%	2.22%
Advanced	84.44%	15.55%	0%	0%
Natives	96.6%	3.33%	-	-

**Table A6.** Non-Alternating Unaccusative Verbs in Passive Sentences (an Ungrammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	51.11%	11.11%	26.66%	11.11%
Advanced	8.88%	20%	64.44%	6.66%
Natives	-	10%	90%	-

**Table A7.** Alternating Unaccusative Verbs in Transitive Sentences (a Grammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	73.33%	15.55%	8.88%	2.22%
Advanced	75.55%	20%	2.22%	2.22%
Natives	6.6%	23.3%	70%	-

**Table A8.** Alternating Unaccusative Verbs in Intransitive Sentences (a Grammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	57.77%	6.66%	31.11%	4.44%
Advanced	44.44%	15.55%	31.11%	8.88%
Natives	43.33%	36.6%	20%	-

**Table A9.** Alternating Unaccusative Verbs in Passive Sentences (a Grammatical Structure).

	Correct	Possible	Incorrect	I cannot decide
Elementary	88.88%	4.44%	6.66%	0%
Advanced	73.33%	13.33%	6.66%	6.66%
Natives	83%	16.6%	-	-

## 2. Mean Scores of the PDT

**Table A10.** PDT: Uergative Verbs.

		Elementary	Advanced	Natives
Swim	Intransitive	100%	100%	100%
	Transitive	0%	0%	-
	Passive	0%	0%	-
Sleep	Intransitive	100%	93.33%	100%
	Transitive	0%	0%	-
	Passive	0%	6.66%	-
Cry	Intransitive	100%	100%	100%
	Transitive	0%	0%	-
	Passive	0%	0%	-

**Table A11.** Non-Alternating Unaccusative Verbs.

		Elementary	Advanced	Natives
Fall	Intransitive	86.66%	100%	100%
	Transitive	6.66%	0%	-
	Passive	6.66%	0%	-
Happen	Intransitive	93.33%	100%	100%
	Transitive	0%	0%	-
	Passive	6.66%	0%	-

Table 11. Cont.

		Elementary	Advanced	Natives
Disappear	Intransitive	100%	100%	100%
	Transitive	0%	0%	-
	Passive	0%	0%	-

Table A12. Alternating Unaccusative Verbs.

		Elementary	Advanced	Natives
Break	Intransitive	26.66%	0%	-
	Transitive	20%	26.66%	60%
	Passive	53.33%	73.33%	40%
Drown	Intransitive	66.66%	80%	-
	Transitive	13.33%	6.66%	100%
	Passive	20%	13.33%	-
Burn	Intransitive	33.33%	13.33%	-
	Transitive	13.33%	20%	20%
	Passive	53.33%	66.66%	80%

### 3. Mean Scores of the TT

Table A13. Unergative Verbs.

		Elementary	Advanced
Laugh	Intransitive	100%	100%
	Transitive	-	-
	Passive	-	-
Cry	Intransitive	100 %	100%
	Transitive	-	-
	Passive	-	-
Run	Intransitive	100%	100%
	Transitive	-	-
	Passive	-	-

Table A14. Non-Alternating Unaccusative Verbs.

		Elementary	Advanced
Happen	Intransitive	93.33%	53.33%
	Transitive	6.66%	46.66%
	Passive	0 %	0%
Disappear	Intransitive	80%	73.33%
	Transitive	0%	6.66%
	Passive	20%	20%
Remain	Intransitive	100%	100%
	Transitive	0%	0%
	Passive	0%	0%

**Table A15.** Alternating Unaccusative Verbs.

		Elementary	Advanced
Drown	Intransitive	80%	100%
	Transitive	0%	0%
	Passive	20%	0%
Increase	Intransitive	93.33%	53.33%
	Transitive	0%	26.66%
	Passive	6.66%	20%
Break	Intransitive	53.33%	46.66%
	Transitive	0%	0%
	Passive	46.66%	53.33%

## Appendix C

Results of Within-Group Differences: Mean Scores and Standard Deviation

**Table A16.** Within-Group Differences in the GJT.

Structure	Elementary		Advanced		Natives	
	M	sd	M	sd	M	sd
Unergative T	2.311	.683	2.600	.556	2.933	.140
Unergative IN	1.422	.517	1.355	.470	1.600	.140
Unergative P	2.555	.589	2.933	.221	3.000	.000
Non-alternating T	2.022	.531	2.755	.486	3.000	.000
Non-alternating IN	1.577	.486	1.222	.294	1.033	.105
Non-alternating P	1.977	.636	2.711	.408	2.900	.161
Alternating T	1.400	.395	1.355	.400	1.966	.366
Alternating IN	1.800	.591	2.000	.655	1.766	.224
Alternating P	1.211	.280	1.422	.660	1.166	.235

**Table A17.** Within-Group Differences in the PDT.

Structure	Elementary		Advanced		Natives	
	M	sd	M	sd	M	sd
Unergative	1.088	.261	1.000	.000	1.000	.000
Non-alternating	3.022	.261	3.000	.000	3.000	.000
alternating	2.955	.635	3.066	.482	2.833	.590

**Table A18.** Within-Group Differences in the TT.

Structure	Elementary		Advanced	
	M	sd	M	sd
Unergative	1.000	.000	1.000	.000
alternating	2.622	.640	2.488	.469
Non-alternating	3.044	.117	3.022	.086

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