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Acquisition of Unaccusativity

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1. Introduction[†]

Starting with Chomsky's seminal "Syntactic Structures" (1957), research within the field of linguistics has revealed the astonishing complexity of natural language, most of which remains deeply hidden underneath its superficial simplicity. This study examines one manifestation of such complexity, namely the syntactic distinction between two types of intransitive predicates. Let us look at (1)-(2):

(1) The bottle fell

(2) The clown laughed

Superficially, no syntactic difference seems to exist between the two sentences; in both, the subject precedes the intransitive verb, bearing Nominative case. However, extensive research of the past 30 years revealed that the syntactic structures of the two sentences are crucially different, as shown in their respective representations in (3) and (4).

(3) [_{TP} [_{NP} The bottle]_i [_{VP} t_i fell t_i]]

(4) [_{TP} [_{NP} The clown]_i [_{VP} t_i laughed]]

Specifically, (1) contains an UNACCUSATIVE verb, whose subject is base-generated internally, in the direct object position, as shown in (3). The SV order, as in (1), is derived by A-MOVEMENT of the subject, creating an A-CHAIN (Burzio 1986; Perlmutter 1978; Perlmutter & Postal 1984). In contrast, (2) contains an UNERGATIVE verb, whose subject is base-generated externally, as shown in (4); 'externally' throughout this work refers to Spec VP, assuming the VP-Internal Subject Hypothesis (Koopman & Sportiche 1991), according to which verbal subjects are base-generated in Spec VP (and not in Spec TP, as it was traditionally assumed, e.g. Chomsky 1981).²

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² With the introduction of the Minimalist Program (Chomsky 1995), it became almost standard to assume that the external argument is assigned a thematic role by an abstract functional head called little-*v*, and consequently, that it is merged in Spec *v*P; see Horvath & Siloni (2003) for arguments against severing the external theta-role assignment from the lexical verb. In this work, I am using 'VP' as a convenient abbreviation of 'Verb Phrase', without committing myself to its precise analysis as a

Before proceeding, a few words on the terms ‘A-movement’ and ‘A-Chain’ are in order: originally, it was defined as movement to a thematic position, in contrast to ‘A-bar movement’ (and A-Bar Chain), which was movement to a non-thematic position; the former referred to Spec TP (i.e. IP), and the latter – to Spec CP (Chomsky 1981). With the introduction of the VP-Internal Subject Hypothesis (Koopman & Sportiche 1991), movement to Spec TP could no longer be considered A-movement, as Spec TP was no longer defined as a thematic position. To preserve the original formulation of the syntactic difference between sentences like (1) and sentences like (2) in terms of A-movement, Borer and Wexler (1992) suggest that the unaccusative subject moves in two steps: first from the direct object position to Spec VP, creating an A-Chain, and consequently from Spec VP to Spec TP; the unergative subject, in contrast, moves directly to Spec TP. I follow the acquisition literature reviewed in this work in assuming the syntactic differences between (3) and (4) to be: (i) the base-generated position of the subject, and (ii) the presence of an A-Chain in the former case and its absence in the latter.³

Returning to (1) and (2), the superficial similarity of the two sentences on the one hand, and the fundamental syntactic difference on the other, raise the question of acquisition: when and how is this difference acquired?⁴ It is well-known that children start using unaccusatives already before their second birthday (see, e.g., Friedmann 2007; Lorusso, Caprin & Guasti

VP or a *v*P. Nothing in my presentation or argumentation hinges on this distinction. Likewise, the distinction between NP and DP is immaterial for my purposes here; I am using ‘NP’ as a convenient abbreviation of ‘Noun Phrase’.

³ Note that (3) could be alternatively represented without the intermediate trace, leading one to define an A-Chain as ‘movement from internal argument position’, in essence merging (i) and (ii) into one distinction. Rather than argue for a specific representation of sentences like (1), for my purposes it was most important to follow the acquisition literature in assuming that sentences with unaccusative predicates differ syntactically from sentences with unergative predicates, the difference being the presence of an A-Chain in the former case and its absence in the latter. For convenience, I adopted the representation assumed in Borer and Wexler (1992), though nothing hinges on this decision.

⁴ Clearly, this lack of overt distinction is a particular property of English; other languages, like Russian/French, sometimes use different morphology with unaccusative verbs (i.e. *-sja/se*, respectively). Crucially, however, even in these languages the marking is inconsistent: it applies only to a subset of unaccusative verbs and it is not unique to unaccusatives (i.e. applies to other verb types as well, e.g. reflexives/middles). Even if there existed languages with a consistent marking of unaccusativity, this would certainly not help the child acquiring English, who faces the puzzle of acquiring the syntactic difference hidden behind the superficial similarity.

2005; Pierce 1989; Tomasello 1992). However, the finding that unaccusative verbs are among the first verbs produced by children does not necessarily mean that their subject is indeed mapped internally in the child's grammar; therefore, it is insufficient to determine whether the two verb-types are syntactically distinguished. In fact, the rather dominant approach nowadays assumes that unaccusatives are initially assigned an unergative analysis (i.e. (1) is misrepresented as (5) in the child's grammar).

(5) [_{TP} [_{NP} The bottle]_i [_{VP} t_i fell]]

This proposal, known as the UNERGATIVE MISANALYSIS HYPOTHESIS (UMH henceforth), has been advanced both with respect to L1 acquisition (Babyonyshev, Ganger, Pesetsky & Wexler 2001; Borer & Wexler 1987, 1992; Machida, Miyagawa & Wexler 2004; Wexler 2004) and L2 acquisition (Deguchi & Oshita 2004; Oshita 1997).

This study strives to answer both the empirical and the theoretical part of the question "How is unaccusativity acquired?" In the empirical part, I show that the data taken to support the UMH in both L1 and L2 research are inconclusive. Furthermore, I show that they are more naturally accounted for under the assumption that unaccusative verbs are assigned the correct syntactic representation from the onset of acquisition. An important implication of my claim is the confutation of proposals like the A-CHAIN MATURATION HYPOTHESIS (Borer & Wexler 1987, 1992) and the UNIVERSAL PHASE REQUIREMENT (Wexler 2004), both of which predict the L1 acquisition of unaccusatives to be delayed. A question arises whether this implication is desirable, and if so, how to account for the phenomena originally accounted for by these proposals. My work provides independent arguments for the inadequacy of both the A-Chain Maturation Hypothesis and the Universal Phase Requirement, showing that the implication of my claim is indeed desirable; additionally, it discusses alternative ways to account for the phenomena originally explained by such proposals.

In the theoretical part, I suggest a plausible course of acquisition of unaccusativity. Building on the THETA-SYSTEM (Reinhart 2000, 2002) and the recent analysis of THEME-UNERGATIVE predicates (Potashnik 2007), I suggest that the acquisition of the unaccusative syntax is

thematically driven: given an intransitive predicate whose subject is interpreted as Theme, the learner (i.e. the child/adult) readily knows that this predicate is unaccusative.⁵ The course of acquisition is therefore predicted to be rapid and unproblematic, in accordance with the empirical findings discussed in my work.

This work is structured as follows. The first part of the subsequent section is dedicated to a theoretical discussion of unaccusativity, focusing on its analysis within the Theta-System of Reinhart (2000, 2002). The second part is dedicated to the discussion of its proposed course of acquisition. Section 3 presents the theoretical origins of the UMH in L1 acquisition, providing the theoretical background for subsequent sections. Section 4 examines the existing empirical findings on L1 acquisition of unaccusativity, and Section 5 examines L2 data. Both sections start by presenting the empirical evidence taken to support the UMH and proceed by showing that upon a more careful examination, the data actually support the early acquisition of the distinction between unaccusative and unergative predicates.

2. Unaccusativity: Theory and Acquisition

2.1 Theory

Before turning to my main subject of inquiry, namely the acquisition of unaccusative verbs, I would like to present in more detail the Unaccusativity Hypothesis (UH henceforth). I start with an historical overview (§2.1.1), which serves as a theoretical background for the ideas in Reinhart (2000, 2002) and Potashnik (2007) (§2.1.2), adopted in my work.

2.1.1 Historical overview

It was noticed already in the early 70's that the class of two-place predicates is not uniform, as only some verbs participate in the so-called CAUSATIVE-INCHOATIVE ALTERNATION (e.g., Lakoff 1970). This is illustrated in (6)-(7).

- (6) a. John grows tomatoes (in the garden)
b. Tomatoes grow (in the garden)

⁵ In line with language acquisition literature, my work focuses on one-place unaccusatives; two-place unaccusatives are briefly discussed in §2.2.

- (7) a. John reads books (in the library)
 b. *Books read (in the library)

Thus, while *grow* has two different uses, namely the causative (i.e. transitive) in (6a) and the inchoative (i.e. intransitive) in (6b), *read* only has the transitive use in (7a). In addition, it was noticed that the class of one-place predicates was not uniform as well, as only some predicates have transitive alternates (e.g. *grow* in (6)). For example, *jump* and *shine* do not participate in the alternation, as illustrated in (8)-(9):

- (8) a. John jumped
 b. *Mary jumped John
 (Intended meaning: ‘Mary caused John to jump.’)
- (9) a. The glass shined
 b. *John shined the glass (with a polish)

Somewhat independently of the data in (6)-(9), Perlmutter (1978) suggested that alternating intransitive verbs like *grow*, *open* and *break* differ syntactically from non-alternating intransitive verbs like *jump*, *run* and *dance*. Specifically, he advanced the possibility that the subjects of the former are base-generated in the object position, labeling such verbs ‘unaccusatives’ (or ‘ergatives’). The original formulation of this hypothesis is given in (10).

(10) *Unaccusativity Hypothesis*

Some subjects of one-place predicates originate in the object position

(Perlmutter 1978: (10))⁶

Thus, some intransitive verbs merge their subjects internally, in the object position, while others merge their subjects externally. While the UH *per se* does not account for the contrasts in (6)-(9), the mere possibility of an unaccusative derivation of some intransitive verbs led to a vast research of empirical evidence which could support the proposal. What types of data can support the UH? The following excerpt from Perlmutter and Postal (1984) provides a direction for an answer: “The UH predicts that languages will have phenomena with respect

⁶ The original version, presented in (i), is formulated within the Relational Grammar Formalism (Perlmutter & Postal 1974):

(i) Certain intransitive clauses have an initial 2 but no initial 1.

to which nominals in some intransitive clauses will behave like subjects, while those in others will behave like direct objects.” (p. 97).

The first in-depth investigation of such phenomena is presented in Burzio (1986), who provides a rich set of syntactic DIAGNOSTICS OF UNACCUSATIVITY. The diagnostics are environments in which subjects of some intransitive predicates behave on a par with direct objects, contrasting with subjects of transitive predicates and other intransitive predicates (e.g., auxiliary selection in Romance languages, *ne*-cliticization in Italian etc.; I elaborate more on the specific diagnostics in course of this work). Furthermore, this work was the first to explicitly utilize the UH in order to account for (6)-(9), suggesting that unaccusatives, in contrast with unergatives, are derived verbs; more specifically, they are suggested to be derived in the lexicon from their transitive counterparts. As lexical rules are allowed to have exceptions, the fact that *read* (e.g.) lacks an intransitive counterpart is hardly surprising. In addition, Burzio shows that some non-alternating predicates (i.e. lacking transitive counterparts) like *fell* behave on a par with alternating unaccusatives. The non-existence of their transitive alternates is seen as another exception, providing further support for their lexical derivation.

Despite the theoretical advancement in Burzio (1986), it remains largely unclear what determines the unaccusativity or unergativity of a given verb. This gap is addressed in Levin and Rappaport-Hovav (1995), who attribute the classification of an intransitive verb to the type of causation that the event denoted by the verb encodes. Specifically, unaccusatives are suggested to be EXTERNALLY CAUSED, in that the event they denote cannot take place without an external participant/force. Unergatives, in contrast, are suggested to be INTERNALLY CAUSED, in that they denote events in which the argument of the verb is responsible for the event taking place. Under this proposal, therefore, the verb’s semantics determines its syntactic representation. In addition, and in contrast with all previous approaches, Levin and Rappaport-Hovav acknowledge that the system *as is* does not derive the unaccusativity of externally caused predicates and the unergativity of internally caused predicates. In other

words, the authors realize that a connection between the semantic properties and the syntactic behavior must be established. To this end, a set of LINKING RULES is defined, their role being to map semantic participants in an event onto positions in the syntactic structure.

A question arises what is encoded by the intuitive terms ‘internal’ and ‘external’ causation. The Theta-System of Reinhart (2000, 2002) addresses this question by formulating the distinction in a precise manner, as it is shown in the subsequent section.

2.1.2 The Theta-System

The Theta-System (θ -System) is located at the interface of the computational system (i.e. syntax) and the conceptual system. It consists of thematic roles (θ -roles), which are conceived of as feature clusters, composed of two atomic features: [+/-c] and [+/-m]. (In addition to θ -roles, it also includes thematic operations and mapping instructions, presented further below.) The former feature corresponds to ‘[c]ause change’, and the latter – to ‘[m]ental state relevant’. In order to determine the feature cluster of an argument (i.e. its θ -role), two questions need to be answered: “Does the participant in the event denoted by the verb cause a change in the world by its participation in the event?” and “Is the mental state of the participant relevant to the event?” A positive answer to the former question results in assigning the value [+c] (and a negative answer results in assigning the value [-c]); likewise, a positive answer to the latter question results in assigning the value [+m] (and a negative answer results in assigning the value [-m]). Thus, the traditional label AGENT (e.g. *John* in *John kicked the wall*) is represented by the cluster [+c+m], since the mental state of such a participant in the (e.g.) kicking event is relevant and since such a participant affects the world by his participation in the event. The traditional label THEME (e.g. *the wall* in *John kicked the wall*), essentially being opposed to Agent, is represented by the cluster [-c-m].⁷

Returning to unaccusatives, the question arises how to represent in the Theta-System the thematic role assigned to the subject of transitive verbs like *open*. On the one hand, this θ -role

⁷ While the traditional θ -role names (e.g. Theme/Agent) continue to be used in the model, they are merely convenient labels; the essence of a thematic role lies in its feature composition.

can be realized as [+c+m], as in (11a); on the other hand, it can be realized as [+c-m] (inanimate Cause), as in (11b).

