BOŻENA CETNAROWSKA
University of Silesia, Katowice/Sosnowiec

ON THE UNACCUSATIVE/UNERGATIVE SPLIT
AND ITS ACCOUNTS IN GENERATIVE GRAMMAR

This paper offers a brief overview of the treatment of the intransitivity split within various theoretical models couched within the framework of generative grammar. Emphasis is given to the presentation of the most crucial issues and fundamental problems involved in proposing a formal account of the distinction between unergative and unaccusative verbs.

1. Ergativity in typological studies

It has often been observed in typological studies (see Dixon 1994 for a useful survey) that languages represent diverse systems of case marking. In the majority of Indo-European languages (including Slavic and Germanic languages) subjects of transitive verbs (commonly abbreviated as A) and subjects of intransitive verbs (for which the symbol S is used) are marked by the same surface morphological case (Nominative). Objects of transitive verbs (O) are usually marked by the Accusative case. Such systems are referred to as Nominative-Accusative systems. In other languages, such as Basque, various Native American languages (e.g. Dakota, Slave), or Australian languages (including Dyirbal), subjects of intransitive verbs may receive the same (surface) case marker as objects of transitive verbs. These languages belong to the Absolutive-Ergative type. The Absolutive case is assigned to subjects of intransitive verbs (S) and objects of transitive verbs (O), whereas Ergative is the case of transitive subjects (A).

Apart from showing the same case marking, S and O may exhibit the same behaviour in syntactic constructions in Absolutive-Ergative systems. In Dyirbal the object of a transitive clause (O) can be omitted under coreference with the preceding subject of an intransitive clause (S), as is illustrated in example (1a) quoted from Palmer (1994:13). Observe, in contrast, that in languages of the Nominative-Accusative type, a subject (S or A) can be deleted when it is coreferential with the subject (S or A) of a preceding clause, no matter whether transitive or intransitive verbs are involved, as is shown for English in (1b).

(1) a. ŋuma   banaga-ɲu   yabu-ɲgu   buṛa-n
     father-ABS   return-PAST   mother-ERG   see-PAST
     'Father returned and Mother saw [Father].'
   b. Father returned and saw my new car.

Consequently, a distinction is sometimes drawn between morphological ergativity and syntactic ergativity. As is pointed out in Dixon (1994), Palmer (1994), or Haig (1998), the alignment between the distribution of morphological ergativity and syntactic ergativity cross-linguistically is far from being perfect. In Kurdish, for instance (discussed in Haig 1998), ergativity is restricted to morphology, and it has no consequences for the syntactic system of the language (as reflected in passivization, basic constituent order, coreferential deletion etc.). Kurdish is, thus, morphologically ergative but syntactically accusative[1].

Syntactically and/or morphologically ergative languages can exhibit splits in marking intransitive subjects. In the Siouan language Mandan, for instance, intransitive verbs are divided into two sets (cf. Dixon 1994:71 ff.). The first class of intransitive verbs (i.e. 'active' intransitives, e.g. 'enter', or 'think it over') refer to events which are likely to be controlled. The second class (i.e. 'neutral' intransitives) refer to events which are not likely to be controlled, namely states or conditions such as 'fall', or 'be lost'. Subjects of 'active' intransitive verbs pattern (syntactically and/or morphologically) together with subjects of transitive verbs. For example, they can occur with subjective prefixes. Subjects of 'neutral' intransitive verbs, in contrast, behave like objects of transitive verbs, since they take only objective prefixes. Dixon (1994) calls such systems 'split-S' systems.

Apart from being determined by the semantic interpretation of the verb (as in the case of Mandan), ergativity splits can be conditioned by the semantic nature of core noun phrases (NPs) in a clause, i.e. by the position of those NPs on the Nominal Hierarchy. For example, in Dyirbal 1st and 2nd person pronouns have the accusative -na case when they occur as objects of transitive verbs (O), while they bear the (unmarked) nominative case when functioning as transitive or intransitive subjects (A or S). The NPs which are lower on the NP hierarchy than 1st/2nd person pronouns, namely 3rd person pronouns, proper nouns and common nouns, require different case marking. They receive the ergative -ŋgu case when occurring as A. They have the unmarked absolutive case when occurring as S and O (cf. Dixon 1994:86). Such split case-marking systems are econominal since the participant bears a relevant case marking only when it has an 'unaccustomed' (i.e. unexpected) participant role.

There exists yet another type of ergativity split, conditioned by tense, aspect, or mood. In Iranian languages, for instance, the Ergative-Absolutive marking occurs only in past tenses, while in Hindi only in perfective aspect. Nominative-Accusative marking occurs then in non-past/non-perfective clauses (cf. Dixon 1994:100).

2. The Unaccusative Hypothesis in generative grammar

In linguistic studies couched within the framework of generative grammar, beginning with the influential paper of Perlmutter (1978), particular attention is paid to the occurrence of the intransitivity split conditioned by the semantics of verbs.

The terminology used by Perlmutter and other representatives of the generative grammar framework, either advocates of Relational Grammar, Government and Binding

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[1] Dixon (1994:172) claims that, although morphological and syntactic ergativity do not always coincide, there is no language that is ergative at the syntactic level but not on the morphological level. As is shown in section 2, generative grammarians take an opposite stand. They employ syntactic evidence to postulate ergativity splits in languages which exhibit no ergativity at the level of inflectional morphology (e.g. Dutch, Russian, English, or German).

theory, Principles and Parameters model, the Minimalist model, or Optimality Theoretic model, diverges considerably from the vocabulary used in typological studies, as will be shown below.

