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A NOTE ON ENGLISH WEATHER VERBS*

Standard grammars of modern English treat *weather verbs* (WV) like *drizzle, hail, rain, sleet, snow, thunder*, etc.¹, as “nonagentive duratives” (Quirk et al., 1985, p. 201) or intransitives describing “no-participant processes” (Downing and Locke, 1992, p. 113).

The main aim of this short note is to discuss the **Predicate Argument Structure** (PAS) of English weather predicates within a framework related to standard Government and Binding (GB) theory, concentrating on the number and status of the arguments in such constructions.

In the framework I am assuming here, there exist two distinct but related levels of lexical representation²:

- (1) I. Lexical semantic representation (i.e. **Lexical Conceptual Structure**, cf. Jackendoff 1990);
- II. Lexical syntactic representation (i.e. **Predicate Argument Structure**, cf. Grimshaw 1990).

The PAS of a verb is an abstract representation of its argument-taking properties, and it indicates the number and type of argument(s) a verb requires. The variables used in the PAS of a verb serve as placeholders for arguments, crucially, there is no reference to thematic relations such as Agent, Patient, etc.

The lexical syntactic positions relevant for the forthcoming discussion include the external argument, realised by the subject NP (symbolised as

* A modified version of this note appeared in K. Sroka (ed.), *Kognitive Aspekte der Sprache. Akten des 30. Linguistischen Kolloquiums, Gdańsk 1995* (= *Linguistische Arbeiten* 360), Tübingen: Max Niemeyer Verlag, 1996, p. 243–249.

¹ A comprehensive list of verbs from this class, including dialect and obsolete forms, is provided in Levin (1993, p. 276).

² The appropriate theoretical background is introduced in Stalmaszczyk 1992.

x in the PAS grids) and licensed by the whole VP, and the internal argument (direct object – Y) licensed by the verb³.

Within the GB framework two different types of non-transitive verbs are distinguished: *unaccusative* (ergative) and *unergative* (true intransitive). The distinction is motivated by a number of morphological, morphosyntactic and syntactic phenomena and has consequences for the PAS representations of the respective verbs⁴. The surface subject of unaccusative verbs originates in the d-structure object position (2.a), and therefore the s-structure reflects NP-movement (2.b) and thus the PAS for verbs like *sink*, *come*, *approach*, has the form (2.c):

- (2) a. [e] V NP
 b. The ship_i sank t_i
 c. sink: V(Y)

The surface subject of unergative verbs (ex. *laugh*, *smile*, *run*) is a subject at all levels of derivation:

- (3) a. NP V
 b. The girl laughed
 c. laugh: V(x)

The relevant (though highly fragmentary) classification of English verbs is given in the following table (cf. also Levin 1993 and the references mentioned in note (4)):

Table 1

English verbal types

Predicate	PAS-type	Verb
transitive	V(x, y)	<i>hit, kill, kiss</i>
unergative	V(x)	<i>smile, dance, run</i>
unaccusative	V(y)	<i>sink, approach, bloom</i>

What about *weather* verbs (WV)? Where do they fit? English WVs have not attracted much attention within the GB framework, and the evidence from Romance languages is rather confusing. Burzio (1986) treats Italian WVs as ergative (i.e. unaccusative), for Zubizarreta (1985) French

³ For the purpose of this note I have simplified the above presentation, cf. Williams 1981 and Stalmaszczyk 1992 for a full account.

⁴ Cf. the discussion and classification in Keyser and Roeper 1984; Kegl and Levin 1990; Stalmaszczyk 1995.

neiger 'snow' is unergative, Belletti and Rizzi (1988) treat Italian *piovere* 'rain' as displaying both unaccusative and unergative behaviour, finally Ruwet (1989, p. 338) demonstrates that French WVs are "unaccusative in many of their most conspicuous uses". He also observes that it is always possible that WVs behave differently from language to language, and that these verbs in some languages might not be homogeneous as a class (Ruwet, 1989, p. 314).

English WVs occur in constructions which do not seem to involve any arguments at the surface, and therefore the proposed PAS grid might be (5):

- (4) It rained all day
 (5) rain: V(-, -)

However, a construction without arguments would violate the Extended Projection Principle (EPP), which states that every sentence must have a subject (Chomsky, 1982, p. 10). In the case of WVs the EPP is satisfied by insertion of the expletive (dummy) *it* into the subject position at the appropriate level of derivation⁵.

Traditional grammars describe the NP element (*it*) in the subject position as "unspecified *it*" (Jespersen, 1933, p. 155) or an empty "prop *it* subject" (Quirk et al, 1985, p. 748). In the generative framework it is usually treated as a non-argument expletive (Ruwet, 1989, p. 313; Kegl and Levin, 1990, p. 19) which is nonthematic (i.e. it is not assigned a theta-role by the predicate) and nonreferential. As a lexical NP it is subject to the case filter and must appear in case positions. These properties make 'weather-*it*' similar to *it* in constructions with *seem* and *appear*:

- (6) a. It seems to be rather late.
 b. It appears that she was right after all.