- (11) a. John opened the window
b. The wind opened the window

To capture the fact that the mental state of subjects of transitive verbs like *open* and *break* can be either relevant or irrelevant for the event, it is proposed to be encoded as [+c] in the lexicon; the feature [m] is left underspecified in the lexical representation, and can be interpreted in the actual sentence either as [+m] (i.e. (11a)) or as [-m] (i.e. (11b)). This thematic analysis leads Reinhart to define (one-place) unaccusative verbs as verbs which have a transitive alternate with a [+c] θ -role. The intransitive counterparts of verbs like *break* and *open* are proposed to be derived by DE-CAUSATIVIZATION, which is a lexical operation manipulating thematic grids: its input is a thematic grid containing (at least) two θ -roles, one of which is [+c], and its output is the same thematic grid without the [+c] role. This is schematized in (12) and exemplified in (13).⁸

$$(12) V(\theta_{1[+c]}, \theta_2) \rightarrow V(\theta_2)$$

$$(13) \textit{open} ([+c], [-c-m]) \rightarrow \textit{open} ([-c-m])$$

(Reinhart 2002: (15)-(16))

Thus, alternating unaccusatives like *open* are suggested to be derived from their transitive counterparts by deletion of the [+c] role in the transitive thematic grid. Recall, however, that some non-alternating intransitive verbs like *fall* were discovered to behave on a par with alternating unaccusatives in Burzio (1986). Their unaccusative behavior might initially appear inconsistent with the definition above, which demands a transitive alternate with a [+c] θ -role. Nevertheless, Reinhart argues that the derivations of the two types of unaccusatives do not differ. The only difference between a verb like *fall* and a verb like *open* lies in the morphological realization of their transitive counterpart: in the former case, it is suggested to be a FROZEN ENTRY in the lexicon (i.e. existent, but unable to surface in the overt syntax).

⁸ Clearly, this analysis presupposes that the lexicon is an active component of grammar, and not merely a static list of morphemes. Arguments for the lexicon being active, in this sense, are advanced in Siloni (2002).

This is supported by the observation that non-alternating unaccusative verbs in one language (e.g., *fall* in English) can be shown to have an alternate in some other language (e.g., *hipil* ‘caused-to-fall’ in Hebrew) (see also Fadlon 2006 for experimental evidence supporting the psychological reality of frozen input).

Let us now return to (6)-(9) and examine them in light of the Theta-System. First, it is important to note that in sharp contrast with Burzio (1986), the ungrammaticality of the intransitive *read* (e.g.) is not taken to be an exception to a lexical rule, but rather a predicted consequence: due to the fact that the subject of the transitive *read* is [+c+m], and not [+c], it cannot undergo de-causativization. While this accounts for the data in (6)-(7), at the moment it remains unclear why *grow*, but not *jump*, should have a transitive counterpart. In other words, it is unclear what is the relevant difference between *grow* and *jump* which is responsible for the unaccusative syntax of the former and the unergative syntax of the latter.

While *grow* clearly differs from *jump* in that its sole thematic role is Theme, this has traditionally been taken to be insufficient to account for its unaccusative behavior, as verbs like *shine* and *buzz* behave like unergatives – even though their sole θ -role is assumed to be Theme as well. In order to account for the classification (of this and other verb types), Reinhart introduces a set of mapping instructions into the model. Specifically, she proposes that thematic roles are indexed with ‘1’ or ‘2’, based on their feature composition, as schematized in (14). Subsequently, she proposes that the merging instructions map thematic roles into syntactic structures, based on the mapping instructions in (15).⁹

(14) *Lexicon marking*

Given an n-place verb-entry, $n > 1$,

- a. Mark a [-] cluster with index 2.
- b. Mark a [+] cluster with index 1.
- c. If the entry includes both a [+] cluster and a fully specified cluster [α ,/-c], mark the verb with the ACC feature.

⁹ Throughout this work, I am using the term ‘linking rules’ in the general sense of links between the lexical representation and the syntactic structure and the term ‘mapping instructions’ when referring to the specific proposal of Reinhart (2000, 2002).

- (15) *CS merging instructions*
- a. When nothing rules this out, merge externally.
 - b. An argument realizing a cluster marked 2 merges internally; an argument with a cluster marked 1 merges externally.

(Reinhart 2002: (27), (29))

Due to the fact that marking does not apply to one-place predicates (see (14)), the sole θ -role of verbs like *buzz* and *glow* will be mapped externally, in accordance with the default mapping principle in (14a) above; this derives their unergativity. Why, then, is the sole θ -role of unaccusatives mapped internally? Since mapping is assumed to apply to the maximal (i.e. conceptually basic) entry, it would apply to the transitive counterparts of one-place unaccusatives like *roll* or *open*. As their subject theta-role is [+c], it would be marked with 1; as their object theta role is [-c-m] (i.e. a [-] cluster), it would be marked with 2.¹⁰ Thus, the subject of the transitive *roll* or *open* will be mapped externally and the direct object will be mapped internally. Since marking is assumed to apply before de-causativization, it is unaffected by the operation. As a result, the Theme argument of the intransitive counterparts of *roll* or *open*, which is marked with 2 (as explained above), will be mapped internally as well; this derives their unaccusativity.

Returning to Theme-unergatives like *shine* and *buzz*, their traditional analysis (reflected in their name) has recently been challenged by Potashnik (2007), who argues that the sole argument of such verbs is [+c-m] (inanimate Cause). While their label has never been questioned, Potashnik notes that no particular evidence was provided to support their analysis as verbs assigning Theme. Potashnik shows that in sharp contrast with unaccusative verbs, these verbs encode a causal component of meaning. In order to determine whether a verb encodes a causal component of meaning, the following diagnostic is devised: if the original sentence can be paraphrased with a periphrastic causation and a nominalization of the relevant verb, then the subject θ -role is analyzed as [+c]; if not, then the subject is analyzed as [-c].

¹⁰ Due to the complex behavior of subject-experiencer verbs (e.g., *worry* in *Mary worries about John*), I do not discuss them further here. The reader is referred to Reinhart (2002) for an elaborate discussion and analysis. (Such verbs are not featured in any acquisition studies reported here.)

The diagnostic is illustrated in the following sentences.

- (16) a. The wind broke the window
b. The wind caused the *breaking* (of the window)
- (17) a. The window broke
b. *The window caused the *breaking*

In both (16) and (17), the sentence in (b) is a paraphrase of the sentence in (a), being formed by nominalizing the relevant verb and embedding it under *cause*. The difference in the acceptability of (16b) and (17b) is expected under Reinhart's analysis of unaccusatives: the subject in (16a) is interpreted as [+c-m], and is therefore compatible with a periphrastic paraphrase of causality; in contrast, the subject in (17a) is assigned [-c-m] by the unaccusative *break*, and is therefore incompatible with the paraphrase. With this in mind, examine the sentences in (18).

- (18) a. The bell rang
b. The bell caused the *ringing*

In the example above, the same diagnostic is applied to *rang*, from the Theme-unergatives class. The interesting question is, of course, whether the paraphrase in (18b) is acceptable: if these verbs indeed assign Theme to their subjects (Levin & Rappaport-Hovav 1995; Reinhart 2000, 2002), we would expect (18b) to be as unacceptable as (17b) (i.e. in both cases the original sentence lacks a causal component.) In contrast, if they assign Cause to their subjects (Potashnik 2007), we would expect them to be as acceptable as (16b) (or at least more acceptable than (17b)). This question was examined in the original experiment reported in Potashnik (2007), in which 50 native Hebrew speakers took part. The used method was acceptability judgment: the subjects were given pairs of sentences like (17)-(18) above, and they had to judge whether the paraphrase in (b) is an acceptable version of the original sentence in (a). The results supported the analysis of Potashnik: subjects clearly distinguished unaccusative pairs like (17) from Theme-unergative pairs like (18), in rejecting the

paraphrases in (b) with the former and accepting such paraphrases with the latter.¹¹ Thus, experimental evidence supported the analysis of verbs like *buzz* and *shine* as assigning [+c-m] to their subject. An important implication of this analysis is the automatic mapping of the [-c-m] cluster to the internal argument position, providing a simple and elegant answer to the unaccusativity acquisition puzzle. This is discussed in the subsequent section.

2.2 Acquisition

Building on the ideas of Reinhart (2000, 2002) and Potashnik (2007), I suggest that the acquisition of unaccusativity is **thematically determined**. Specifically, I follow Reinhart (2000, 2002) in assuming the marking procedures and the mapping instructions to be innate, and I assume, along with Potashnik (2007), that [-c-m] is always mapped internally. Since unaccusative verbs assign [-c-m] to their subjects, their acquisition is predicted to be rapid and unproblematic: given a one-place predicate with [-c-m] θ -role, the learner – both child and adult – immediately knows that this predicate is unaccusative. Similarly, given a one-place predicate with any other feature cluster, the learner readily knows that it is unergative.¹² As mentioned in the introduction, this study focuses on one-place unaccusative predicates. However, the proposal would be incomplete without addressing two-place unaccusatives as well, including verbs like *escape* and *arrive* (for evidence supporting their unaccusativity, see Burzio 1986; Levin & Rappaport-Hovav 1995; Reinhart 2000, 2002). Despite the arity difference, the syntactic analysis of such verbs is evident from their thematic grids, just like with one-place unaccusatives: as shown in Reinhart (2000, 2002), the θ -grid of such verbs

¹¹ More precisely, two types of Theme-unergatives were examined: INTERNAL CHANGE OF STATE verbs (e.g. *blossom*, *bloom*, *flower*) and EMISSION verbs (e.g. *buzz*, *ring*, *smell*, *whistle*) (the classification originates in Levin & Rappaport-Hovav 1995). The acceptability of the paraphrase in (b) was lowest with unaccusatives, and highest with Emission verbs, Internal Change of State verbs being judged in the middle. Crucial for my purposes is the finding that the difference between both types of Theme-unergatives and unaccusatives was found to be statistically significant.

¹² Clearly, this procedure assumes that the learner has a way to determine the feature cluster assigned by the verb to its argument(s), which in turn raises the question ‘how *this* knowledge is obtained?’ Two alternative suggestions come to mind: (i) the conceptual system is innate, and the learner simply has to associate the morphological form of the relevant verb in the input with the already available concept, or (ii) the feature cluster can be obtained from the relevant sentences and the non-linguistic situation associated with them. As this question is beyond the scope of my work, I leave the decision between the two alternatives for future research.

consists of the clusters [-c-m] and [-c], both of which will be mapped internally. Therefore, whether the predicate is one-place or two-place, the thematic information is sufficient in order to unmistakably determine its syntactic structure.¹³

This proposal predicts, therefore, that any intransitive verb will be analyzed correctly (i.e. as unaccusative/unergative) once its thematic grid is known to the learner. While this process of lexical acquisition may take time, the important point is that the acquisition of the syntactic structure associated with the relevant predicate should not take any *additional* time, being available immediately. Therefore, there can never be a stage in which unaccusatives will be misrepresented as unergatives (or vice versa). Nevertheless, as it was mentioned in the introduction, various types of evidence presumably support the unergative misanalysis of unaccusative verbs in both L1 and L2 acquisition. In the remainder of this work I present and discuss these types of evidence, arriving at a very different conclusion. Before turning to the empirical findings, let me first present the theoretical background of the UMH.

3. UMH: Theoretical Background

3.1 A-Chain Maturation Hypothesis

The UMH originated in the work of Borer and Wexler (1987), whose main claim is that A-Chains are unavailable at the onset of language acquisition; rather, they take time to “mature”. Under this assumption, the distinction between unergative and unaccusative predicates is initially unavailable to the child, leading her/him to erroneously analyze unaccusative

¹³ As shown in Horvath & Siloni (2005), the group of two-place unaccusatives comprises two different types of verbs: derived and underived unaccusatives. Specifically, *arrived* is assumed to be a derived unaccusative, its transitive input being a frozen entry, while *escape* is assumed to be an underived unaccusative, lacking transitive alternate altogether. As shown in Horvath & Siloni, extensive cross-linguistic evidence exists in support of this distinction; for example, while verbs like *arrive* have a transitive alternate in some language, verbs like *escape* never alternate. The question arises how *this* distinction, within the group of two-place unaccusatives could be acquired. As it is hard to think of *reliable positive* evidence for this distinction, available for any language, it seems that one would have to assume that the concept ESCAPE inherently lacks the causative component of meaning, while the concept ARRIVE inherently includes the causative component, being derived from the conceptually basic CAUSE(ARRIVE). As the distinction between the two types of unaccusatives, as well as its acquisition, is beyond the scope of this paper, I do not elaborate on this further.

predicates as unergatives (i.e. without an A-Chain). First, a few words on maturation are in order.

One of the main questions studied in the field of language acquisition is whether the child's innate linguistic components are immediately available to her/him. In other words, the question arises whether all the principles of the UG are immediately operative. Borer and Wexler (B&W henceforth) propose that some linguistic components mature, being unavailable at stage A₁ and becoming available only at a later stage A₂. The originality of their proposal lies in the emphasis put on *linguistic* maturation. While the idea of linguistic maturation might seem to be at odds with the innateness of language faculty, B&W show that the opposite is true: it is the disallowance of linguistic maturation which would differentiate language faculty from other, undoubtedly innate biological faculties (i.e. as some of their components undeniably mature).

The A-Chain Maturation Hypothesis (ACMH henceforth) is advanced in order to account for two phenomena in the acquisition of English and Hebrew: (i) acquisition of passive constructions and (ii) causative overgeneralizations. Starting with the former, Maratsos, Fox, Becher and Chalkley (1985) observe that children acquiring English have more difficulty producing and comprehending passives of non-actional verbs (19) than those of actional verbs (20). In addition, children have significantly more difficulty with long passives, which include a *by*-phrase, than with their short versions – both in comprehension, as shown in Maratsos et al., and in production, as shown in Horgan (1975). Finally, as shown in Berman and Sagi (1981), children acquiring Hebrew do not use verbal passives (shown in (21)) until school age, in contrast to adjectival passives (22), which are used productively beforehand.

(19) The doll was seen (by Mary)

(20) The doll was combed (by Mary)

(B&W 1987: (1a), (2a) respectively)

(21) Ha-yalda sorka (al yadey ima shela)
the-girl combed-PASS. (by mother of-her)¹⁴
'The girl was combed by her mother.'

(22) Ha-yalda hayta mesoreket (*al yadey ima shela)
the-girl was combed-ADJ.

(B&W 1987: (9a), (10a) respectively)

To account for these findings, B&W propose that children can initially form only adjectival passives, the formation of verbal passives being delayed. In contrast with Hebrew, which uses different morphological forms (i.e. templates) to mark adjectival and verbal passives, many passives in English are ambiguous between the two, as shown in (23):

(23) The door was locked

The sentence can be understood either as reporting an *event*, namely that the door became locked as a result of a locking event or alternatively, it can be understood as reporting a *state*, namely that the door was at the state of being locked. The former interpretation corresponds to the verbal analysis and the latter corresponds to the adjectival analysis. Despite of the superficial similarity, the two analyses can be distinguished with the help of several criteria: while adjectival passives usually denote states, verbal passives usually denote events; while the verbal passive is compatible with a *by*-phrase, the adjectival passive is usually incompatible with it; finally, non-actional verbs usually make poor adjectival passives, as compared to their verbal passive counterparts, which are usually grammatical.¹⁵

Keeping these differences in mind, the findings above are neatly accounted for if children can form only adjectival passives at first: it accounts for the poor performance with long and non-actional passives, as these cannot be analyzed as adjectival, and it clearly accounts for the Hebrew data, where the verbal passive is acquired at a much later stage. Why should the acquisition of the verbal passive be delayed? B&W propose the difficulty to be rooted in the syntactic difference between the two passives: the verbal passive necessarily involves an A-

¹⁴ It should be noted that throughout this work, the gloss specifies only the relevant information. Thus, if the case information (e.g.) is irrelevant to the point made by the examples, it will be left unspecified. This, of course, does not mean that the relevant example lacks case marking.