Perlmutter (1978), espousing the framework of Relational Grammar (RG), proposed that intransitive verbs should be divided into two groups. The first group of intransitive verbs encompasses verbs whose subjects exhibit patient-like properties, including predicates of existing and happening, and inchoative verbs, e.g. *fall, exist, burn*. The other group of intransitive verbs, whose subjects exhibit more agent-like properties, were referred to as 'unergatives', e.g. *jump* or *sing*. It encompassed predicates describing volitional acts, manner-of speaking verbs, and verbs describing certain involuntary bodily processes. Perlmutter put forward the hypothesis that unergative verbs take in their initial strata only subjects. Unaccusative verbs, in contrast, take in their initial strata only objects, which are then 'promoted' to the subject position. The latter assumption predicts that subjects of unaccusative verbs should exhibit object-like properties. Perlmutter observes, furthermore, that unaccusative verbs cannot be passivized, which follows within the framework of RG from the so-called 1-Advancement Exclusiveness Law (abbreviated as 1-AEX). It states that no more than one argument can be advanced to the subject position in the course of the derivation.

Perlmutter's proposal, commonly referred to as the Unaccusative Hypothesis, was elaborated on, within the framework of Government and Binding (GB) Theory, by Burzio (1986), Pesetsky (1982), and Hoekstra (1984). Translating Perlmutter's observations into the GB framework, they postulated that S(urface)-structure subjects correspond either to D(eep)-structure subjects (in the case of *sing*), or to D-structure objects (e.g. in the case of *fall*).

Burzio (1986) divides single-argument verbs into intransitives (corresponding to Perlmutter's unergatives) and ergatives[2] (i.e. Perlmutter's unaccusatives). He renames Perlmutter's "Unaccusative Hypothesis" as the "Ergativity Hypothesis". He also formulates the so-called "Burzio's generalization", which predicts that verbs without an external argument (i.e. without a D-structure subject) do not assign (abstract) Accusative case. This generalization is an attempt to relate two components of the Government and Binding Theory, namely Theta-theory and Case-theory. The only arguments of unaccusatives and passive verbs are internal arguments (i.e. D-structure objects). Since they are not assigned (abstract) Accusative case by the governing verbs, they must move to the surface subject position to receive (abstract) structural Nominative case. Consequently, the S-structure representation of an unaccusative verb contains a S-subject and a trace t_i in the object position (as shown in 2a) while the S-structure of an unergative verb, given in (2b), contains no traces (cf. Haegeman 1994:323)[3].

(2) a. $[_{IP} NP_i [_{I'} [_{VP} V t_i]]]$ (unaccusatives, e.g. *fall*)
    b. $[_{IP} NP [_{I'} [_{VP} V]]]$ (unergatives, e.g. *work*)

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[2] This is the terminological convention to which Dixon objects particularly strongly, since, according to him, the word 'ergative' is used here "for the wrong member of the opposition, in place of «absolutive»" (Dixon 1994:20).

[3] In the representation in (2) IP stands for 'Inflectional Phrase', which is a functional projection above VP (verb phrase).

Perlmutter (1978) assumes that all languages, disrespective of their typological classification, exhibit the unergative-unaccusative dichotomy[4] . Perlmutter (1978) and Hoekstra (1984) postulate the intransitivity split for Dutch and German[5], while Burzio investigates ergativity in Italian, and Pesetsky (1982) – in Russian[6]. This stands in contrast to the position of typologists, like Dixon (1994), who restrict the term "ergativity" to the description of "a grammatical pattern in which the subject of an intransitive clause is treated in the same way as the object of a transitive clause, and differently from transitive subject" (Dixon 1994:1). Therefore, Dixon finds the discussion of ergativity in Dutch, Italian, or Russian, to be an illicit enterprise (cf. Dixon 1994:18 ff.).

3. Tests diagnosing the intransitivity split

The Unaccusative Hypothesis derives from the observation that, with respect to certain syntactic phenomena, subjects of unaccusative verbs pattern together with objects of transitive verbs.

The basic evidence employed by Perlmutter and Hoekstra to argue for a split between monadic verbs lacking external arguments and those lacking internal arguments in Dutch involves the study of the impersonal passive formation, auxiliary selection, and prenominal adjectival passives. Only verbs with an external argument can occur in the impersonal passive construction, as follows from the 1-AEX and is illustrated in (3). Moreover, when forming the perfect tense, unergative verbs and transitive verbs select the auxiliary *hebben* 'have' while unaccusatives select the auxiliary *zijn* 'be' (see 4). Finally, the past participles of unaccusative verbs in Dutch can be used as prenominal attributive modifiers, similarly to passive participles. Past participles of unergative verbs cannot be used prenominally (see 5). The data in (3-5), quoted from Mulder (1992), and van der Putten (1997), confirm the existence of a difference in the syntactic status of surface subjects (S-subjects) of unergative verbs and unaccusative verbs. S-subjects of unergative verbs pattern together with subjects of transitive verbs, while S-subjects of unaccusative verbs behave like objects of transitive verbs.

(3) a.	Er	werd	gelachen	(door Jan)	(unergative)
	there	was	laughed	(by Jan)	
b.	*Er	werd	gestorven/gezonken		(unaccusative)
	there	was	died/sunk		

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[4] Following Perlmutter's assumption of the universal nature of the intransitivity split, many authors discuss the unaccusativity diagnostics for various Indo-European and non-Indo-European languages, including Greek (cf. Markantonatou 1995, Alexiadou and Anagnostopoulou 1998), and Hebrew (cf. Borer 1998). Cetnarowska (2000a,b) proposes the division of intransitive predicates into unergatives and unaccusatives for Polish.