A closer comparison of these constructions, however, points to important differences between the argument status of *it* in (5) and (6). As noted by Lappin and Shlonsky (1993, p. 19) the NP subject of a WV can appear in a licensed (i.e. theta-marked) position – in contrast to expletives in *seem*-constructions – and therefore it should be treated rather as a *quasi*-argument:

⁵ According to Dixon (1991, p. 121) the WV "makes up a complete clause, but the impersonal subject *it* has to be added, to satisfy the requirement of English syntax that each clause have some constituent in the subject slot". This constituent has to be lexical (i.e. non-null), in contrast to the Polish or Italian equivalents of English '*It is raining*':

- (i) [e] pada
 (ii) [e] piove

- (7) a. John forced it to rain by using cloud-seeding techniques.
 b. *John forced it to seem that he is funny.
 c. A rise in air pressure prevented it from raining.
 d. *John prevented it from seeming that Mary is funny.

The quasi-argument status of 'weather-*it*' is further strengthened by the fact that it can control PRO. Since control is limited to thematic arguments, these subjects must be thematic quasi-arguments (example (8.a) from Chomsky, 1981, p. 324)⁶.

- (8) a. It_i sometimes rains after [PRO_i snowing]
 b. It_i rained all day and [PRO_i ruined the picnic]
 c. It_i rained all winter long without [PRO_i snowing even once]

As observed by Chomsky (1981, p. 324) controlled PRO normally assumes the referential properties of its antecedent but in the above case the antecedent is non-referential:

- (9.) a. *what rains
 b. *LF: for which *x*, *x* rains

Discussing arguments Chomsky (1981, p. 324–5) distinguishes between true arguments and quasi-arguments. True arguments must bear theta roles, can be questioned and can bind PRO. Non-argument pleonastic elements such as *there* and *it* cannot be questioned, cannot bear theta roles and cannot bind PRO. Intermediate between these two kinds of expressions, Chomsky postulates quasi-arguments, elements like the *it* in weather constructions. Like pleonastic elements they cannot be questioned (cf. (9)), but they can bind PRO (cf. 8)). It is therefore necessary now to distinguish three different occurrences of the pronoun *it* – as a true argument (10.a), quasi-argument (10.b) or non-argument (10.c):

- (10) a. **It** is on the table.
 b. **It** is raining.
 c. **It** seems that John is here.

Further justification for giving 'weather-*it*' argument status is that it may be substituted by a full noun (or refer to a noun), which is impossible in the case of the non-argument in (10.c). This happens most frequently

⁶ A similar observation is made by Safir (1985, p. 226, fn. 20) with respect to German 'weather *es*' in (i):

(i) Es regnete, ohne PRO aufzuhören.
 'It rained without PRO stopping'

in the metaphorical usage of WVs, as illustrated by the following selection of examples from Shakespeare⁷:

- (11) a. Most excellent accomplished lady, / **the heavens** rain odours on you (*Twelfth Night*, III, i)
 b. For **the rain** it raineth every day (*Twelfth Night*, V, i)
 c. . . . **heaven** / Who . . . / Will rain hot vengeance on offenders' heads (*Richard II*, I, ii)
 d. Your Caesar's father / . . . / betso'w'd his lips on **that unworthy place**, / As it rained kisses (*Antony and Cleopatra*, III, xi)
 e. Had it pleas'd **heaven** / To try me with affliction, had **they** rain'd / / All kinds of sores, and shames, on my bare head (*Othello*, IV, ii)

In the above examples the WV *rain* behaves like other verbs with two arguments, with an optional prepositional phrase (prepositional object) and in such usage the appropriate PAS grid is the following (where [PZ] stands for the optional indirect argument, realised as a prepositional object):

- (12) (metaphorical) rain: V(x, y, [PZ])

I claim here that the derived PAS representation (12) is possible only if we treat 'weather-*it*' as a quasi-argument and not a true expletive, and therefore I propose to reformulate the relevant part of the PAS grid as (13), where the symbol {x} represents the quasi-argument⁸.