¹⁵ 'Usually' is added as the criteria, originally introduced in Wasow (1977), sometimes point in opposing directions. Moreover, they do not apply to all adjectival/verbal passives.

Chain in its representation, in contrast with the adjectival passive. Thus, the representation of the verbal reading of (23) is syntactically different from the representation of the adjectival one, in that the subject (*the door*) is initially merged in the object position. This is illustrated in (24).

- (24) a. [The door]_I was [_{VP} t₁ locked t₁] (verbal reading)
 b. The door was [_{AP} locked] (adjectival reading)

As shown in B&W, Hebrew verbal passives include an A-Chain in their analysis, in contrast to adjectival passives, and behave like their English counterparts. The syntactic properties of adjectival and verbal passives in both languages are assumed to follow from the different components of grammar in which the two are derived, namely the lexicon (adjectival) and the syntax (verbal). Let me now return to another phenomenon examined by B&W, namely causative overgeneralizations, illustrated in (25)-(27).

(25) The doll giggled ~ *John giggled the doll

(26) **mashte* from *shote*
 make-drink drink

(27) The ball dropped ~ John dropped the ball

(B&W 1987: (15a), (16a), (14a), respectively)

The difference between the intransitive verbs in (25)-(26) and the one in (27) is the base-generated position of the subject: it is merged externally in (25)-(26), but internally in (27). Nevertheless, it is noted in B&W that both types of transitive verbs are attested in child's speech. As a first step to account for the acquisition data above, Borer and Wexler suggest that the transitive alternates of unaccusative verbs (e.g., (27)) are derived from the intransitives by θ -role addition. Furthermore, they assume that transitivization of an unaccusative predicate, which adds an external θ -role without changing the original θ -grid of the intransitive predicate, is an unmarked procedure; transitivization of an unergative predicate, which demands the original external θ -role to be internalized, is a marked procedure. Consequently, English is considered an unmarked language, as it is assumed that only unaccusative predicates have transitive alternates. Hebrew, in contrast, is considered to

be marked as some unergative verbs (e.g. *rakad* ‘danced’ ~ *hirkid* ‘made dance’) have transitive alternates.

Assuming that A-Chains are unavailable from the onset of acquisition, how can the child analyze unaccusative verbs like *open* or *drop*? As the adult analysis is unavailable, the only available option would be to analyze them as unergatives (i.e. without an A-Chain). Consequently, the exposure to alternations like *John dropped the ball* or *John opened the door* leads the child to erroneously classify English as a marked language (i.e. which allows transitivization to apply to unergative verbs). This, in turn, accounts for the causative overgeneralizations (e.g., (25)): B&W suggest that children produce ungrammatical sentences like *John giggled the baby* because they are convinced that English allows transitivization of unergative verbs. A child acquiring Hebrew does not differ from a child acquiring English, in that both believe that their language is marked for transitivization. However, while in English this belief is erroneous, in Hebrew it is not.

Clearly, such an account requires a clear explanation of why and how the child abandons her/his false analysis of unaccusative verbs (and, in the case of English, the false classification of the language). B&W suggest that as soon as A-Chains become available, the child reconsiders the syntactic analysis of intransitive verbs, realizing that some can be unaccusatives. After classifying the intransitive verbs, the child realizes that the transitivization rule in English is in fact unmarked, which means that only unaccusative verbs alternate; at this point the overgeneralization errors are expunged from the child’s grammar. How does the child determine which verbs are unaccusative and which are unergative? B&W suggest that the child “...embarks upon a search for positive evidence that will determine which of the intransitive verbs in his/her lexicon are ergative [unaccusative] verbs.” (p. 160); the positive evidence being the appearance of unaccusatives, but not unergatives, in the direct object position of transitive verbs (e.g., *John broke the doll* ~ *The doll broke*), and/or the grammaticality of unaccusatives, but not unergatives, as passive participles (e.g., *fallen*, *broken*, cf. **jumped*, **walked*). In other words, the child learns to classify intransitive verbs

based on their behavior in diagnostic environments distinguishing unergative from unaccusative predicates.

Returning to Hebrew, it is claimed that the overgeneralization does not cease, as indeed, transitivity in (adult) Hebrew is a marked operation. This is suggested to lie at the heart of another phenomenon from the spoken (adult) Hebrew, namely new word-formation and slang innovations, which often include transitivity of unergative predicates. However, recall that (26) showed that even Hebrew does not allow any unergative verb to be transitivized. To account for the limited nature of such innovations, B&W suggest that: "...these items [ungrammatical transitives] are typically associated with 'baby-talk', and are thus socially unfavored by the growing child." (fn. 18). In other words, the social pressure created by normative language teaching forces the child to abandon many of her/his otherwise grammatical transitivity operations.

While the ACMH remains one of the most influential proposals in the field of language acquisition, its theoretical anchoring is somewhat outdated. Recently, it has been reformulated in accord with the latest theoretical developments in Wexler (2004), presented in the next subsection.

3.2 Universal Phase Requirement

The proposal of Wexler (2004) follows the recent developments of the linguistic theory, adopting the assumptions and the terminology of the Minimalist Program (Chomsky 1995). Therefore, let me briefly describe the relevant theoretical advancements before presenting the key aspects of the proposal.

The Minimalist Program assumes that structure building proceeds in a bottom-up fashion, being built from the most embedded constituent. Consequently, the derivation is assumed to proceed in units smaller than the whole sentence, called PHASES. Let me elaborate on this: MERGE, a structure building operation, takes a set of lexical items and arranges them hierarchically into a syntactic structure; the

completed parts are then transferred for evaluation to the two interfaces, the Conceptual-Intentional system (meaning) and the Sensory-Motor system (sound); this process is labeled SPELL-OUT. Next, the interfaces decide whether the derivation is grammatical (i.e. ‘converges’) or ungrammatical (i.e. ‘crashes’). This means that the parts of derivation sent to Spell-Out must include only those items which are relevant for and interpretable by the two interfaces. Such items are called INTERPRETABLE FEATURES (e.g. inherent Case, number) and they contrast with UNINTERPRETABLE FEATURES (e.g. structural Case, EPP), which are purely formal and irrelevant for both interfaces. All uninterpretable features need to be deleted prior to Spell-Out, otherwise the derivation will crash. Feature deletion (i.e. checking) happens when a goal and a probe share a feature and stand in a particular structural relation to each other. Phases, in turn, are precisely those maximal projections parts of which can be sent to Spell-Out. In other words, these are ‘complete’ units in that the uninterpretable features of their components can be checked within the phase. Therefore, CPs and transitive VPs are considered to be phases, while TPs and passive or unaccusative VPs are not: the uninterpretable Case feature of the NP complement of the verb can be checked by the transitive verb, but not by the passive/unaccusative verb (Chomsky 2001). Importantly, phases *per se* do not ease the computational load, as something needs to force a part of the phase to be sent to Spell-Out. This is captured by the PHASE IMPENETRABILITY CONDITION, which states that only the head and the specifier (i.e. edge) of a phase remain accessible to further computation after Spell-Out; crucially, the domain of the complement becomes unavailable.

Returning to acquisition, the gist of Wexler (2004) is that children initially believe that all verbs head phases, as it is formulated in (28).

(28) *Universal Phase Requirement (UPR)*

v defines a phase, whether v is defective or not (holds of pre-mature children, until around age 5)

(Wexler 2004: (13))

Thus, in contrast to the adult grammar, VPs headed by a passive or unaccusative verb constitute a phase in the child's grammar. Since unaccusative and passive verbs cannot check the case features of their complement, sentences containing them are predicted to be ungrammatical for children, as the uninterpretable case features of the NP will remain unchecked at Spell-Out. A question arises whether this analysis is consistent with the assumption that phases have edges: if a passive verb defines a phase in the child's grammar, what would prevent the complement to move out of the phase through the escape hatch? This is prevented by the assumption that any movement must be feature-driven. Specifically, movement to the edge of the VP will only be possible if its edge has an EPP feature, which is assigned only in certain restricted circumstances (see Chomsky 1999 for more details). Therefore, even though passive and unaccusative VPs have edges, according to the UPR, elements inside the VP will not be able to escape through them in the general case.¹⁶

On a par with the ACMH, the UPR predicts adjectival passives to be acquired early, for the simple reason that no verb is present in their derivation (and APs do not constitute a phase). Therefore, just like the ACMH, the UPR would predict that children will have little difficulty with short passives and passives of actional verbs, which can be assigned an adjectival analysis, with long and non-actional passives being delayed. And on a par with the ACMH, the only way that the UPR can account for the early production of unaccusative verbs is by assuming that children misanalyze them as unergatives, generating their subjects at the edge

¹⁶ Interestingly, however, formation of *wh*-questions is assumed to posit the EPP feature at the edge of the relevant VP. Thus, the UPR would predict – in contrast to the ACMH – that *wh*-questions with passive verbs will be acquired before their affirmative counterparts. As *wh*-questions with passives are missing from the studies reported in this work, I do not elaborate on this further.

of the VP; this, in turn, renders them accessible for further computation and explains their early production. Having presented the theoretical origin of the UMH, let me turn to a careful examination of the empirical findings taken to support it.

4. UMH in L1 Acquisition

4.1 Russian Genitive of negation (Babyonyshev et al. 2001)

Babyonyshev et al. (2001) argue that children acquiring Russian may sometimes assign an unergative analysis to unaccusative verbs. Their findings and conclusions are presented and discussed in this section, which is structured as follows: §4.1.1 provides the necessary theoretical background for the discussion; §4.1.2 presents the experimental findings taken to support the UMH; §4.1.3 shows that the authors' interpretation of the findings cannot be maintained; finally, §4.1.4 provides an alternative explanation of the data.

4.1.1 Theoretical background

A NP in Russian can be marked with the Genitive (GEN) of negation if it is located in a negated clause and it is an internal argument (Pesetsky 1982). Thus, direct objects of transitive verbs can bear GEN (29b), provided they are located in a negated clause (29c), while their subjects cannot (30).^{17,18}

- (29) a. Ja ne poluchil pis'ma
 I not received letters-ACC
 'I did not receive the letters.'
 $\exists x. \text{letters}(x) \wedge \neg \text{receive}(\text{me}, x)$
- b. Ja ne poluchil pisem
 I not received letters-GEN
 'I did not receive (any) letters.'
 $\exists x. \text{letters}(x) \wedge \text{receive}(\text{me}, x)$
- c. Ja poluchil pis'ma /*pisem
 I received letters-ACC/letters-GEN
 'I received (the) letters.'

(Babyonyshev et al. 2001: (8a-c))

¹⁷ The following transliteration is used in the presentation of Russian data: a=a b=b v=v r=g d=d e=e e=jo ж=zh z=z i=i y=j k=k l=l m=m n=n o=o p=p r=r c=s t=t y=u f=f x=x ц=c ч=ch ш=sh щ=shh ъ="" ы=y ь=' э=eh ю=ju я=ja.

¹⁸ Not all internal arguments can bear GEN; specifically, this is impossible with verbs like *pomogat* 'help', which assign Dative to their direct object (Babyonyshev 1996; Pesetsky 1982). This is immaterial to the discussion.

- (30) a. Mal'chiki ne poluchali pis'ma iz doma
 boys-NOM not received letters-ACC from home
 'The boys did not receive letters from home.'
- b. *Mal'chikov ne poluchalo pis'ma iz doma
 boys-GEN not received-NEU.SG letters-ACC from home

(Babyonyshev et al. 2001: (9a-b))

Importantly, GEN is highly preferred with indefinite and non-specific (i.e. unfamiliar in the discourse) direct objects, being practically impossible with definite or specific direct objects. In contrast, ACC is highly preferred with definite and specific nominals, and is practically impossible with non-specific or indefinite direct objects. The effect of different case marking on the interpretation is illustrated with the semantic formulae corresponding to (29): direct objects marked with ACC are interpreted as specific (i.e. 'the'), having wide scope over negation (29a); in contrast, direct objects marked with GEN are interpreted as non-specific (i.e. 'any'), having narrow scope over negation (29b).

Turning to unaccusatives, their subjects can be marked either with NOM or with GEN, provided they are located in a negated clause (see (31)). In contrast, subjects of unergatives cannot appear with GEN, and obligatorily appear with NOM (see (32)). Thus, GEN of negation is a diagnostic of unaccusativity, as it is an environment where subjects of unaccusatives behave like direct objects, and unlike subjects of unergatives.

- (31) a. Griby zdes' ne rastut
 mushrooms-NOM here not grow-PL.
 'Mushrooms do not grow here.'
- b. Gribov zdes' ne rastjot
 mushrooms-GEN here not grow-NEU.SG
- (32) a. Kulturnye deti ne krichat
 civilized-NOM kids-NOM not yell-PL.
 'Civilized children do not yell.'
- b. *Kulturnyx detey ne krichit
 civilized-GEN kids-GEN not yell-NEU.SG

It is assumed in Babyonyshev et al. that the effect of case marking (GEN/non-GEN) on the interpretation of most unaccusative subjects mirrors the effect of case marking on the interpretation of direct objects. In other words, it is assumed that GEN marking of most

subjects of unaccusatives indicates non-specificity and NOM marking indicates specificity. While an important part of my claim is to show that the last part of this assumption is incorrect, let us assume it to be accurate for the moment and proceed with the presentation of Babyonyshev et al. (I return to this in §4.1.4). Still, the question arises why the above was assumed to hold for most, and not all, unaccusative subjects. This is due to the existence of a small class of unaccusatives, labeled BLEACHED VERBS, which require their subjects to be marked with Genitive (provided they are located in a negated clause). This is illustrated in (33) with the verb *byt* ‘be’: (33a) with a Genitive subject is ambiguous between a non-specific and a specific reading, while (33b) with a Nominative subject is simply ungrammatical.