[5] Hoekstra (1984) does not confine the domain of unaccusative verbs to intransitives. Some two-argument verbs may be in fact unaccusative, e.g. *ontgaan* 'to elude' and *aankomen* 'to arrive'. Belleti and Rizzi (1988), when analyzing psych verbs in Italian, recognize a subclass of psych transitive verbs as lacking an external argument, i.e. as unaccusatives (though their analysis is controversial).

[6] The bifurcation of single-argument verbs into unaccusatives and unergatives in Russian is further discussed in Schoorlemmer (1995), Babyonyshev (1996), and Lavine (2000).

	c.	Er	werd	gebakken.	(transitive)
		there	was	baked	
(4)	a.	hij	heeft/*is	gelachen/gewerkt/gefietst/gewandeld	(unergative)
		he	has/is	laughed/worked/bicycled/strolled	
	b.	hij	*heeft/is	sterven/gezonken/gesneuvelde	(unaccusative)
		he	has/is	died/sunk/perished	
	c.	hij	heeft/*is	een taart gegeten	(transitive)
		he	has/is	a cake eaten.	
(5)	a.	*de	gelachen	man	(unergative)
		the	laughed	man	
	b.	de	gestorven	man	(unaccusative)
		the	died	man	
	c.	de	geslagen	hond	(passive part. of a transitive verb)
		the	beaten	dog	

The difference between the ill-formedness of prenominal past participles derived from predicates denoting volitional and controlled activities, and the well-formedness of adjectival participles of verbs with patient-like surface subjects has also been noted for English, e.g. *worked man vs. sunken ship (cf. Levin and Rappaport 1986). Unaccusative verbs in German and Italian resemble Dutch verbs in forming perfect tenses with the auxiliary 'be' (while unergatives select the auxiliary 'have'). Another syntactic construction in Italian, in which intransitive verbs with D-structure objects pattern differently from verbs with D-structure subjects, is ne-cliticization[7] (cf. Burzio 1986).The clitic ne ('of-them') can be extracted out of a noun phrase if this NP appears as a direct object of a transitive verb or as a postverbal subject of an unaccusative verb (examples from Burzio 1986:22-23).

(6)	a.	Giovanni	ne	inviterà	molti.	(transitive verb)
		Giovanni	of-them	will invite	many.	
		'Giovanni will invite many of them.'				
	b.	*Ne		telefoneranno	molti.	(unergative verb)
		of-them		will telephone	many	
		'Many of them will telephone.'				
	c.	Ne		arriveranno molti.		(unaccusative verb, postverbal subject)
		of-them		will-arrive many		
		'Many of them will arrive'				
	d.	*Molti ne		arriveranno.		(unaccusative verb, preverbal subject)
		many	of-them	will-arrive		
		'Many of them will arrive'.				

With reference to Russian, Pesetsky (1982) proposes that genitive of negation is allowed with D-structure objects, but not with D-structure subjects. (The further semantic requirement is that the noun must be indefinite or non-specific). As is shown in (7),

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[7] The remaining tests for unaccusativity in Italian include, apart from the auxiliary *essere* 'to be' selection, the postverbal position of subjects, and the distribution and interpretation of *si*-constructions.

quoted from Babyonyshev (1996), subjects of unaccusative verbs behave like objects of transitive verbs.

(7) a. Mal'chik ne pokrasil (ni odnogo) doma.   (transitive verb)
        boy.NOM not painted (not one.GEN) house.GEN
        'The boy didn't paint a single house.'

    b. Gribov   zdes' ne rastet.   (unaccusative verb)
        mushrooms.GEN here not grow.NEUT.SG
        'No mushrooms grow here/There are no mushrooms here.'

    c. Ne pojavilos'   studentov.   (unaccusative verb)
        not showed-up.NEUT.SG students.GEN
        'No students show up.'

    d. *Ni odnogo cheloveka   ne elo.
        not one.GEN person.GEN not ate.NEUT.SG
        'Not one person ate.'

Some processes of derivational morphology appear to be sensitive to the unergative or unaccusative status of the verbal base. Horn (1980) asserts that in English the processes of -ee and -able suffixation, as well as reversative un- and re- prefixation, select either unaccusative or transitive verbs as their bases[8]. They cannot operate on unergative bases, as in (8b).

(8) a. escapee, shrinkable, unfreeze, re-erupt   (unaccusative bases)
    b. *sneezee, *jumpable, *unlaugh, *re-smile   (unergative bases)

Burzio (1986), and Rappaport and Hovav (1992) argue that the English agentive/instrumental -er suffix attaches to transitive or unergative bases, but not to unaccusative verbs.

(9) a. jumper, singer, teacher   (unergative or transitive)
    b. *dier, *arriver, *vanisher   (unaccusative)

However, in a most detailed recent study of unaccusatives in English, Levin and Rappaport Hovav (1995) do not pay much attention to derivational morphology. They focus on investigating behaviour of intransitive verbs in selected syntactic constructions, namely the causative alternation, resultative construction, locative inversion and there-insertion. As the examples in (10) show, unaccusatives participate in the causative alternation, while unergatives do not.

(10) a. The bottle broke.   (unaccusative)
     b. The boy broke the bottle.   (transitive/causative)
     c. John cried.   (unergative)
     d. *Mary cried John. (vs. Mary made John cry)

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[8] Problems involved in diagnosing unaccusativity by means of processes of derivational morphology are discussed in Cetnarowska (2002).

Unaccusative verbs, but not unergatives, can take resultative phrases, e.g. adjectival phrases or prepositional phrases, as in (11).