- (13) rain: V({x})

Let us now consider the second empty slot in PAS (5.b). As evidenced by sentences in (11), repeated below as (14), the idiom (15) and sentences in (16) this is also an argument position⁹:

- (14) a. Most excellent accomplished lady, / **the heavens** rain odours on you (*Twelfth Night*, III, i)
 b. . . . heaven / Who . . . / Will rain **hot vengeance** on offenders' heads (*Richard II*, I, ii)

⁷ Cf. also the examples provided by Ruwet (1989, p. 326):

- (i). We had to rain red-hot bolts on them . . . (Carl Sandburg, *Abraham Lincoln*)
 (ii). an almost continuous circle of batteries . . . which . . . rained shells on the massed lines of infantry (Michael Howard, *The Franco-Prussian War*)

⁸ The range of reference of the quasi-argument is limited to inanimate agents, and its use is limited to metaphorical usage; this information should be encoded at an appropriate level of lexical representation, here, however, I leave this problem unsolved.

⁹ Sentences (16.b,c) are from Dixon (1991, p. 121), who comments that the 'cognate' NP is not properly either an object or extraposed subject (. . .) it is just an appositive mechanism for commenting on the nature of the weather event".

c. Your Caesar's father / . . . / betso'w'd his lips on that unworthy place, / As it rained **kisses** (*Antony and Cleopatra*, III, xi)

e. Had it pleas'd heaven / To try me with affliction, had they rain'd / **All kinds of sores, and shames**, on my bare head (*Othello*, IV, ii)

(15) It's raining **cats and dogs**

(16) a. It rained a **strange kind of rain**

b. It thundered **the most ear-splitting cracks of thunder that I've ever heard**

c. It rained **an absolutely tremendous storm** while we were on holiday

The occurrence of the direct argument is restricted to metaphorical usage (14), the frozen idiom (15) or to constructions with 'cognate' objects (16), which means that this position is a *potential* argument slot, represented in the grid as {Y}:

(17) rain: V({X}, {Y})

The above grid is the abstract lexico-syntactic representation for WVs, the final representation depends on whether the arguments are *linked* or not. The crucial distinction at this moment is between *projected* and *linked* argument positions¹⁰. If an argument position is actually present in the underlying lexical representation of the verb it is *projected*; if it is mapped onto a structural position, it is *linked*. Arguments of transitive verbs are projected and linked (18), the missing agent of passives is projected but unlinked (though re-linking is possible through the *by*-phrase) (19), whereas the missing agent of unaccusatives is unprojected and unlinked (cf. (20,a) vs. (20.b)):

(18) She cut the bread

(19) The book was read (by everyone)

(20) a. The ship sank

b. * The ship sank by the enemy

The implicit assumption of former studies (cf. Ruwet 1989; Kegl and Levin 1990) is that in WVs both argument positions are unprojected and unlinked (cf. the PAS grid in (5.b) above). The preceding examples and discussion, however, suggest that in case of sentences with weather predicates the external argument position is projected and either unlinked (and realised as *it* due to independent reasons, i.e. Case theory and the EPP, cf. (4)) or

¹⁰ A similar distinction is introduced by Safir (1987) with reference to thematic roles.

linked and realised as an NP argument (metaphorical usage, cf. (11)); the direct argument is projected and either unlinked and empty at the surface (4.) or linked in metaphorical usage or idioms (16). The abstract grid (17) abbreviates the relevant representations¹¹:

- (21) $V(\{X\}, \{Y\}) \rightarrow$ a. $V(-, -) \rightarrow V(it)$
 \rightarrow b. $V(-, Y) \rightarrow V(it, Y)$
 \rightarrow c. $V(X, -)$
 \rightarrow d. $V(X, Y)$

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¹¹ An alternative to rule (21) – pointed out to me by Henryk Kardela – would involve treating the relevant WVs as polysemic, and listing them separately in the lexicon (ex. as *rain1, rain2, rain3, rain4*). This move would render rule (21) pointless. I still believe, however, that at an appropriately constructed level of lexical representation there is need for abstract structures of the type illustrated in (21). I return to this issue in work in progress.

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UWAGI DOTYCZĄCE ANGIELSKICH CZASOWNIKÓW OZNACZAJĄCYCH
WARUNKI ATMOSFERYCZNE – WEATHER VERBS

Artykuł poświęcony jest analizie struktury predykatowo argumentowej (PAS) angielskich czasowników oznaczających warunki atmosferyczne (np. *rain, snow, drizzle*). Tradycyjnie czasowniki te uważane są za pozbawione argumentów, a występujący w pozycji podmiotu zaimek *it* określa się jako niereferencyjny i nieargumentowy.

Analiza struktur metaforycznych i idiomów oraz porównanie z innymi konstrukcjami, w których występuje niereferencyjny podmiot *it* (np. zdania z *seem* lub *appear*) wskazuje na odrębny status tego elementu, pozwalający na zakwalifikowanie go do "quasi-argumentów".

Dodatkowym celem artykułu jest zaproponowanie modelu sieci predykatowo-argumentowych (PAS-grid) generujących wszystkie omawiane konstrukcje.