- (33) a. V gorode ne bylo vracha
in town not was-NEU.SG doctor-GEN
‘There was no doctor in town/The doctor was not in town.’
b. *V gorode ne byl vrach
in town not was-MASC.SG doctor-NOM¹⁹

(Babyonyshev et al. 2001: (13b,a))

Given the data above, a question arises as to the syntactic analysis of post-verbal GEN subjects of unaccusative verbs. While they do not pass the familiar subject-hood diagnostics (e.g. they can neither control PRO in adjunct clauses nor can they bind a reflexive), it is argued in Babyonyshev that they move covertly to the matrix Spec TP. The supporting evidence for this analysis comes from the interaction of sentential negation with negated phrases. Before turning to the specific evidence supporting the movement analysis, a few words about negation in Russian are in order: Russian is a negative concord language, which means that negated phrases like *nikto* ‘no one’ or *nikakoy* ‘no’ must be licensed by sentential negation. In a complex sentence, negated subjects of matrix transitive verbs can be licensed only by the matrix clause negation, while negated direct objects of the embedded verb can be

¹⁹ While the order between the verb and the subject in (33) differs from all the previous examples, this cannot account for the ungrammaticality of (33b), as NOM subjects of unergatives can occur post-verbally. In fact, the possibility of any subject in Russian to occur post-verbally is assumed in the experimental design of Babyonyshev et al., as shown below.

licensed *both* by the matrix clause and the embedded clause negation. This difference is illustrated in (34)–(35).

- (34) a. Nikto ne xochet [PRO chitat' Vojnu i Mir]
 NEG-one not wants read-INF War and Peace
 'No one wants to read War and Peace.'
 b. *Nikto xochet [PRO ne chitat' Vojnu i Mir]
 NEG-one wants not read-INF War and Peace
 (Babyonyshev 2001: (18a-b))

- (35) a. Ja₁ ne dolzhna [TP t₁ chitat' nikakix statej]
 I not must-FM. [read.INF NEG-kinds-GEN articles-GEN]
 'I don't have to read any kind of articles.'
 b. Ja₁ dolzhna [TP t₁ ne chitat' nikakix statej]
 I must-FM. [not read.INF NEG-kinds-GEN articles-GEN]
 'I must not read any articles.'
 (Babyonyshev et al. 2001: (17a-b))

Thus, (34) shows that the matrix subject can be a negated phrase *nikto* 'noone' when negation is located in the matrix clause (34a), but not when the sentential negation is located in the embedded clause (34b). This contrasts with (35), where the negated phrase *nikakix statej* 'any articles' is grammatical both when the negation is in the matrix clause as in (35a) and when it is in the embedded clause as in (35b). Assuming sentential negation to be a clitic in T, Babyonyshev et al. suggest that negated NPs are licensed only if they are m-commanded by the negation. Interestingly, subjects which raise out of an infinitival clause are licensed only by the matrix clause negation, as shown in (36).

- (36) a. Nikto₁ ne dolzhen [TP t₁ chitat' ehti stat'ji]²⁰
 NEG-one not must [read.INF these-ACC articles-ACC]
 'Nobody must read these articles'
 b. *Nikto₁ dolzhen [TP t₁ ne chitat' ehti stat'ji]
 NEG-one must [not read.INF these-ACC articles-ACC]
 (Babyonyshev 2001: (19a-b))

²⁰ While *dolzhen* 'must' indeed behaves unlike a control predicate in that it does not assign an external theta role, therefore allowing a weather-predicate complement (shown in (i)), this does not rule out an alternative analysis of *dolzhen* as a modal, being located in T and subcategorizing for a VP complement. Under this analysis, (36) would be a mono-clausal sentence, uninformative with respect to the interaction of A-movement and sentential negation. Note, crucially, that analysis would run contrary to the authors' assumption that *ne* 'not' is a clitic located in T, as the grammaticality of (35b) is compatible only with a bi-clausal analysis. Therefore, this alternative analysis is not pursued.

(i) Zavtra dolzhno morosit'
 tomorrow must-NEU.SG rain.INF
 'It must rain tomorrow.'

Thus, the negated element *nikto* ‘noone’, which raises out of the infinitival clause complement of *must*, is grammatical only if the sentential negation is in the matrix clause (36a). This is somewhat surprising, as the embedded clause negation m-commands the subject’s trace in the embedded Spec TP; given the m-command condition, we would expect both (36a) and (36b) to be grammatical (replacing the ACC direct object of the embedded predicate with its GEN counterpart does not affect the judgments). Assuming that subject raising as in (36) is derived by A-movement, Babyonyshev et al. suggest that in case of movement, the negation must m-command the head of the A-Chain. Clearly, only the matrix clause negation m-commands the head of the A-Chain in the matrix Spec TP, accounting for the ungrammaticality of (36b).²¹

Turning to post-verbal GEN subjects of unaccusatives, we would expect them to pattern with direct objects, being licensed both by the matrix and the embedded clause negation. Surprisingly, they pattern with raised subjects, being licensed only by the matrix clause negation, as shown in (37).

- (37) a. Ne dolzhno [TP pojavitsja nikakix malchikov v klasse]
 not must-NEU.SG [appear.INF NEG-kinds-GEN boys-GEN in class]
 ‘There don’t have to appear any boys in (the) class.’
- b. *Dolzhno [TP ne pojavitsja nikakix malchikov v klasse]
 must-NEU.SG [not appear.INF NEG-kinds-GEN boys-GEN in class]
- (Babyonyshev 2001: (20a-b))

The data in (37) lead the authors to conclude that GEN of negation requires the subject to move covertly to the matrix Spec TP, creating an A-Chain. This accounts for the ungrammaticality of (37b), as the head of the A-Chain is located in the matrix Spec TP, where it is m-commanded only by the matrix clause negation.

²¹ Note that the mere usage of sentences like (36) as a means to investigate the interaction between A-Chains and sentential negation builds on the assumption that raising from Spec TP to Spec TP is derived by A-movement. This means that the definition of A-Chains must be refined (recall §1), including cases like (36) but excluding subject movement in unergative/transitive sentences (i.e. movement from Spec VP to Spec TP). While it is unclear that this task can be easily accomplished, my goal is to show that even if such a refinement were found and adopted, the findings would still be incompatible with the UMH.

Turning to acquisition, the authors reason that if children have difficulty forming A-Chains (ACMH), they will refrain from marking the subjects of unaccusatives with GEN, even when this is obligatory (i.e. with bleached unaccusatives). Consequently, it is proposed that they will mark the subjects of unaccusatives with NOM instead, assigning them an unergative analysis (i.e. without an A-Chain).

4.1.2 Experimental findings

These predictions were tested in a sentence completion experiment, in which 30 children aged 3;0-6;6 took part. Each child heard a story, followed by a beginning of the test sentence, and had to complete it with one of the following types of NPs: a. specific direct object (disfavoring GEN), b. non-specific direct object (favoring GEN), c. subject of an unergative (disallowing GEN), d. non-specific subject of a regular unaccusative (favoring GEN), e. non-specific subject of a bleached unaccusative (requiring GEN). There were 3 verbs for each of the 5 types of post-verbal NPs, resulting in 15 sentences overall. The results are given in (38).

(38) Results

Condition	GEN responses/total	Percentage
Specific D.O.	4/83	4.8%
Non-specific D.O.	63/84	73%
Subjects of unergatives	0/72	0%
Subjects of normal unaccusatives	38/81	46.9%
Subjects of bleached unaccusatives	36/75	48%

(based on Babyonyshev et al. 2001: Table 1 & 2)

The data in (38) show that children have little difficulty with GEN of negation with transitive verbs: across all ages, and all trials, children produced GEN NP when the NP was a non-specific direct object (favoring GEN) in 73% of the cases and in 4.8% when the NP was a specific direct object (disfavoring GEN). (In the subsequent section it will be shown why non-specific direct objects were not marked with GEN in 100% of the cases.) Furthermore, children produced GEN in 0% of the cases where the NP was the subject of an unergative

verb. Interestingly, however, children marked with GEN only 46.9% of non-specific subjects of regular unaccusatives and 48% of non-specific subjects of bleached unaccusatives (producing 53.1% and 52%, respectively, with NOM).

The fact that children marked about 50% of unaccusative subjects with NOM is taken to support the UMH. However, given the movement analysis of GEN subjects, it is evident that the percentage of GEN subjects of unaccusatives is unexpectedly high: if children never assigned them an unaccusative analysis, they are expected to never use GEN. Consequently, individual responses are examined in order to determine inter-subject variation. As it turns out, 11 children marked unaccusative subjects sometimes with NOM and sometimes with GEN, leading the authors to weaken their claim: Babyonyshev et al. suggest that children *sometimes* misanalyze unaccusatives as unergatives, as both the misanalysis and the correct analysis are equally ungrammatical at this stage of acquisition. They conclude as follows: “We thus have experimental evidence that children have trouble with unaccusatives...*This [ACMH] causes the children to produce a nominative argument when the adult language would favor or even require the genitive.* We propose (following Borer and Wexler 1992) that children represent unaccusative verbs in this construction as unergatives...” (Babyonyshev et al. 2001, p. 24, emphasis mine).

4.1.3 Re-examination

At this point I would like to re-examine the authors’ interpretation of the findings. Recall that they view GEN marking on unaccusative subjects as an overt indication of the covert A-movement to the matrix Spec TP, and NOM marking as an overt indication of the absence of such movement. However, this association between the morphological marking and the syntactic derivation is untenable, as a NOM response does not necessarily indicate the absence of an A-Chain. Let me show this by assuming the opposite: if NOM post-verbal subjects of unaccusatives lacked an A-Chain, as assumed in Babyonyshev et al., we would expect them to contrast with GEN subjects of unaccusatives with respect to their licensing by sentential negation. Recall that the movement analysis of GEN subjects was based on the

interaction between negated GEN subjects of unaccusatives and the sentential negation. The relevant sentences are repeated in (39):

- (39) a. Ne dolzhno [TP pojavitsja nikakix malchikov v klasse]
 not must-NEU.SG [appear.INF NEG-kinds-GEN boys-GEN in class]
 ‘There don’t have to appear any boys in (the) class.’
- b. *Dolzhno [TP ne pojavitsja nikakix malchikov v klasse]
 must-NEU.SG [not appear.INF NEG-kinds-GEN boys-GEN in class]
- (Babyonyshev 2001: (20a-b))

Contrary to the reasoning above, NOM subjects of unaccusatives behave *precisely* like GEN subjects, namely they are licensed only by the matrix clause negation, as shown in (40).

- (40) a. Ne dolzhny [TP pojavitsja nikakije deti na vecherinke]
 not must-PL. [appear.INF NEG-kinds-NOM kids-NOM on party]
 ‘No kids should appear at the party.’
- b. *Dolzhny [TP ne pojavitsja nikakije deti na vecherinke]
 must-PL [not appear.INF NEG-kinds-NOM kids-NOM on party]

Following the authors’ reasoning, the contrast in (40) could be accounted for if post-verbal NOM subjects of unaccusatives raise to Spec TP, heading an A-Chain: (40a) would be grammatical, in contrast to (40b), because the head of the chain in the matrix Spec TP would be m-commanded only *ne* ‘not’ only there.

Therefore, it is impossible to conclude from the morphological form of the child’s response that the analysis assigned to the sentence lacks an A-Chain. As a result, I believe that the findings cannot be interpreted as providing support for the UMH, as both the NOM and the GEN response in the adult grammar include an A-Chain in their representation. In my view, this renders the contrast between GEN marking of direct objects and GEN marking of unaccusative subjects interesting for its own sake, but not directly relevant to the research question at hand. Does this mean that the findings are completely uninformative? In my view, the answer is clearly negative: recall that children marked 0% of unergative subjects compared to (roughly) 47% of unaccusative subjects with GEN. This not only shows that they distinguish the two verb types, but that they analyze unaccusatives correctly at this stage, allowing GEN marking on a par with direct objects.

In the remainder of this section I discuss another problematic aspect of the Russian evidence, in examining more carefully the individual results. According to Babyonyshev et al., 8 children had difficulty using GEN of negation with transitive verbs; 4 children used the GEN of negation in an adultlike fashion (i.e. marking all unaccusative subjects and all non-specific direct objects with GEN, and all specific direct objects with ACC); 7 children correctly used the GEN of negation with transitive verbs, but always marked the subjects of unaccusatives with NOM; finally, 11 children correctly used the GEN of negation with transitive verbs, but marked the subjects of unaccusatives sometimes with GEN and sometimes with NOM. As mentioned before, the behavior of the latter group lead Babyonyshev et al. to weaken their claim, suggesting that children can sometimes misanalyze unaccusatives as unergatives. This is because both the correct analysis and the unergative misanalysis are assumed to be equally ungrammatical: the correct adult analysis contains a covert A-Chain, presumably ungrammatical for the child, and the unergative misanalysis, while lacking the A-Chain, violates UTAH (according to which identical thematic relationships between items should be represented by identical structural relationships at D-Str., Baker 1988). Thus, both the unaccusative analysis (marked by GEN) and the unergative analysis (marked by NOM) are ungrammatical “in the same way”, which means that the child can choose either one of them. Note that this view takes principles to be violable constraints, allowing grammatical representations to include their violations.

Crucially, the summary above is inaccurate, due to the fact that some children did not provide all the responses. Recall that there were 3 sentences per each NP type; some children produced only 2/3 of the NPs (1 missing), and some – even 1/3 (2 missing), in some condition(s). In the latter case, the form of the 2 remaining NPs was determined on the basis of the sole response provided by the child. Thus, if the child produced only one subject of a bleached unaccusative, marking it with NOM, her/his response was coded as ‘NOM’. In the former case, the response was coded as ‘GEN’ only when the child produced 2 GEN responses; in case s/he produced 1 or 0 GEN responses, it was coded as ‘NOM/ACC’. Clearly,

the table presenting the individual responses is biased, as the reader cannot determine accurately the number of GEN responses per each child (i.e. as some GEN responses were “masked” as NOM/ACC).

In my view, missing data cannot and should not be completed based on the provided responses, mostly due to the small nature of the experiment (3 sentences per condition). Below, I present a recalculated summary: I took out all children with at least one condition with 2 missing NPs (5 children); additionally, I took out all the children who had at least 1 missing NP in any of the unaccusative conditions, due to the vague coding of the GEN responses (as explained above; 6 children). The re-calculated results, representing 19 children, are as follows: 3 children had difficulty with the transitive condition; 3 children performed like adults (as explained above); 4 children performed like adults in the transitive condition, but marked the subject of unaccusatives with NOM; finally, 9 children marked the subjects of unaccusatives sometimes with NOM and sometimes with GEN (specifically, 2 marked the subjects of normal unaccusatives with GEN but the subjects of bleached verbs sometimes/always with NOM, and 7 did vice-versa: marked the subjects of normal unaccusatives sometimes/always with NOM, but the subjects of bleached verbs with GEN). Taking out the 3 children who had difficulty with the transitive condition, as their performance with the GEN of negation with unaccusatives is uninformative, the following table represents the situation more accurately:

(41) *Recalculated results*

Condition	Amount (%) of kids per response/total kids
Specific direct objects	ACC: 16/16 (100%) GEN: 0/16 (0%)
Non-specific direct objects	ACC: 0/16 (0%) GEN: 16/16 (100%)
Non-specific subjects of normal unaccusatives	NOM: 11/16 (68.75%) GEN: 5/16 (31.25%)
Non-specific subjects of bleached unaccusatives	NOM: 6/16 (37.5%) GEN: 10/16 (62.5%)

The table seems to show that children distinguish normal and bleached unaccusatives. However, it should be remembered that due to the potential ambiguity in the coding of responses, the table above is merely an estimate: it presents the minimal amount (%) of GEN responses, and the maximal amount (%) of ACC/NOM responses. Thus, the apparent distinction between the two types of unaccusative verbs remains a tentative conclusion.