(11) a. The prisoners froze to death.   (unaccusative)
     b. The bottle broke open.   (unaccusative)
     c. *We yelled hoarse.   (unergative)
     d. *My mistress grumbled calm.   (unergative)

The majority of unaccusative verbs can appear in the postverbal position in sentences beginning with a locative phrase, as in (12a).

(12) a. Over her shoulder appeared the head of Jenny's mother. (unaccusative)
     b. *In the cafes of Paris talk many artists.   (unergative)

The same group of verbs which are compatible with the locative inversion construction in (12) can occur in the *there*-insertion construction in (13).

(13) a. There appeared over her shoulder the head of Jenny's mother.

                                                       (unaccusative)
     b. *There talk in the cafes of Paris many artists.   (unergative)

Difficulties with applying the unaccusativity diagnostics mentioned above will be discussed in section 5. First, however, some remarks are due on the treatment of the intransitivity split in the literature.

4. Theoretical approaches to the intransitivity split

Linguists still disagree on whether the intransitivity split should be regarded as primarily syntactic or semantic phenomenon.

Perlmutter (1978) assumes that the division of intransitive verbs into unaccusatives and unergatives is determined mainly by their semantics. Subjects of unaccusatives behave like Patients/Themes since they undergo a change of state or location. Subjects of unergatives are Agents. What Perlmutter refers to as "initially unaccusative predicates" are verbs involving semantic patients (e.g. *burn, drop, dry*), predicates of existing or happening (e.g. *exist, happen, result*), predicates describing nonvoluntary emission of stimuli that impinge on senses (e.g. *shine, smell, glow*), aspectual predicates (e.g. *begin, end*) and duratives (e.g. *last, remain, survive*). The semantic distinction between unaccusatives and unergatives is encoded syntactically, as a difference between predicates with an internal argument and predicates with an external argument.

Burzio (1986) emphasizes the difference between syntactic configurations with which unaccusatives and unergatives are associated. As was shown in (2), surface subjects of unaccusative verbs are analyzed within the standard version of the Government and Binding (GB) Theory as D-structure objects, while S-subjects of unergative verbs are D-structure subjects.

Levin and Rappaport Hovav (1995), and Alexiadou and Anagnostopoulou (1998) offer an overview of the theoretical approaches towards the intransitivity split in the

current literature on the subject. They divide these approaches into three groups: semantic approaches, syntactic approaches, and semantico-syntactic approaches.

In a purely semantic approach, as exemplified by Van Valin (1990) or Lieber and Baayen (1997), the claim is put forward that there is no need for attributing distinct syntactic configurations to unaccusatives and unergatives. The difference between the syntactic behaviour of the two classes of intransitive verbs is viewed as fully predictable from their semantics. Van Valin (1990), adopting the framework of functional grammar, asserts that unaccusative verbs take an argument with the semantic microrole 'undergoer' (roughly equivalent to animate Patient) but lack the argument with the microrole 'actor' (Agent). Lieber and Baayen (1997), when analyzing the intransitivity split in Dutch, propose that a feature of meaning dubbed [IEPS] for 'inferable eventual position or state' determines the choice between the auxiliaries *hebben* 'have' and *zijn* 'be'. The choice of the auxiliary is determined at the level of CS (Conceptual Structure). Verbs may obtain the feature [+IEPS] compositionally (e.g. by prefixation), and then they select *zijn* as their auxiliary.

Semantic approaches to the unergative/unaccusative dichotomy are criticized in, among others, Rosen (1984). She points out that verbs with similar meaning in the same language and across languages must be classified differently with respect to the intransitivity split. In Italian the verb *russare* 'snore' acts as an unergative verb while *arrossire* 'blush' has unaccusative properties. *Die* behaves likes an unaccusative verb in Italian but like an unergative verb in Choctaw. Rosen (1984) concludes that the intransitivity split must be encoded purely syntactically. Apart from associating two classes of intransitive verbs with the syntactic configurations illustrated in (2), there are other ways of implementing the distinction between unaccusatives and unergatives within 'syntactic approaches'. Babyonyshev (1996), following Hale and Keyser (1993), postulates that unergative and transitive verbs in Russian have a 'little vP' projection above VP, which is absent in the case of unaccusative verbs. Alexiadou and Anaganostopoulou (1998) assume that unaccusative verbs are associated with 'little v1' (standing for [+external causer], cf. the discussion of Levin and Rappaport Hovav 1995 below) whereas unergatives have 'little v2' (standing for [+internal causer]) in their syntactic configuration.

Borer (1998) and van Hout (1996), among others, view the intransitivity split in terms of movement of a single argument to specifier positions of distinct functional projections (above the Verb Phrase). Movement to one of those projections involves the 'unaccusative mapping', while movement to another one is 'unergative mapping'. For van Hout (1996) the relevant projections are AgrO (Agreement Object Phrase) and AgrS (Agreement Subject Phrase). Borer (1998) exploits the distinction between different aspectual nodes. She follows Tenny (1987) in assuming that the relation between a verb and its object is primarily of an aspectual nature. The event is "measured out" or "delimited" by the object. Borer (1998) proposes that unaccusatives are associated with the aspectual projection AspP(EM), which is absent in unergative verbs. This projection gives an argument that passes through it a delimited (i.e. telic) interpretation.

Within semantico-syntactic approaches, such as the 'linking approach' adopted by Levin and Rappaport Hovav (1995), the unergative/unaccusative split is believed to be determined semantically and encoded syntactically. An important semantic distinction proposed in Levin and Rappaport Hovav (1995) is the difference between internal and external causation. Externally caused verbs, e.g. *break* and *open*, "by their very nature imply the existence of an "external cause" with immediate control over bringing about the

eventuality described by the verb: an agent, an instrument, a natural force, or a circumstance" (Levin and Rappaport Hovav 1995:92). Consequently, they often occur in causative constructions, e.g. *John broke the vase.* When the external cause is identified with the Theme/Patient, it is possible to use the phrase *by itself*, as in *The vase broke by itself.* In the case of an intransitive verb describing an internally caused eventuality, "some property inherent to the argument of the verb is "responsible" for bringing about the eventuality" (Levin and Rappaport Hovav 1995:90). This property may be the will or volition of the agent who performs the activity, e.g. for verbs *speak* or *work.* Although some internally caused verbs, e.g. *blush, tremble, buzz,* or *flash,* are not agentive, the eventualities denoted by them can be viewed as internally caused, namely as arising from internal properties of the arguments. This is why those verbs are unlikely to occur with the phrase by itself, or to participate in the causative alternation (cf. *The light flashed by itself., *John spoke Joan.)

Levin and Rappaport Hovav propose that the distinction between internally caused and externally caused eventualities is reflected in their lexical conceptual representations (LCS)[9], as shown in (14). Internally caused eventualities are inherently monadic predicates. Externally caused eventualities are inherently dyadic predicates, taking as arguments both the external cause and the passive participant in the eventuality. Consequently, external causation verbs denote two subevents, while internal causation verbs denote only one event.

(14) a. [[x DO-SOMETHING] CAUSE [y BECOME STATE]]   (externally caused)
      b. [x PREDICATE]   (internally caused)

Predicates with similar meanings may differ at the level of LCS , i.e. they may be conceptualized as internally caused or externally caused eventualities. This accounts for the cross-linguistic variation in the unaccusative/unergative status of predicates, noted in Rosen (1984).

The difference between the LCS of unergative and unaccusative verbs is reflected in the syntax as a result of the application of linking rules which map semantic representations onto argument structures. For instance, the Immediate Cause Linking Rule selects the participant denoting 'the immediate cause of the eventuality' as the external argument. In this way the unergative classification of internally caused verbs is predicted. The unaccusative status of the externally caused change-of-state intransitive verbs, such as *break,* follows from the Directed Change Linking Rule, given in (15):

(15) Directed Change Linking Rule
      "The argument of a verb that corresponds to the entity undergoing the directed change described by that verb is its direct internal argument." (Levin and Rappaport Hovav 1995:146).

Additional linking rules, labelled 'the Existence Linking Rule' and 'the Default Linking Rule', are posited in Levin and Rappaport Hovav (1995) to predict that monadic verbs

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[9] See, among others, Stalmaszczyk (1992) for an extensive discussion of Lexical Conceptual Structure of English predicates, and for a clear presentation of basic tenets of Hale and Keyser's theory of L-syntax.

denoting existence, appearance, and disappearance (e.g. *happen, vanish, sprawl*) lack the external argument, hence they show the unaccusative behaviour. The multiplicity of the linking rules postulated by Levin and Rappaport Hovav reflects their belief that the class of unaccusative verbs in English is not semantically homogenous.

Consequently, subclasses of unaccusative verbs may exhibit different syntactic behaviour, blurring the results of the syntactic tests for unaccusativity. The immediately following section deals with the problem of clashes between predictions of some of the unaccusativity diagnostics mentioned in section 3.

5. Unaccusativity mismatches

It has been often noted (cf. Grimshaw 1987, Zaenen 1993, Levin and Rappaport Hovav 1995, Alexiadou and Anagnostopoulou 1998, Cetnarowska 2001) that although tests diagnosing the class membership of intransitive verbs are meant to identify unambiguously a particular predicate as unaccusative or unergative, there are occasional clashes between their predictions. These clashes are referred to as 'unaccusativity mismatches'.

When analyzing the application of unaccusativity diagnostics in Dutch, Zaenen (1993) observes that the verb 'to fall' allows its past participle to be a premodifying adjective in (16b), which is typical of unergative predicates, and yet it appears to be compatible with the impersonal passive construction in (16a), as would be expected of an unergative verb.

(16) a. In het tweede bedrijf werd er door de nieuwe acteur op het juiste ogenblik
          gevallen.
          '(lit.) In the second act there was fallen by the new actor.'
      b. de   gevallen   man   (unaccusative)
          the   fallen   man

Another example of unaccusativity mismatches is given in (17) from Alexiadou and Anagnostopoulou (1998:9). In Greek some intransitive verbs do not occur in the resultative construction (as in 17c), which suggests that they are unergative, but they give rise to adjectival past participles (which is typical of unaccusative verbs).

(17) a. piomenos   anthropos
          drunk.ADJ   man
      b. O   Janis   pini
          the   John.NOM   drinks
          'John drinks'
      c. *i   Maria   pini   to   Jani
          the   Mary   drinks   the   John.ACC
          'Mary makes John drink.'

In English the verb *arrive* needs to be assigned the unaccusative status since it allows for the prenominal use of its past participles and does not form an agentive *-er* noun. However, the resultative phrase construction, which is generally limited to unaccusative predicates, exhibits further semantic restrictions and is impossible with

verbs of inherently directed motion (such as *arrive* or *appear*). The word *breathless* in (18c) is incompatible with the resultative reading, and calls for the depictive interpretation (i.e. "We were breathless and arrived in such a state at the airport.")

(18) a. newly-arrived guests
  b. *arriver
  c. We arrived at the airport breathless.