4.1.4 *Alternative account*

The experimental findings of Babyonyshev et al. raise two questions: (i) first, why did children produce more NOM non-specific subjects of unaccusatives than ACC non-specific direct objects? (ii) why did some children (only 6 children, as shown in the preceding section) allow the NOM marking with bleached unaccusatives, at least in some cases?

Starting with (i), I believe that children's performance is in fact *consistent* with the adult use of GEN of negation with unaccusatives. While I do not contest the authors' assumption that GEN direct objects and GEN subjects of unaccusatives are interpreted as non-specific, I do contest the assumption that both ACC direct objects and NOM unaccusative subjects are necessarily interpreted as specific. Let us look at (42) and (43): (42) includes a transitive verb *poluchila* 'received' with an ACC direct object. As mentioned before, its sole reading is the one in (i), namely a specific, definite interpretation of the direct object. In contrast, a non-GEN (NOM) subject of an unaccusative predicate in (43) is judged ambiguous precisely between a specific reading in (i) and a non-specific reading in (ii).

- (42) Ja ne poluchila zhurnaly
 I not received magazines-ACC
 (i) 'I did not receive the magazines.'
 $\exists x.\text{magazines}(x) \wedge \neg\text{receive}(\text{me}, x)$
 (ii) ?? 'I received no magazines.'
 $\neg\exists x.\text{magazines}(x) \wedge \text{receive}(\text{me}, x)$

(Babyonyshev 1996: (77b))

- (43) V klasse ne poyavilis' studenty
 in class not appeared students-NOM
- (i) 'The students did not appear in class.'
 $\exists x.\text{students}(x) \wedge \neg\text{appear}(x, \text{in class})$
- (ii) 'No students appeared in class.'
 $\neg\exists x.\text{students}(x) \wedge \text{appeared}(x, \text{in class})$

(Babyonyshev 1996: (77a))

Recall that the child had to complete a test sentence with a NP, whose specificity was determined in the background scenario. Given the data in (42)-(43), the fact that children produced more NOM subjects of unaccusatives than ACC non-specific direct objects is hardly surprising: while the non-specific interpretation is incompatible with ACC, it is compatible with NOM in the adult grammar; therefore, NOM marking with non-specific subjects of unaccusatives cannot be considered erroneous.²²

Returning to (ii), I think that it is plausible that the children who allowed NOM with bleached unaccusatives still do not know the distinguishing property of bleached verbs, taking GEN marking to be optional with all unaccusatives. While this direction was originally proposed in Babyonyshev et al. (p. 24, fn. 27), it was dismissed on the grounds that the difference in case marking follows from a syntactic difference and "...if children have these correct representations, the bleached property will follow automatically." (ibid., emphasis mine). In my opinion, this reasoning is unconvincing, as it is unclear from the data whether children are indeed aware of the syntactic difference(s) between the two types of unaccusatives.²³

To conclude, this section showed that the interpretation Babyonyshev et al. offer for their findings rests on an unwarranted assumption and therefore cannot be maintained. Additionally, it was shown that the findings actually point in the opposite direction of the one

²² Note that this is not incompatible with the claim that a GEN response is *preferred* with non-specific nominals. What is crucial is that even if such preference does exist, it is rooted in pragmatic and not syntactic conventions, which could certainly be unknown to children at this age.

²³ Clearly, the question arises as to the nature of the 'bleached' property. Babyonyshev (1996) proposes that in contrast with regular unaccusatives, which subcategorize for a NP (and optionally, for a PP), bleached verbs subcategorize for a small clause; an additional difference is attributed to the properties of T: the T found with negated bleached unaccusatives is assumed to be 'defective' in being unable to check case features. All the distinguishing properties of bleached unaccusatives are assumed to follow from these two differences. For more details, the reader is referred to Babyonyshev (1996).

adopted in Babyonyshev et al., namely that that children acquiring Russian actually distinguish unaccusatives and unergatives, allowing GEN marking with the former but not with the latter. Finally, it was shown that the data can be naturally accounted for without assuming the unergative misanalysis of unaccusative verbs. Let me now turn to the additional type of evidence taken to support the UMH, namely NOM marker omission in the acquisition of Japanese. As before, I start with the necessary theoretical background.

4.2 Japanese Nominative case drop (Machida et al. 2004)

4.2.1 Theoretical background

The underlying word-order in Japanese is assumed to be SOV; however, the language allows for various word-order permutations as long as the verb remains sentence-final (Kuno 1973). Turning to case, the NOM marker *-ga* usually marks subject NPs (i.e. *Mary* in (44)) and the ACC marker *-o* marks direct objects (i.e. *John* in (44)-(45)). Additionally, the topic marker *-wa* marks specific NPs, replacing both NOM and ACC case markers (i.e. *Mary* in (45); this sentence is grammatical only if *Mary* has been already introduced into the discourse).

(44) *Mary-ga John-o butta*
Mary-NOM John-ACC hit
'Mary hit John.'

(45) *Mary-wa John-o butta*
Mary-TOP John-ACC hit
'Speaking of Mary, she hit John.'

As it is well known, the colloquial language allows some markers to be dropped (i.a. Ono 2001; Saito 1985; Takezawa 1987). Specifically, the topic marker can always be dropped, while the ACC marker can be dropped only when the relevant NP is linearly adjacent to the verb and c-commanded by it at S-str (shown in (47)-(48)). As for the NOM case marker, Machida et al. (2004) assume that it can never be dropped (shown in (46)). Thus, even though NOM case drop is judged as less ungrammatical with subjects of unaccusatives than with

subjects of unergatives/transitives (49), it is still considered deviant.²⁴ Importantly, due to the fact that the topic marker overrides both NOM and ACC markers, and due to the fact that it can always be dropped, it is impossible to determine the original case marker of NPs which could have been topics (i.e. could have been marked with *-wa* prior to omission). Therefore, in order to determine the original case marker of a certain case-less NP, the examination should be restricted only to those NPs which could not have been marked with topic marker prior to omission, such as indefinites and *wh*-phrases. This is why all the relevant NPs in the examples below are *wh*-phrases.

(46) Dare-*(ga) sono hon-o katta no?
 who-NOM that book-ACC bought Q
 ‘Who bought that book?’

(47) John-ga nani-(o) katta no?
 John-NOM what-ACC bought Q
 ‘What did John buy?’

(48) [Nani-*(o)]₁ John-ga t₁ katta no?
 what-ACC John-NOM bought Q
 ‘What did John buy?’

(Ono 2001: (2)-(4))

(49) a. Dare-ga kita no?
 who-NOM came Q
 ‘Who came?’

b. ??Dare kita no?

(Miyamoto et al. 1999: (3))

4.2.2 Acquisition

Turning to acquisition, Machida et al. (2004) analyze the findings of Ito and Wexler (2002), who examine the spontaneous production transcripts of one child acquiring Japanese between the ages 1;11-3;7. Three developmental stages are recognized, as shown in (50); as before, the results below include only those NPs which could not have been marked with the topic marker prior to omission.

²⁴ Interestingly, some direct objects can be marked with NOM; furthermore, it seems that NOM can be omitted precisely in those cases. I return to this in §4.2.3.

(50) *Development of NOM omission*

Stage 1 (1;11-2;1): NOM is omitted with all verb types

Stage 2 (2;2-3): NOM is omitted significantly more frequently with unaccusatives than with unergatives²⁵

Stage 3 (3;1-3;7): NOM is never omitted with any verb type

(Machida et al. 2004: (5))

How to account for the development of NOM case omission emerging from these data? It seems that the 1st stage does not demand any special explanation, showing that the child simply does not use overt case marking; indeed, ACC case marker is almost never produced at this stage as well. The 2nd stage is accounted for as follows: assuming that the child *distinguishes* the syntactic analysis of unaccusatives and unergatives, and assuming that he has difficulty with A-Chains (i.e. ACMH), Machida et al. suggest that the child can raise the subject of unaccusatives to Spec TP, in this case marking it with NOM, but he can also leave it in situ, in this case omitting NOM. (Whether the movement is overt or covert, the word order remains SV, as Japanese is SOV.) Omission in the latter case is suggested to be due to overgeneralization of ACC marker omission, which is restricted by adjacency to and c-command by the verb at S-Str. This also accounts for the significant difference between NOM omission with unaccusatives and unergative/transitive verbs: as unaccusative subjects are generated in the object position, they can remain adjacent to and c-commanded by the verb at S-Str.; in contrast, unergative/transitive subjects are not base-generated in the object position and cannot remain in situ, therefore failing to satisfy the condition on case marker omission. The optionality is accounted for under the assumption that raising the subject of unaccusatives to Spec TP violates the ACMH, but not the EPP, while leaving it in situ violates the EPP but not the ACMH.²⁶

²⁵ The unaccusative verbs are further classified in the original work into existential (e.g. 'be', 'exist') and lexical unaccusatives (e.g. 'fell'); NOM is omitted in 32.7% of the former cases, and in 34.2% of the latter cases; NOM is omitted in 17.6% of unergatives and transitives.

²⁶ It should be noted that whether or not the EPP is respected with unaccusative (and passive) verbs is debatable. In fact, Miyagawa and Babyonyshev (2004) argue that precisely with these verbs the EPP does not need to be satisfied in the adult Japanese.

The reader might rightly wonder why this account is referred to as supporting the UMH, as it presupposes that the child correctly represents unaccusative verbs, always generating their subject internally. The UMH is suggested to be supported by the 3rd stage, where the child ceases to distinguish the two verb classes, disallowing NOM case drop with both of them. This lack of distinction, in contrast with the distinction observed at the 2nd stage, is taken to reflect an unergative misanalysis of unaccusatives. To cite Machida et al., “What we suggest is that at the third stage ... the two types of verbs are in fact being analyzed as the same type. Given that the unaccusative replicates the nominative case marking pattern of unergatives ... we surmise that the learner is ‘misanalyzing’ unaccusatives as unergatives at this stage.” (Machida et al. 2004, p. 96).

4.2.3 Re-examination

I believe that this interpretation of the findings is implausible, for several reasons. First, the proposed course of development seems quite unnatural: at the 2nd stage the child is assumed to know the correct syntactic analysis of unaccusatives (and unergatives), while at the 3rd stage this knowledge is presumably ‘not in use’, being overridden by other constraints; finally, at the final 4th stage (i.e. adult speaker of Japanese), this knowledge is presumably being used once again. While the resulting developmental curve superficially resembles a U-Shape, which is certainly attested in language acquisition, this similarity quickly dissolves once the analysis is examined more carefully. The term ‘U-shape’ denotes successful performance at the initial and final stages of acquisition, with poorer performance at the intermediate stage(s). The term itself, therefore, is merely a description of an attested state of affairs. The commonly accepted explanation of a U-Shaped development (e.g. children’s errors with the past-tense –*ed* morphology in English) is that initially, the child merely imitates the adults, producing the relevant forms without properly analyzing them; at the intermediate stage(s), the child arrives at some generalization which deviates from the adult analysis, causing her/him to produce occasional errors (e.g. *goed* instead of *went*); at the final stage, the child arrives at the adult analysis, producing the relevant forms without errors (Bloom 1990). Thus, when the term ‘U-

Shape' is used, it merely describes existing phenomena, but in itself does not constitute their explanation. In contrast, it seems that the account of Machida et al. is itself 'U-Shaped', in presupposing a presence of knowledge at the initial and final stages, but not at the intermediate stage. It is hard to imagine what can possibly lead the child to 'forget' or 'suppress' the already available syntactic knowledge, rendering the proposal unnatural in terms of the cognitive development it assumes.

Additionally, the account seems to contain an internal inconsistency: if the child can misanalyze unaccusatives as unergatives at the 3rd stage, it is unclear why this option is unavailable already at the 2nd stage, in which case no NOM omission would be expected. Recall that the optional NOM drop at the 2nd stage was based on the assumption that raising the subject of unaccusatives to Spec TP violates the ACMH, but not the EPP, while leaving it in situ violates the EPP but not the ACMH. But if so, it is unclear why wouldn't the child choose to represent unaccusatives as unergatives already at the 2nd stage: this misanalysis does not violate either principle, and therefore should be preferred.²⁷

Furthermore, as it is rather unclear whether NOM case drop with unaccusatives is ungrammatical, it is in fact unclear whether the 2nd stage constitutes a deviation from the adult grammar. This was evident already in §4.2.1, where it was noted that while NOM drop with unaccusatives is judged to be marginal, it is nevertheless better than NOM drop with unergatives/transitives. In fact, researchers like Kageyama (1993) claim that unaccusative subjects differ from unergative/transitive subjects in that they *allow* NOM omission, providing the judgments in (51)-(52): (51) shows that omission of NOM marking a subject of an unaccusative is possible, while (52) shows that omission of NOM on unergative subject is impossible. Although the nominals in these examples are not *wh*-elements, they still could not

²⁷ Two objections could be raised: one could suggest that the unergative misanalysis itself is subject to maturation, or alternatively, one could suggest that children are constrained by UTAH (which requires that identical thematic relationships between items be represented by identical structural relationships at D-Str.; see Baker 1988) at the 2nd stage. The former option is rather ad hoc; the latter is inconsistent with the 3rd stage: if UTAH constraints the child's grammar at the 2nd stage, it should do so at the 3rd stage as well.

have been marked with the topic marker due to its ungrammaticality inside subordinate clauses.

- (51) Tanakasan (-ga) nakunatta no o siranakatta
 T. NOM died NOML ACC knew-not
 ‘(I) did not know that T. had died.’
- (52) Tyuukakuha *(-ga) demosuru no o mita yo
 T. NOM demonstrate NOML ACC saw affirm.
 ‘(I) saw Tyuukakuha demonstrate.’

(Kageyama 1993: (56))

Furthermore, some researchers take the grammaticality of case omission to be independent of the case marker itself, and instead, to depend on the structural position of the nominal. This direction is further supported by the data in (53): some transitive verbs in Japanese assign NOM to their direct objects, and precisely in these cases NOM can be omitted (see also Dubinsky 1992).²⁸

- (53) John-ga nani-(ga) wakaru no?
 John-NOM what-NOM understand Q
 ‘What does John understand?’

(Ono 2001: (5))

Thus, while the 2nd stage is indeed accounted for under the assumption that the child can leave the unaccusative subject in its base-generated position (i.e. sister to the verbal head), the ACMH is not the only possible reason underlying this analysis; as was shown above, it may well be that this option is grammatical in the adult Japanese as well. The existence of an alternative account of the data implies that they do not constitute reliable evidence for UMH.