In contrast, some classes of verbs occurring with resultative phrases exhibit unergative behaviour in other constructions. For instance, the manner-of-motion verbs *dance* and *swim*, do not participate in the causative alternation, nor can they form adjectival past participles (see 19ab). And yet they seem to be compatible with resultative phrases, as is shown in (19cd) from Levin and Rappaport Hovav (1995).

(19) a. *Mary danced/swam John. (cf. Mary made John dance/swim.)
  b. *a danced girl, *a swum boy
  c. He danced his feet sore.
  d. She swam free of her captors.

This case of the unaccusativity mismatch results from the occurrence of the so-called 'variable behaviour verbs', discussed in Levin and Rappaport Hovav (1995). These verbs exhibit regular (rule-based) polysemy, and can be associated with more than one semantic template (of the kind exemplified in 14), hence they display variable syntactic behaviour. Levin and Rappaport and Hovav (1995) propose, for instance, that agentive manner-of-motion verbs, e.g. *swim* and *dance*, require dual classification. They exhibit the unergative behaviour in the majority of contexts and denote internally-caused eventualities (as in 19ab). As a result of a lexical rule, they can develop the directed motion reading, and then become unaccusatives. Consequently, they can occur with resultative phrases, as in (19cd).

The verb 'to drink' in Greek appears to be a 'variable behaviour verb' as well. Alexiadou and Anagnostopoulou suggest that the participle *piomenos* 'drunk' can premodify the head noun *anthropos* 'man' in (17a) above, since the participant denoted by the noun is interpreted as being completely drunk, i.e. as a measurer of the event.

Another explanation is provided in Zaenen (1993) for the unaccusativity mismatch exemplified for Dutch in (16). Following Dowty (1991) and Van Valin (1990), she observes that the unaccusativity diagnostics can be relevant to either of the two semantic properties relevant for the unaccusativity split, namely non-agentivity of surface subjects of unaccusatives or aspectual characterization (i.e. telicity) of unaccusatives. Participle-to-adjective conversion and the resultative construction test are compatible with telic predicates while impersonal passivization is possible in Dutch only for verbs whose subjects show "protagonist control" over the event. The fact that the degree of the protagonist control can be influenced by the context accounts for the acceptability of the verb 'fall' in the impersonal passive construction in (16a), where the event of falling is perceived as controllable by the participant. When no control is implied, the impersonal passive construction is impossible, hence the unacceptability of *Er werd gevallen.* '(lit.) There was fallen.' Zaenen (1993) con-

cludes that the impersonal passivization construction is not a valid test for the intransitivity split[10]. She claims that unaccusative tests are necessarily telic in Dutch. A similar position is taken in van Hout (1996), who recognizes telicity as the crucial semantic correlate of all unaccusative predicates in Dutch.

Borer (1998) and Tenny (1987) put forward the hypothesis that telicity characterizes all unaccusatives cross-linguistically, and this assumption determines the way they formalize the unaccusative/unergative division in their theoretical models (mentioned briefly in section 4). It is important to note, however, that languages differ as to which semantic property determines the class membership of a single-argument predicate. Dowty (1991) asserts that a particular language may take either agentivity or telicity to be the determining property in verb classification. If telicity is crucial (as in Dutch), then all atelic verbs are classified as unergative. If, however, agentivity is of primary importance, then atelic non-agentive verbs pattern as unaccusatives. The theoretical models of Hale and Keyser (1993), and Babyonyshev (1996), where unaccusatives differ from unergatives in the absence of an agentive (vP) projection above the Verb Phrase (VP), are better suited (than Borer's and Tenny's models) for the description of the intransitivity split in languages of the latter type. The 'linking rule' approach of Levin and Rappaport Hovav (1995) attempts to capture both semantic correlates of the unergative/unaccusative division of English predicates, though their theory may be perceived as 'less elegant' than the alternative theoretical approaches.

6. Deep and surface unaccusativity

Apart from the unaccusativity mismatches noted in the previous sections, problems arise with the application of the locative inversion construction and *there*-insertion as tests for the class membership of intransitive verbs.

Levin and Rappaport Hovav note that some unergative verbs in English, including *swim* and *prance*, are found in this construction, as is exemplified in (20):

(20) a. Inside swam fish from an iridescent spectrum of colours. (= ex. (20d), Levin and Rappaport Hovav 1995:225)
      b. Above them pranced the horses on the Parthenon frieze. (= ex. (20a), Levin and Rappaport Hovav 1995:224)

They observe that the manner-of-motion verbs in (20) cannot be given the directed motion reading and reinterpreted as unaccusatives, since those verbs occur then without resultative phrases. Moreover, other internally-controlled (hence unergative) verbs are compatible with the locative inversion construction, e.g. *work* and *sleep* in (21) below:

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[10] Zaenen (1993) observes that the selection of the auxiliary 'to be' in the perfect tense in Dutch usually coincides with the ability to form prenominal past participles. However, the verb *blijven* 'to stay' selects the auxiliary 'to be' but fails to form a prenominal participle, cf. **de gebleven jongen* 'the remained boy'. She is not able to give a principled explanation for this instance of unaccusativity mismatches. Levin and Rappaport Hovav (1995:12) suggest that the selection of 'be' auxiliary is not restricted to telic verbs. The verb *blijven* 'to remain' is, consequently, an unaccusative but atelic predicate.

(21) a. At one end, in crude bunks, slept Jed and Henry. (=ex. (19d) in Levin and
         Rappaport Hovav 1995:224)
      b. On the third floor worked two young women called Maryanne Thomson and
         Ava Brent (...) (=ex. (19b) in Levin and Rappaport Hovav 1995:224)

Levin and Rappaport Hovav (1995) conclude that locative inversion and *there*-insertion
in English do not diagnose true unaccusativity. These constructions are sensitive, instead,
to the so-called 'surface unaccusativity'. It is manifested when the single argument of an
intransitive verb occurs postverbally, i.e. in the surface syntactic position of the object of a
transitive verb. Locative inversion is associated with a particular discourse function and it
selects verbs which are 'informationally light', i.e. which do not contribute new information
to the discourse. The class of informationally light verbs includes verbs of existence, or
coming into existence, hence it partially overlaps with the unaccusative class.

Levin and Rappaport Hovav (1995) suggest that some of the syntactic tests for
unaccusativity proposed in the literature for Italian, Spanish, or Russian may in fact
diagnose surface unaccusativity. These include, among others, *ne*-cliticization in Italian,
genitive of negation in Russian, and the occurrence of postverbal bare plurals in Spanish.
Diagnostics of surface unaccusativity apply only if the surface subjects of unaccusatives
remain in the postverbal position. Moreover, they involve discourse function and quanti-
fier scope and typically select a subclass of unaccusative verbs (i.e. verbs of existence or
verbs of appearance). In contrast, diagnostics of deep unaccusativity (such as auxiliary
selection in Dutch and German or the resultative construction in English) depend on the
semantic properties of predicates.

Doubts over the conclusions stemming from Levin and Rappaport Hovav's study of
locative inversion have been expressed most recently in Culicover and Levine (2001).
They argue that the examples of stylistic inversion employed in Levin and Rappaport
Hovav (1995) represent actually, two types of inversion constructions, labelled in Culicover
and Levine (2001) as Heavy Inversion (HI) and Light Inversion (LI). Heavy Inversion (HI),
illustrated in (22a) for the unergative verb *sleep*, is possible with all types of verbs on
condition that the subject is 'heavy', i.e. it is syntactically complex and/or prosodically
prominent. Light Inversion (LI), exemplified in (22b), selects only unaccusative verbs.

(22) a. In the room slept the students in the class who had heard about the social
         psych experiment that we were about to perpetrate (very) fitfully. (=ex. (21f) in
         Culicover and Levine 2001)
      b. Into the room walked Robin.

Let us notice, however, that manner-of-motion verbs, such as *walk* occurring in (22b),
are regarded in Levin and Rappaport Hovav (1995) as belonging to the unergative class.
Consequently, the tenability of the account of locative inversion given in Culicover and
Levine (2001) rests on the assumption that primarily unergative verbs become
unaccusatives when accompanied by a preverbal locative prepositional phrase (PP). Such
an assumption, though rejected in Levin and Rappaport Hovav, has been adopted in,
among others, Torrego (1989) for Spanish, and Hoekstra and Mulder (1990) for Dutch.
Hoekstra and Mulder (1990) argue that the locative PP and the postverbal NP form a small
clause (SC), which is itself the internal argument of the verb, as shown in (23).

(23) $[_{VP}$ V $[_{SC}$ NP PP]]

In the locative inversion construction the PP becomes the subject at S-structure. Some criticism of the Small Clause analysis, adopted in Hoekstra and Mulder (1990), is offered in Levin and Rappaport Hovav (1995). Thus, the status of the locative inversion construction as one of unaccusativity diagnostics, and the validity of the distinction between surface and deep unaccusativity, remains to be a matter of ongoing debate.

7. Conclusion

Investigation into the lexicon-syntax interface, and in particular into the intransitivity split, has been an extremely fruitful area of research in the framework of generative grammar over the past twenty years. Since the literature on the subject is vast and is rapidly growing, for reasons of space I was not able to give above an exhaustive survey of all the theoretical analyses of the unaccusative/unergative split proposed within the generative paradigm. I have attempted, however, to report the main differences between alternative theoretical models of the intransitivity split and to identify the key issues recurring in the generative research on single-argument verbs.

I have emphasized the difference between the use of the term "ergativity" in typological studies and in the research carried out within the framework of generative grammar. I have shown that the main question on which theoretical accounts of the intransitivity split differ is the characterization of the phenomenon as primarily syntactic or semantic. I have provided examples of the 'purely semantic', 'purely syntactic' and 'mixed' (i.e. syntactico-semantic) approaches to the classification of single-argument verbs. I have presented the most common tests used to identify unaccusative (or unergative) predicates. I have then illustrated the so-called unaccusativity mismatches, i.e. clashes between predictions of two or more unaccusativity diagnostics. I have mentioned the most likely reasons for the existence of unaccusativity mismatches. Some of those mismatches result from the observation, due to Dowty (1991) and Van Valin (1990), that there are two semantic factors responsible for the unaccusative behaviour of verbs, namely telicity and non-agentivity. Consequently, as suggested in Levin and Rappaport Hovav (1995), unaccusative predicates frequently consist of semantic subclasses, which differ in their syntactic behaviour. Syntactic constructions which are sensitive to the aspectual characterization of predicates (i.e. their telic or atelic status) may give different results from those unaccusativity diagnostics which aim at identifying non-agentive predicates. Unaccusativity mismatches may also be caused by "variable behaviour verbs", i.e. verbs which are sometimes unergative and sometimes unaccusative (as discussed in Levin and Rappaport Hovav 1995). I have illustrated doubts raised over the validity of certain apparently well-established unaccusativity diagnostics, such as locative inversion in English. According to Levin and Rappaport Hovav (1995) these tests identify 'surface' unaccusativity, but the matter remains a point of disagreement between researchers.

References

Alexiadou, A. and E. Anagnostopoulou (1998). Unaccusativity mismatches in Greek. Ms, ZAS Berlin.