As with the Russian data discussed in the preceding section, the question arises whether the findings are informative to the question at hand. In my view, they certainly are: recall that the child allowed NOM omission with unaccusative subjects significantly more than with

²⁸ While the number of predicates marking their direct objects with NOM is rather small, the predicates themselves are extremely frequent. Among them are: *iru* ‘to need’, *hosii* ‘to want’, *wakaru* ‘to understand’, *tanosii* ‘to enjoy’, *umai* ‘to be good at’, *mazui* ‘to be bad at’ etc. (see the exhaustive list in Kuno 1973, pp. 90-91). Thus, there is little doubt that the child is exposed to them. A question immediately arises whether NOM is omitted with such predicates as well. Unfortunately, this is unclear from the data of Sumihare, the Japanese child analyzed in Machida et al. The data of another child, presented in Miyamoto et al. (1999), show that he indeed omits NOM marking direct objects of transitive verbs; however, the presentation of the data leave the rate of omission unclear.

unergative/transitive subjects at the 2nd stage. This clearly shows that he analyzes unaccusatives correctly at this stage, allowing case drop on a par with direct objects.

As shown above, the analysis of the 3rd stage proposed in Machida et al. is implausible, raising the need for an alternative account. Crucially, any present or future alternative proposal depends on the status of NOM case drop with unaccusatives in the adult language, which was shown to be debatable. If it is found to be ungrammatical (calling for a separate explanation of the data in (51)-(52)), then the 3rd stage could be interpreted to show that the child has finally acquired the adult conditions on case drop. If NOM case drop with unaccusatives is found to be grammatical, in conformance with the data in (51)-(52), then the existence of the 3rd stage, where the child ceases to omit NOM with unaccusative verbs would certainly be puzzling. Let us not forget, however, that the data reported in Machida et al. reflect the behavior of one particular child. Therefore, any conclusions should be made with extreme caution, as they could reflect the unique behavior of this particular child.

To conclude this and the preceding section, the proposal that unaccusatives are initially misrepresented as unergatives was shown to be untenable, providing indirect evidence against proposals like the ACMH and the UPR. Furthermore, it was shown that the empirical data actually point in the opposite direction, namely that children distinguish the two verb groups from an early age. This radically different interpretation becomes available once we draw our attention to what children know, rather than to what they do not know. Specifically, it becomes evident that children acquiring Russian distinguish unaccusatives and unergatives once we draw our attention to the fact that they allowed GEN marking both with unaccusative subjects and direct objects, but disallowed it with unergative subjects. Similarly, it becomes evident that the child acquiring Japanese distinguishes the two verb classes once we draw our attention to the fact that he allowed NOM case drop with unaccusatives significantly more than with unergatives. The subsequent section presents additional findings in support of the early – and unproblematic – acquisition of unaccusatives, starting with novel data from Japanese.

4.3 Additional evidence supporting early acquisition of unaccusativity

4.3.1 Shimada and Sano (2007)

As before, a few background words are in order: one of the diagnostics of unaccusativity in Japanese is the interpretation of the aspectual modifier *te-iru*, illustrated in (54).

- (54) a. Butasan-ga agat-*te-iru*
pig- NOM rise
'The pig has risen.' or 'The pig is rising.'
b. Butasan-ga hasit-*te-iru*
pig- NOM run
'The pig is running.'

(Shimada & Sano 2007: (13))

(54a) shows that when *te-iru* is added to an unaccusative predicate, the predicate is ambiguous between a resultative and a progressive reading. In contrast, (54b) shows that when it is added to an unergative/transitive predicate (regardless of its inherent telicity), only the progressive reading is possible. This contrast is accounted for by Takezawa (1991), who argues that the resultative reading is available only if an A-Chain is present in the derivation of the sentence.

Shimada and Sano set to examine children's interpretation of *te-iru* with different verb types. They reason that if unaccusatives are misanalyzed as unergatives, and if children know the licensing properties of *te-iru*, the resultative reading will be disallowed with both verb types. To test this prediction, an experiment was conducted, in which 29 kids (aged 3;6-6;4) and 11 adult controls took part. The used methodology was a Truth-Value Judgment task (Crain and McKee 1985): one of the experimenters acted out a scenario with the target verb (e.g., a pig rising/running) in front of the child, followed by hiding the depicted activity behind a paper curtain, so that the child could no longer see it. After a while, the paper curtain was removed, and the child saw either an ongoing activity (i.e. the pig continuing to rise/run) or its result (i.e. the pig has risen/the pig's footprints from the run). At this moment, an additional experimenter asked a puppet to tell what happened, and the puppet uttered the target sentence with *te-iru* (e.g. (54a)/(54b)). The child's task was to determine whether the puppet's utterance was correct or not. There were three unergative verbs, namely *odoru* 'dance', *nasiru*

'run', *tobu* 'jump', and three unaccusative verbs, namely *taoreru* 'fall down', *umaru* 'be buried' and *agaru* 'rise'; each verb appeared both in a resultative and a progressive scenario. The results showed that children did not differ from adults in allowing *te-iru* both with a resultative and a progressive interpretation for unaccusative verbs, while allowing it only with a progressive interpretation for unergative verbs. Moreover, this was found to hold for the youngest age group as well: 10 youngest subjects (3 y.o.) correctly accepted unaccusatives with a resultative reading in 100% of the cases, correctly accepted unergatives with a progressive reading in 100% of the cases, correctly rejected unergatives with a resultative reading in 100% of the cases, and finally, correctly accepted unaccusatives with a progressive reading in 88.9% of the cases (the adults accepted them in 87.9% of the cases). It is evident, therefore, that even young children acquiring Japanese distinguish unaccusatives and unergatives (and it is evident, of course, that they know the licensing properties of *te-iru*.)

4.3.2 Lorusso, Caprin and Guasti (2005)

Another type of evidence supporting the early acquisition of unaccusativity is available for Italian. The phenomenon of interest is the NULL-SUBJECT stage in language acquisition: as it is well-known, children aged 2;0-3;0 sometimes omit overt pronominal subjects, regardless of whether this is allowed in the target language (e.g., Spanish, Italian) or not (e.g., French, English) (e.g. Hyams 1986). This is not to say, however, that the target language does not influence the nature of omission: Valian (1991) and Rizzi (1994) showed that children acquiring a null-subject language (i.e. allowing omission) omit subject pronouns significantly more than children acquiring a non-null-subject language. Lorusso, Caprin and Guasti (2005) examine the omission of pronominal subjects in Italian, a null-subject language, using two different types of corpora: (i) longitudinal and (ii) cross-sectional.

The longitudinal corpus examined the rate and nature of subject omission of 4 children acquiring Italian (aged 18-36 months) and it consisted of 2838 declarative utterances containing a verb. The study supported previous findings in showing that Italian children omit subjects very frequently (75% omission on average). Crucially, the findings also showed that

the rate of omission depends on the type of the verb: children omitted significantly less unaccusative subjects (64% omission) than unergative (75% omission) and transitive subjects (78% omission). In addition, the nature of overt subjects was shown to depend on the type of the verb: children produced significantly more post-verbal unaccusative subjects (66% of all overt subjects) than post-verbal unergative (21%) and transitive subjects (28%).

The cross-sectional corpus consisted of spontaneous speech data of 59 children acquiring Italian, aged 22-35 months. The data replicated the findings of the longitudinal corpus, showing that children omit unaccusative subjects significantly less than unergative and transitive subjects, and that children produce more post-verbal unaccusative subjects than unergative and transitive subjects.

Thus, it is evident that children acquiring Italian distinguish unaccusatives and unergatives from an early age, treating the two verb types differently both with respect to the rate of subject omission and with respect to the word-order of pronounced subjects. Similar findings in the acquisition of Hebrew are presented in more detail in the next section.

4.3.3 Friedmann (2007)

Friedmann (2007) explores the acquisition of Hebrew unaccusatives conducting 7 experiments and utilizing two unaccusativity diagnostics: (i) linear order and (ii) the POSSESSIVE DATIVE construction. Let me briefly present the diagnostics, starting with the former.

Being a null-subject language, Hebrew allows unaccusatives to surface both in the VS and the SV order. Under the standard analysis, the VS order is underived, the post-verbal subject simply remaining in its base-generated position (Shlonsky 1997). The SV order, in contrast, is assumed to be formed by A-movement of the subject, creating an A-Chain. The two options are illustrated in (55).

- (55) a. Nafal ha-kadur
 fell the-ball
 ‘The ball fell.’
 b. Ha-kadur nafal
 the-ball fell

Unergative and transitive verbs normally disallow the VS order; thus, the parallel version of (55a) with an unergative predicate is ungrammatical, as shown in (56).

- (56) a. *Rakad ha-yeled
 danced the-child
 b. Ha-yeled rakad
 the-child danced
 ‘The child danced.’

However, when a sentence starts with a temporal modifier like *etmol* ‘yesterday’ or *lifney kama yamim* ‘a few days ago’, the VS order with unergatives becomes grammatical, as shown in (57). According to Friedmann, in this case the VS order is analyzed as V-to-C movement, with the temporal adverbial being adjoined to the matrix CP.

- (57) Etmol rakdu ha-yeladim ad ha-boker
 yesterday danced the-children till the-morning
 ‘Yesterday the children danced till the morning.’

Turning to (ii), Hebrew allows Possessive Dative PPs to modify (i.e. be interpreted as possessing) only internal arguments (Borer & Grodzinsky 1986), as illustrated in (58).

- (58) Ha-shaon nafal le-Dina
 the-watch fell to-Dina
 ‘Dina’s watch fell.’
 (59) *Ha-kelev shaxav le-Dina
 the-dog lied to-Dina
 Intended meaning: ‘Dina’s dog lied (e.g. on the floor).’
 (60) Ha-kelev shaxav le-Dina al-ha-shatiax
 the-dog lied to-Dina on-the-carpet
 ‘The dog (not necessarily Dina’s) lied on Dina’s carpet.’

Thus, (58) shows that the subject of an unaccusative predicate *ha-shaon* ‘the watch’ can be modified by the Possessive Dative *le-Dina* ‘to Dina’. In contrast, (59) shows that the subject of an unergative predicate *ha-kelev* ‘the dog’ cannot be modified by the Possessive Dative *le-Dina*; finally, (60) shows that the NP within the adjunct *ha-shatiax* ‘the carpet’ can be

modified by the Possessive Dative, as it is located inside the VP (see Borer & Grodzinsky 1986 for precise details on the structural licensing of Possessive Dative).

Returning to the acquisition of Hebrew unaccusatives, I would like to discuss 2 out of 7 experiments reported in Friedmann (2007).²⁹ Let me start with 6th experiment, which used the Possessive Dative diagnostic. 20 children (7 aged 2;0-3;0 and 13 aged 3;4-4;0) participated in a repetition task, in which they had to repeat the sentences produced by an experimenter as accurately as possible. The rationale behind this task is that when repeating, children do not merely reproduce strings of sounds verbatim, but rather analyze them according to their grammar (Lust, Flynn & Foley 1996). It is expected that children will have difficulty repeating sentences that they cannot analyze. Therefore, by comparing the sentences children repeat successfully and those they fail to repeat we can get a glimpse into the architecture of their grammar and specifically, we can understand which structures are delayed.

Each child heard 40 sentences, 8 sentences of each of the following 5 types: (a) SV unaccusatives with a Possessive Dative (e.g. (58)), (b) SV unaccusatives with a sentence initial PP adjunct, (c) VS unaccusatives with a sentence initial PP adjunct, (d) SV and (e) VS transitives with a sentence initial PP adjunct. The results showed that children had no difficulty repeating both VS and SV unaccusatives, while they had significant difficulty repeating VS transitives (the younger children succeeded with only 18% of the sentences; the older children succeeded with 39% of the sentences); crucially, the same children had no difficulty repeating SV sentences with transitive verbs of the same length. The contrast clearly shows that children distinguish VS unaccusatives (unproblematic repetition) and VS transitives (problematic repetition). Crucially, Friedmann takes the findings to show that children assign an unaccusative analysis to unaccusative verbs, as they succeeded in repeating SV unaccusatives with Possessive Dative PPs. Importantly, however, note that this conclusion is only valid if it is independently known that children know the licensing properties of the

²⁹ The 5 remaining experiments, which are not presented here, either replicate the findings discussed below (e.g. 2nd experiment, which provides further support for the distinction between VS unaccusatives and VS transitives) or do not reveal any contrasting behavior (e.g. 7th experiment, which shows that children successfully repeat both SV and VS unaccusatives with a Possessive Dative).

Possessive Dative. However, this was merely assumed, and never shown to be the case.³⁰ Therefore, the fact that children succeeded in repeating unaccusative predicates with a Possessive Dative does not necessarily show that they assigned them the correct representation.

An important methodological consequence of the discussion so far is that in order to show that children distinguish unaccusatives and unergatives, it needs to be shown that (i) children know the properties of the relevant construction, and that (ii) they indeed distinguish unaccusatives and unergatives in the relevant diagnostic environment. So far, then, it was merely shown that children distinguish VS unaccusatives and VS transitives, the origin of this distinction remaining unclear. Note that the difference between transitive and unaccusative verbs is greater than the difference between unergative and unaccusative verbs; therefore, the found contrast could be attributed to other, unrelated differences. Fortunately, data from spontaneous speech reported in Friedmann constitute a more solid evidence for the early acquisition of unaccusativity, as it is shown below.

The spontaneous speech data obtained from CHILDES database consist of 177 utterances with intransitive verbs produced by 21 children (aged 1;6-2;11). Similarly to the Italian findings discussed in the preceding section, children were found to use the VS order significantly more with unaccusative predicates than with unergative predicates. This shows that children distinguish unaccusatives and unergatives in terms of linear word order, strongly suggesting that the underlying representation of the two types of verbs is different.

4.3.4 Borer and Wexler (1992)

Finally, it should be added that while the findings of Borer and Wexler (1992) are often cited as supporting the UMH, together with the earlier (1987) work, I believe that the opposite is true. Let me briefly present their work.

³⁰ The findings would have also sufficed if universally, the Possessive Dative could modify only internal arguments. However, this is not the case: as shown in Strahov (2007), the parallel construction in Russian can modify subjects of transitive verbs.

In adult Italian, verbal participles agree with unaccusative subjects and (preverbal) clitic direct objects, while they do not agree with unergative/transitive subjects and non-clitic direct objects. Interestingly, children acquiring Italian between the ages 2;0 and 2;6 produce object agreement marking with non-clitic direct objects, even though this is ungrammatical in the adult language, in addition to producing it with unaccusative subjects and clitic direct objects. Crucially, children never produce agreement with unergative/transitive subjects, in contrast with unaccusative subjects. I believe that this is naturally accounted for under the assumption that children assign an unaccusative analysis to unaccusative verbs from a very young age, treating their subjects on a par with direct objects. Thus, I take the findings to provide yet another evidence for early acquisition of the unaccusative/unergative distinction.