Babyonyshev, M. (1996). *Structural connections in syntax and processing: Studies in Russian and Japanese*. PhD diss. MIT

Belleti, A., Rizzi, L. (1988). Psych-verbs and θ-theory. *Natural Language and Linguistic Theory*, 6, 3, 291-352.

Borer, H. (1998). Deriving passive without theta role. In: S. Lapointe, D.K. Brentari and P.M. Farrell (eds.), *Morphology and its relation to phonology and syntax*, 60-99, Stanford, California: CSLI Publications.

Burzio, L.(1986). *Italian syntax. A Government-Binding approach*. Reidel, Dordrecht.

Cetnarowska, B. (2000a). The unergative/unaccusative split and the derivation of resultative adjectives in Polish. In: T.H. King and I. Sekerina (eds.), *Formal approaches to Slavic linguistics 8. The Philadelphia Meeting 1999*, 78-96. Ann Arbor: Michigan Slavic Publications.

Cetnarowska, B. (2000b). The unergative/unaccusative distinction in Polish. In: P. Bański and A. Przepiórkowski (eds.), *Proceedings of GLiP-1*, 35-46. IPIPAN, Warszawa.

Cetnarowska, B. (2002). Unaccusativity mismatches and unaccusativity diagnostics from derivational morphology. In: P. Boucher (ed.), *Many Morphologies*, 48-81. Somerville, Mass.: Cascadilla Press.

Culicover, P.W. and R.D. Levine (2001). Stylistic inversion in English: a reconsideration. *Natural Language and Linguistic Theory* 19, 283-310.

Dixon, R.M.W. (1994). *Ergativity*. Cambridge University Press, Cambridge.

Dowty, D. (1991). Thematic proto-roles and argument selection. *Language* 67, 547-619.

Grimshaw, J. (1987). Unaccusatives- an overview. In: *Proceedings of NELS*, vol. 17, 244-258.

Haig, G. (1998). On the interaction of morphological and syntactic ergativity: Lessons from Kurdish. *Lingua* 105, 149-173.

Haegeman, L. (1994). *Introduction to Government and Binding Theory*. Blackwell, Oxford.

Hale, K., Keyser, S.J. (1993). On argument structure and the lexical expression of syntactic relations. In: H. Kale and S.J.Keyser (eds.) *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, 53-109. MIT Press, Cambridge Mass.

Hoekstra, T. (1984). *Transitivity*. Foris, Dordrecht.

Hoekstra, T., Mulder, R. (1990). Unergatives as copular verbs: locational and existential predication. *The Linguistic Review* 7, 1-79.

Horn, L. (1980). Affixation and the Unaccusative Hypothesis. In: J. Kreiman, A.E. Ojeda (eds.), *Papers from the 16th Regional Meeting of CLS*, 134-146. Chicago Linguistic Society, Chicago.

van Hout, A. (1996). *Event semantics of verb frame alternations. A case study of Dutch and its acquisition*. PhD diss., Tilburg.

Lavine, J.E. (2000). *Topics in the syntax of nonagreeing predicates in Slavic*. PhD diss., Princeton.

Levin, B., Rappaport M. (1988). The formation of adjectival passives. *Linguistic Inquiry* 17, 623-661.

Levin, B., Rappaport Hovav M. (1995). *Unaccusativity. At the syntax-lexical semantics interface*. MIT Press, Cambridge, Mass.

Lieber, R. and H. Baayen (1997). A semantic principle of auxiliary selection in Dutch. *Natural Language and Linguistic Theory* 15, 789-845.

Markantonatou, S. (1995). Modern Greek deverbal nominals: an LMT approach. *Journal of Linguistics* 31, 267-299.

Mulder, R. (1992) *The aspectual nature of syntactic complementation*. PhD diss., HIL, Leiden.

Palmer, F.R. (1994). *Grammatical roles and relations*. Cambridge: Cambridge University Press.

Perlmutter, D. (1978). Impersonal passives and the Unaccusative Hypothesis. In: J. Jaeger et al. (eds.), *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistic Society*, 159-189. Berkeley: University of California at Berkeley.

Pesetsky, D. (1982). *Paths and categories*. PhD diss., MIT.

van der Putten, F. (1997). *Matter and mind in morphology. Syntactic and lexical deverbal morphology in Dutch*. PhD diss., HIL, Leiden.

Rappaport M., Levin, B. (1992). *-er* nominals: implications for a theory of argument structure. In: T. Stowell and E. Wehrli (eds.), *Syntax and semantics: Syntax and the lexicon*, 127-53. San Diego, Calif.: Academic Press.

Rosen, C. (1984). The interface between semantic roles and initial grammatical relations. In: D. Perlmutter and C.Rosen (eds.), *Studies in relational grammar 2*, 38-77. Chicago, Ill.: University of Chicago Press.

Schoorlemmer, M. (1995). *Participial passive and aspect in Russian*. PhD diss. OTS, Utrecht.

Stalmaszczyk, P. (1992). *The structure of thematic relations in English*. Łódź: Ekorno.

Tenny, C. (1987). *Grammaticalizing aspect and affectedness*. PhD diss., MIT.

Torrego, E. (1989). Unergative-unaccusative alternations in Spanish. *MIT Working Papers in Linguistics 10: Functional Heads and Clause Structure*, 253-272. Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Van Valin, R.D. Jr (1990). Semantic parameters of split intransitivity. *Language* 66, 221-60.

Zaenen, A. (1993). Unaccusativity in Dutch: integrating syntax and lexical semantics. In: J. Pustejovsky (ed.), *Semantics and the lexicon*, 129-161, Dordrecht: Kluwer Academic Publisher.