4.4 Reconsidering the ACMH and the UPR

In this section I would like to return to the ACMH and the UPR, re-examining them in light of the discussion so far. Recall that the untenability of the UMH implied the untenability of both the ACMH and the UPR. In this section I show that this implication is, in fact, desirable. While the UPR is formulated in very different terms from the ACMH, it shares the basic insight of the earlier proposal, namely that the acquisition of any construction containing an A-Chain will be delayed – unless it can be re-analyzed without the A-Chain. Recall that the main evidence supporting this prediction was the attested delay in the acquisition of the verbal passive. However, as it is shown in the subsequent paragraphs, the existence of this delay is debatable.

First, it was noted already in Weinberg (1987) that the *nature* of the passive delay is unclear, as other studies show that long passives are acquired together with the short passives (e.g., Maratsos & Abramovitch 1975; see also more recent findings in Fox & Grodzinsky 1998). Therefore, at least some studies show that children do not have difficulty with long passives, which are unambiguously verbal – recall that adjectival passives are incompatible with a *by-*

phrase. Additionally, she notes that some non-actional passives apparently can be adjectival, as evident from their behavior in various syntactic diagnostics distinguishing adjectival and verbal passives (Wasow 1977). Therefore, children's difficulty with non-actional passives cannot be attributed to their being necessarily verbal. As a result, it is unclear to what extent the ACMH can account for the full range of the findings.

Recently, novel findings reported in O'Brien, Grolla and Lillo-Martin (2006) cast doubt on the very *existence* of the passive delay. Specifically, O'Brien, Grolla and Lillo-Martin hypothesize that the attested difficulty with long passives is rooted in the infelicitous use of the *by*-phrase in the experimental design.³¹ According to the authors, the use of *by*-phrase is felicitous only in a situation with several potential actors (Agents/Experiencers, depending on the verb). Thus, uttering the sentence *The lion was chased by the tiger* would be felicitous only in a setting with several potential chasers in addition to the tiger. The long passive conveys, in essence, that among all the alternative options it was the tiger who chased the lion. The authors show that in previous experiments addressing the comprehension of long passives, this implicit condition on the use of the *by*-phrase was never taken into account. This is a potentially confounding factor, as it was shown already in Hamburger and Crain (1982) that children's comprehension is impaired once the felicity conditions are not respected.³²

The authors conducted two experiments in order to check whether children's comprehension of the long passive is improved once an additional potential actor is added to the experimental setting. The first experiment involved 11 children (aged 4;0-4;10), who participated in a Truth-Value Judgment Task (Crain & McKee 1985): each child heard the description of a background scenario, which was then acted out with toys; this was followed by a puppet summarizing the scenario with either a correct or an incorrect (reverse) passive sentence, and

³¹ As noted above, the very existence of this difficulty is doubtful due to the high variation in the experimental findings.

³² Even though the experiments focus on the comprehension of passive constructions, the rare production of long passives is also accounted for under this reasoning: there are few contexts in which the dismissal of potential alternative actors is relevant, also accounting for the relatively rare usage of long passives in the adult language.

the child had to decide whether the puppet's response was accurate. Each scenario was composed to include one Patient (e.g. the lion, in the sample sentence above) and two potential actors, one of which was the actual actor of the event. The sentences were of the following 4 types: long match/mismatch, and short match/mismatch, and there were 4 passive sentences for each of the following 3 verbs: *chase/hug* (actional) and *see* (non-actional). The results of this study are surprising: children were correct across all conditions, on an average rate of 91% (ranging from 80%-100% correct per condition). Furthermore, in a follow up study it was shown that children's performance in the modified version of the task (with an additional potential actor) was significantly better than the same children's performance in the "regular" version of the task (i.e. no additional actor). The results therefore cast doubt on the very existence of a passive delay: it seems that both long and short passives, both with actional and non-actional verbs, are well understood by children acquiring English. Given the small number of children and the tested verbs, and given that the findings have been reported only with respect to English acquisition, it is evident that they are insufficient to completely disprove the existence of the passive delay. Hopefully, future research will extend these findings, shedding more light on the acquisition of the passive constructions. It is clear, however, that early acquisition of the passive construction emerging from this study is incompatible with both the ACMH and the UPR, casting additional doubt on such proposals.

Let me now return to causative overgeneralizations originally accounted for by the ACMH. Recall that in addition to the UMH, it was based on the following two assumptions: (i) the causative/inchoative (unaccusative) alternation is created by transitivity (i.e. theta-role addition), and (ii) transitivity in English is limited to unaccusative verbs. However, both of these assumptions are incorrect: first, as we saw in §2, various studies showed that the alternation is created by the opposite process, namely 'de-transitivity' (e.g., Chierchia 1989; Levin & Rappaport-Hovav 1995; Reinhart 2000, 2002). Second, examples like (61) show that even English allows transitivity of some unergative predicates (discussed in more detail in Levin & Rappaport-Hovav 1995 and Reinhart 2000):

- (61) a. The soldiers marched to the tent
b. John marched the soldiers to the tent

The above shows, therefore, that the ACMH cannot account for causative overgeneralization errors. In contrast with the passive delay, whose very existence has been questioned, the existence of causative overgeneralizations has not been contested, calling for an alternative account. Two questions need to be answered: (i) what is the underlying cause of these errors, and (ii) how are they ‘de-learned’? I address both questions below, starting with (i).

Recall that children sometimes produce causative versions of both unaccusative and unergative predicates. Even though both have been traditionally regarded as a single phenomenon, nothing rules out an alternative analysis where the former would be regarded as incorrect transitivity of unaccusatives, and the latter – as incorrect transitivity of unergatives. What can be their origin? Let me start with causativization of unaccusatives: recall that languages have a very small number of unaccusative verbs with a frozen input (i.e. lacking overt transitive alternate). As the set of these verbs varies cross-linguistically, this is clearly a property of the target language that the child needs to acquire. Crucially, ‘frozen input’ refers merely to the morpho-phonological realization of the transitive alternate; under the analysis in Reinhart (2000, 2002), all one-place unaccusative verbs have transitive alternates by their definition. Therefore, causativization errors could be attributed to the child’s (erroneous) assumption that every unaccusative verb has a morphologically realized alternate. Clearly, such an analysis requires a clear explanation of how these mistakes are expunged from the child’s grammar, a question I address further below. Turning to causativization of unergative verbs, recall that both English and Hebrew allow a small number of unergative (and transitive) predicates to be causativized (by a distinction operation of causativization, as shown in Horvath & Siloni 2007; Reinhart 2000, 2002). I would like to suggest, tentatively at this point, that occasional causativization errors observed with unergatives could be seen as the child’s overgeneralization of the causativization rule. In contrast with causativization of unaccusatives, which is quite expected under the analysis in

Reinhart (2000, 2002), causativization of unergative predicates is rather unexpected. At the moment, therefore, the account is unsatisfactory. Further research is needed to establish whether there are more causativization errors with unaccusatives than with unergatives, and whether such errors are attested in other languages as well; to the best of my knowledge, both questions remain unanswered at the present time.

Let me now turn to the 2nd question, namely how these mistakes are expunged from the child's grammar. Under the standard assumption that the child does not receive reliable negative evidence (i.e. evidence telling her/him that the uttered word or sentence is ungrammatical in the target language), it is certainly unclear how can s/he 'de-learn' the incorrect causative forms. However, it is shown in Marcotte (2005) that the standard view of negative evidence, which in turn is based on the standard view of positive evidence, is simply inaccurate. Specifically, it is commonly assumed that positive evidence, that is evidence telling the child which sentences belong to the target language, consists of the sentences children hear (Brown & Hanlon 1970; Marcus 1993). Negative evidence, that is evidence telling the child which sentences do not belong to the target language, is clearly absent from child's early linguistic experience; the only way the child could obtain negative evidence would be by constructing it in her/his own mind. This view of positive and negative evidence creates the impression that the former is a real-world object, independent of the child's cognition, while the latter – if it can be obtained at all – is a mental object constructed in the child's mind. However, it is clear that 'sentences children hear' per se are insufficient as positive evidence, as they are merely noise; positive evidence, therefore, must be *constructed* in the child's mind just like negative evidence. This means, crucially, that it is possible to obtain negative evidence from the linguistic input. Specifically, Marcotte proposes that both positive and negative evidence are constructed by pairing the obtained adult meaning of a certain given utterance³³ with forms generated by their own grammars. Positive evidence

³³ Any acquisition theory must assume that children can, to a large extent, "accurately encode from context the adult's intended meaning." (Pinker 1989, p. 361).

would be a situation in which the generated form corresponds to the adult form, and negative evidence would be a situation in which the generated form does not correspond to the adult form. Turning to causative overgeneralization errors, ‘de-learning’ under this view would proceed as follows: hearing a sentence like *John made the doll laugh*, the child would take the intended adult meaning and use her/his own grammar to generate forms corresponding to that meaning. One of such forms might be the erroneous *John laughed the doll*. But crucially, this form does not correspond to the form used by the adult speaker; this would signal the child that her/his form is incorrect, leading to abandonment of the causative meaning associated with *laugh*. Clearly, this process needs to be made more precise, as it remains unclear how many examples will suffice to cause a change in the child’s grammar. In addition, note that this proposal presupposes that for each meaning there is only one corresponding form, which is known to be inaccurate; it seems that a more precise notion of ‘intended adult meaning’ needs to be articulated. Crucially, however, it opens a new direction for research and provides new tools to deal with overgeneralization errors, by suggesting a way to obtain negative evidence from the linguistic input. Hopefully future research will shed more light on this process. Having examined the L1 evidence, let me turn to L2 data in the next section.

5. UMH in L2 Acquisition

5.1 L2 acquisition of English

As it was mentioned in the introduction, the proposal that unaccusative predicates are initially misrepresented as unergatives is not unique to the research on L1 acquisition. Specifically, it is proposed in Oshita (1997) and Deguchi & Oshita (2004) that learners of L2 English, with various L1 backgrounds, initially assign an unergative representation to unaccusative verbs. This section presents and examines the empirical evidence taken to support the UMH in L2 acquisition.

5.1.1 Empirical findings

Oshita (1997) examines two phenomena in L2 acquisition of English unaccusatives: (i) passivization errors, and (ii) VS word-order preference. I elaborate on each phenomenon in turn, starting with (i): it has been shown in various studies that learners of L2 English sometimes passivize unaccusative predicates, producing ungrammatical utterances like (62)-(64) (e.g., Hirakawa 1995; Hubbard 1994; Oshita 2002; Yip 1995; Zobl 1989). Such errors are very surprising in light of the known cross-linguistic observation that unaccusative predicates do not have verbal passive counterparts (Jaeggli 1986) (and as shown below, these utterances cannot be analyzed as adjectival).

(62) *Something strange *was happened* before I opened the door
(Hubbard 1994: (55))

(63) *My mother *was died* when I was just a baby
(Zobl 1989: (3))

(64) *This kind of diglossic situation can only *be appeared* in society where the two different variations should not be too different and too similar
(Yip 1995: (5))

Turning to (ii), various studies show that learners tend to prefer the VS order with unaccusative predicates (e.g., Kellerman 1978; Yip 1995; Zobl 1989). This preference is manifested in two ways: first, learners tend to judge SV unaccusatives in English (e.g., *The cup broke*) as less grammatical than their VS counterparts (e.g., *Broke the cup*). Second, learners produce VS unaccusatives in their spontaneous speech, even though this is ungrammatical in English. This is illustrated in (65) below.

(65) a. *Sometimes *comes a good regular wave*
b. *I was just patient until *dried my clothes*
(in the sense of) 'I was just patient until my clothes had dried.'
(Oshita 1997: (24a-b))

Oshita observes three characteristic properties of these errors: first, they are attested with speakers of different L1 backgrounds (e.g., Hebrew, Spanish, Italian, Japanese, Korean). Second, they are characteristic of intermediate, but not beginner/advanced-

level learners. Third, and most crucially, they are observed only with unaccusatives, both with alternating and non-alternating verbs (e.g., *break*, *fell* respectively). Thus, parallel instances of incorrect passivization or preference of the VS word-order with unergative or transitive predicates is unattested.³⁴

5.1.2 Account

The data discussed above give rise to two questions, namely (i) what is the underlying cause of both phenomena, and (ii) why they are specific to intermediate-level learners. Let me discuss each question in turn, with respect to each phenomenon: the VS word-order preference is not too surprising, given the syntactic derivation of unaccusative subjects; a plausible assumption would be that learners can sometimes leave the unaccusative subject in situ.³⁵ Turning to passivization errors, even though they have received much attention in the field of L2 acquisition, Oshita shows that all existing accounts are inadequate. Specifically, four different types of accounts have been proposed: (a) direct transfer of complex tenses in L1 (i.e. tenses formed with the use of tensed auxiliary and past participle, e.g., *passé composé* in French); (b) overgeneralization of adjectival passives; (c) lexical misanalysis of unaccusative forms as transitives; (d) association of the passive morphology with the lack of external θ -role. The proposal in (a) is incompatible with the finding that these errors occur with learners of various L1 backgrounds, including Japanese, Korean and Hebrew – languages lacking complex tenses, in this sense of the term.³⁶ The proposal in (b) is untenable as these errors usually denote an eventive interpretation, as it is evident from the additional temporal modifiers. The proposal in (c) is untenable as the prediction that speakers will use

³⁴ It should be added that while passivization of unergatives is rare, it is nevertheless attested in some languages (e.g., Germanic impersonal passives; see Jaeggli 1986).

³⁵ A question arises what permits this analysis in the intermediate English grammar. As the main goal of this section is to present and discuss the UMH in L2 acquisition, rather than to provide a detailed analysis for each phenomenon, I do not elaborate on this further, referring the reader to Oshita (1997) for a discussion of possible answers to this question.

³⁶ An alternative analysis would attribute these errors to incomplete acquisition of the auxiliary system in English. Thus, it could be that instead of producing, for example, *My mother has died when I was just a baby*, learners produce *My mother was died when I was just a baby*, replacing *has* with *was*. That the learners do not simply err with auxiliary selection is evident from the observation that such errors are not unique to the past tense and that they are attested only with unaccusative predicates.

the unaccusative predicates as transitives (i.e. with a direct object) is not borne out by the empirical data. The proposal in (d) is untenable as it predicts that there will be an equal amount of passivization errors with sentences containing expletive pronouns; however, such errors are (virtually) non-existent. Finally, note that all proposals have difficulty accounting for (ii), namely for the errors being specific to intermediate-level learners.

Striving to account for both (i) and (ii), Oshita (1997) advances a 3-stage account: at the 1st stage (beginners), learners misanalyze unaccusatives as unergatives; at the 2nd stage (intermediate), they arrive at the correct analysis of unaccusatives, which in turn gives rise to the passivization and word-order mistakes noted above. Finally, at the 3rd stage (advanced), the mistakes tend to cease, with learners approaching native-like knowledge. The following paragraphs present the proposal in more detail.

The unergative misanalysis of unaccusatives at the 1st stage (labeled UNACCUSATIVE TRAP) is suggested to be rooted in the learners' assumption that the single argument of intransitive verbs is always mapped externally (labeled SINGLE ARGUMENT LINKING RULE). Clearly, a question arises what causes learners to adopt this linking rule in the first place; note that it is insensitive to the lexical-semantic properties of the verbs in question, being at odds with the essence of linking rules as mapping semantic structures into syntactic positions. According to Oshita (1997), the learners are guided by two opposing needs: on the one hand, they strive to acquire the correct syntactic representations of the target language, which demands their time and effort; on the other hand, they strive to communicate as quickly and efficiently as possible. Given the predominant SV order of both unergatives and unaccusatives in English, Oshita proposes that the Single Argument Linking Rule is a natural solution for the conflict described above: it allows learners to communicate in a superficially native-like manner, without "wasting time" on acquiring the correct syntactic representations.³⁷ Importantly, then,

³⁷ Note that this presupposes that learners need to *acquire anew* the syntactic analysis of the relevant predicates.

the goal of UMH in Oshita's analysis is to account for the *absence* of non-native phenomena at the initial stages of L2 acquisition of English.

Let us now turn to the 2nd stage, where both phenomena noted above were observed. Recall that the errors were attested exclusively with unaccusative predicates; clearly, this shows that intermediate learners distinguish unaccusatives and unergatives. Oshita suggests that at the 2nd stage, learners abandon the general linking rule adopted at the 1st stage, replacing it with the correct native-like linking rules.³⁸ At the 2nd stage, therefore, their grammars are more native-like as they encode the unergative/unaccusative distinction. This, however, leads learners to err with unaccusatives: on the one hand, they know that unaccusative verbs do not project an external argument, but on the other hand, they already know that English requires Spec TP to be filled (i.e. EPP). This presumably creates confusion, which underlies both types of errors noted above. Specifically, Oshita proposes that learners mistakenly analyze the *auxiliary + participial* morphology to be an overt marker of A-movement; knowing that subjects of unaccusatives are internal arguments, reaching the pre-verbal position via A-movement, intermediate learners create "passivized" unaccusatives. In addition, this reasoning presumably explains the VS word-order preference, as learners are predicted to judge the SV word-order without such morphological marking of A-movement as less grammatical than the parallel VS word-order.³⁹ Thus, both types of errors mentioned above are presumably accounted for under the assumption that speakers indeed know the syntactic distinction between unaccusatives and unergatives. At the 3rd stage, learners realize that this movement

³⁸ A question arises why the learner would abandon his initial misanalysis. In fact, Oshita's view is rather pessimistic, as he believes that '...many learners of English may overlook available subtle evidence and simply remain at the 1st stage of grammatical development for a long time or even forever.' (Oshita 1997, p. 229). This also explains the rarity of such mistakes, which were found to constitute less than 10% in the corpus data examined in Oshita (1997). The few learners who abandon the 1st stage are suggested to do so for one of the following two reasons: (i) either the learner comes to realize that subjects of some predicates are more like direct objects, noting their behavior in the diagnostic environments, or (ii) s/he is guided by innate principles of systematic links between the semantics and the syntax (accessible either via the L1 language or directly via UG).

³⁹ In my view, this direction is somewhat dubious: Oshita notes that the passive is the only construction in English which morphologically marks A-movement (by auxiliary and participle). But if so, why should the learners associate this morphology with A-movement, if other constructions with A-movement (e.g. raising adjectives and verbs) do not use it? To the best of my understanding, this question remains unanswered.

in English is not marked by morphological means and that it is obligatory with unaccusatives, which explains the gradual disappearance of such errors from their language.

The most important prediction of this model is that the acquisition of unaccusativity will proceed in a U-Shape pattern: initially, learners are expected to treat unaccusative and unergative predicates alike, and to start distinguishing them only in their intermediate to advanced stages, when the unergative misanalysis would be abandoned. This prediction was addressed in an experiment reported in Deguchi & Oshita (2004), presented below.

5.1.3 Evidence for U-Shaped acquisition

The subjects were 129 L1 Japanese learners of L2 English, from 4 language proficiency levels: elementary (36), low-intermediate (32), intermediate (34) and advanced (27)⁴⁰; in addition, 12 native English speakers participated as controls. The task was grammaticality judgment, consisting of 6 unaccusative verbs (*fall, arrive, die, appear, exist, remain*) and 2 unergative verbs (*cry, smile*). For each verb there were 2 conditions, active and passive, and each appeared both with an animate and an inanimate subject. Below is a sample set from the experiment: (66a) is active/animate, (66b) is active/inanimate, (66c) is passive/animate and (66d) is passive/inanimate.

- (66) a. The horses arrived on the race track
b. The big package arrived on my mother's birthday
c. *The guests were arrived at the hotel
d. *My aunt's gift was arrived this morning

(Deguchi & Oshita 2004: (5))

Each subject was presented with the written sentences, accompanied by corresponding pictures to ensure comprehension, and had to judge them on a 5-point scale: 1 – not correct English, 2 – probably not correct English, 3 – cannot decide, 4 – probably correct English, and 5 – correct English.

⁴⁰ Note that learners are divided into 4 proficiency groups, 'low-intermediate' being considered together with 'beginner' learners. This division signals another potential problem of the analysis, namely the vague distinction between different proficiency levels.

The results were as follows: elementary and low-intermediate level learners had difficulty distinguishing between grammatical (active) and ungrammatical (passive) sentences, assigning all sentences the average score of 3 points; no statistical difference was found between unaccusatives and unergatives. The intermediate group distinguished grammatical and ungrammatical sentences (the former being judged close to 4, and the latter – close to 2); crucially, this group differentiated unaccusatives and unergatives: passivized unaccusatives were considered more grammatical (around 2.2) than passivized unergatives (around 1.8), the difference being statistically significant. The advanced speakers judged the active sentences as grammatical (around 4.1; cf. 4.5 control group score), and the passive sentences as ungrammatical (around 1.1; cf. 1 control group score); on a par with beginner and low-intermediate groups, the advanced learners and the control group did not distinguish unaccusatives and unergatives, judging all passives as ungrammatical and all actives as grammatical. Finally, the animacy of the subject did not affect the results.

The results are taken to support the predictions of Oshita (1997), showing that while unaccusative and unergative predicates are not distinguished with respect to passivization at the initial/final stages of L2 acquisition, they are distinguished at the intermediate stage where passivized unaccusatives are judged as more grammatical than passivized unergatives (though still ungrammatical).

5.1.4 Re-examination

The question arises whether this interpretation of the data is convincing. While the analysis in Oshita indeed predicts that learners will fail to distinguish unaccusatives and unergatives with respect to passivization at the initial stage of L2 acquisition, the real question is what underlies this lack of distinction. If learners judged simple active sentences (e.g. *The horses arrived on the race track*) as completely grammatical, and at the same time, judged passivized unaccusatives on a par with passivized unergatives⁴¹, Oshita's account would be plausible.

⁴¹ What judgment should we expect that learners will assign to passivized unaccusatives and unergatives? In my view, this remains an open question: if learners know that unergatives cannot

However, his findings are very different; recall that initially, learners have difficulty with judging even simple active sentences with unaccusatives and unergatives, assigning all sentences the same average score of 3 (i.e. ‘cannot decide’). This state of affairs, however, is also accounted for under the assumption that beginner and low-intermediate learners have a basic difficulty with understanding the meaning of English predicates, plausibly due to its poor morphological marking of unaccusativity. The poor morphological marking of unaccusativity in English can also account for the “passivization” errors noted above: it is plausible that at the intermediate stage, when learners know English well enough to understand the meaning of the relevant predicates, they strive to mark the derivational nature of unaccusatives, overgeneralizing the morphological marking of passivization. Under this proposal, the “passivization” errors reflect the learners’ attempt to mark the fact that unaccusatives are derived from their transitive counterparts, on a par with passives.

Returning to the UMH, recall that it was needed only to explain the seemingly unproblematic acquisition of both unaccusatives and unergatives at the 1st stage. However, it is evident from the experimental data in Deguchi & Oshita (2004) that learners do have difficulty with both verb types at the 1st stage, namely they seem to lack the knowledge of the relevant verb meanings. Therefore, I believe that the findings cannot be taken to support the UMH in L2 acquisition of English. The final part of this section addresses another source of evidence taken by Deguchi & Oshita to support the UMH in L2 acquisition, this time in the L2 acquisition of Chinese.

5.2 L2 acquisition of Chinese

Yuan (1999) examines the acquisition of L2 Chinese by native speakers of English, focusing on the distinction between unaccusative and unergative predicates. Before presenting his findings, a few words on the way the two verb types are distinguished in Chinese are in order.

passivize in English, then we would expect both to be rejected. However, as mentioned in fn. 34, passivization of unergatives is attested in some languages. Therefore, we might expect both to be judged as grammatical, if learners take English to be such a language.

While the basic word order in Chinese is SVO, subjects of unaccusative predicates can appear post-verbally, provided they are indefinite. Thus, definite subjects of unaccusatives must appear pre-verbally, while indefinite subjects can appear both pre- and post-verbally. In contrast, subjects of unergative predicates must appear pre-verbally. Finally, a small class of unergative verbs exhibit unaccusative behavior when modified by a directional PP (i.e. allowing the VS order with indefinite subjects in this case); these verbs belong to the ‘inherent manner of motion’ verb class of Levin and Rappaport-Hovav (1995) (e.g. *jump*).

The question addressed in Yuan (1999) is whether L2 learners are aware of the different possibilities and limitations of Chinese. To this end, two tasks were administered: (i) oral picture description and (ii) sentence acceptability judgment task. Forty-eight L2 Chinese learners took part in both tasks, all being native speakers of English. The subjects were divided into 4 different groups, based on the number of years they were studying Chinese and on their performance on a proficiency level test; 14 Chinese native speakers served as a control group. In the former task, subjects had to describe 9 pictures, using the words provided by the experimenter and being encouraged to produce as many grammatical sentences as they could for each picture. Each of the 9 pictures depicted an activity denoted by one of the following 9 verbs: *po* ‘break’, *dong* ‘freeze’, *biye* ‘graduate’ (unaccusatives); *diao* ‘fall’, *tiao xialai* ‘jump down’, *taopao* ‘escape’ (verbs of directed motion); *pao* ‘run’, *pa* ‘creep’, *xiao* ‘laugh’ (unergatives). In the latter task, subjects were given a list of 32 sentences, and they had to grade the acceptability level of each sentence on a 5-point scale (i.e. from ‘completely unacceptable’ to ‘completely acceptable’). The list consisted of 8 sentence types, 4 verbs in each type, which varied the verb type (unaccusatives or unergatives) and the syntactic structure (SV or VS; indefinite or definite subject).

The results of the first experiment are as follows: beginner-level learners (group 1) did not use the VS order at all. The intermediate learners (groups 2 and 3) allowed the VS order with all verb types; they differed in their percentage of produced VS sentences: while in group 2 the VS order was produced in (roughly) 30% of the cases, in group 3 it was produced in (roughly)

80% of the cases. It is only the most advanced group (group 4) which distinguished the two verb types, producing the VS order with unaccusatives significantly more (roughly 60%) than with unergatives (roughly 30%).⁴²

Results from the second experiment support these findings: beginner-level learners tended to reject all VS sentences, while the intermediate learners tended to accept them regardless of the verb type and the definiteness of the subject. It is only the most advanced group whose judgments were affected by the two variables, judging post-verbal definite subjects significantly worse than indefinite subjects, and post-verbal subjects of unergatives significantly worse than post-verbal subjects of unaccusatives.

Deguchi & Oshita (2004) take these findings to provide independent evidence for the UMH in L2 acquisition. I believe, however, that this interpretation is unwarranted: the findings merely show that L2 learners of Chinese initially do not distinguish unaccusatives and unergatives in a specific diagnostic environment for unaccusativity in Chinese. As it was shown in §4.3.3, this, in itself, is insufficient to conclude that learners do not distinguish unaccusatives and unergatives, as it might be the case that they simply do not know yet the manifestation of the distinction in Chinese (i.e. word order). Additionally, recall that the same learners did not distinguish indefinite post-verbal subjects (grammatical) and definite post-verbal subjects (ungrammatical). While these could certainly be two independent phenomena, it is evident that an analysis accounting for both is to be preferred. In fact, such is the analysis of Yuan (1999): it is proposed that learners initially misanalyze post-verbal subjects of unaccusative predicates as inverted subjects (cf. the analysis of Italian inversion in Burzio 1986). Under this analysis, the post-verbal subject is adjoined to the right of the VP, checking NOM against the finite T. This accounts for both phenomena at hand, as subject inversion in (e.g.) Italian is possible with unergative predicates, and NOM case marking is not incompatible with

⁴² Nevertheless, the performance of group 4 differed from that of native speakers, who allowed the VS word order in 100% of the cases with unaccusative predicates, and in 5% of the cases with unergative predicates.

definiteness.^{43,44} Thus, the initial absence of distinction is more plausibly accounted for under the assumption that learners have difficulty with the diagnostic itself (i.e. VS word-order), rather than with the unaccusative/unergative distinction.

To conclude, this section presented the findings taken by Oshita (1997) and Deguchi & Oshita (2004) to support the UMH for L2 acquisition. It was shown that the specific proposal advanced by Oshita is problematic in several respects, and more importantly, that the attested developmental patterns can be accounted for without appealing to UMH.

6. Conclusion

To conclude, this work addressed the L1 and L2 acquisition of unaccusative verbs, showing that the existing empirical evidence is at odds with the proposal that such verbs are initially assigned an incorrect unergative syntactic analysis. Adopting the Theta-System analysis of both verb types, it was suggested that the correct syntactic analysis is evident from the verbs' thematic grids, predicting no delay in their acquisition. Finally, related topics such as the acquisition of the verbal passive and causative overgeneralization errors were discussed, raising additional questions and ideas for further examination. Hopefully, future research will be able to provide satisfying answers for these and related questions.

⁴³ Belletti (1988) argued that post-verbal subjects of unaccusatives in Italian receive partitive case, which is inherently incompatible with definiteness. Adopting her analysis for Chinese, Yuan notes that his findings appear to be at odds with this generalization, as learners allowed the VS order regardless of the definiteness of the subject. However, under Yuan's analysis, the post-verbal subject in the grammars of intermediate learners receives NOM. This renders the findings unproblematic for the theoretical assumption noted above, eliminating the need to assume "wild" L2 grammars (i.e. in which partitive case would be compatible with definiteness).

⁴⁴ A question arises what leads learners to abandon this false analysis of post-verbal unaccusative subjects. Yuan proposes that a specific restriction on post-verbal unaccusative subjects might account for the 'de-learning' process; however, we should not forget that all the participants in his study learned Chinese in a formal setting, being taught and explicitly corrected by their teachers. Intuitively, it seems likely that word-order related mistakes will be corrected, providing the necessary negative evidence. Clearly, this is merely a direction for future examination.

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