On the Principled Connections between the Semantic Structure of Verbs of Locomotion in English and Their Syntactic Behaviour

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ABSTRACT: This paper deals with certain aspects of syntax-sensitivity in manner of locomotion verbs in English. Verbs of manner of locomotion do not behave uniformly, in spite of their allegedly identical conceptual status. The paper demonstrates that differences between manner of locomotion verbs are not merely a matter of perceptual domain but manifest themselves at a conceptual level. Related to this is the fact that semantic distinctions among manner of locomotion verbs result in differences in their syntactic behaviour (distinctions induced by diathesis alternations thus help to provide insights into verbal meaning). What also plays a role in determining the types of verbs admitted into certain types of syntactic constructions are the types of event structuration encoded in the constructions themselves. An account of the syntactic behaviour of manner of locomotion verbs must also appeal to encyclopaedic knowledge (the knowledge of the situational background in which the movement is set).

KEYWORDS: verbal semantics; syntactic structures; conceptual structure; spatial structure; causal structuration of a motion situation

1. Introduction

This paper is offered as a contribution to the long-standing discussion of the relation between syntax and semantics. Its aim is to look more closely into the principled connections between the semantic structures of manner of locomotion verbs (such as *walk, run, stagger, limp, jog,* or *totter*) and their syntactic behaviour.

In spite of the existence of various theoretical approaches to the syntax-semantics interface, it is generally acknowledged that verbs' semantics and the types of syntactic frames (diathesis alternations) into which different verbs may enter are essentially rule-governed. Sentence structures are thus taken, to a large extent at least, as predictable from verbal semantic structures.

2. Syntax Insensitivity in Idiosyncratic Components of Meaning in Levin and Rappaport Hovav's Theory

Levin (1985) examined some crucial properties of argument structure alternations and came to the conclusion that (a) verbs that enter into a given construction fall into semantically cohesive subclasses and that (b) these subclasses can be defined by a common set of elements. Levin's (1993) treatment of syntactic alternations is also founded on the basic assumption that verbs can be grouped into semantic classes on the

basis of their compatibility with certain syntactic frames. In the same vein, Levin and Rappaport Hovav (1995) and Rappaport Hovav and Levin (1998) claim that distinctions induced by diathesis alternations help to provide insights into verbal meaning.[1]

In spite of this general agreement, the approach advocated by Levin and Rappaport Hovav does not treat the relation between verbal semantic structures and a given verb's syntactic employability in a satisfactory manner. Rappaport Hovav and Levin hold that the idiosyncratic components of meaning (which specify the various manners of locomotion) are not syntax-sensitive, hence they do not decide on the types of syntactic structures into which a given verb may enter and merely serve to differentiate between individual members of a certain verbal class. Starting from this assumption, Levin and Rappaport Hovav claim that the class of manner of locomotion verbs displays a uniform syntactic behaviour.

Consider the following structures, which involve the allowable types of syntactic complements and their combinations as adduced in Rappaport Hovav and Levin (1998, 98):

(1)   *Pat ran.*
(2)   *Pat ran to the beach.*
(3)   *Pat ran herself ragged.*
(4)   *Pat ran her shoes to shreds.*
(5)   *Pat ran clear of the falling rocks.*
(6)   *The coach ran the athletes around the track.*

Rappaport Hovav and Levin (1998, 99) claim that the syntactic behaviour of *run* is characteristic of all verbs of manner of locomotion. As will be shown later, this claim is an oversimplification, evidently resulting from the fact that Rappaport Hovav and Levin only analyze the syntactic behaviour of the verb *run* and disregard syntactic structures employing other manner of locomotion verbs.[2]

3. Manner of Motion as a Part of Spatial Structure in Jackendoff's Theory

Jackendoff (e.g., 1983, 1990, 1996, 2002) holds that the structure of meaning is divided into "conceptual structure" and "spatial structure." His theory of conceptual semantics takes word meaning as composed of what "ordinary language calls *concepts, thoughts* or *ideas*" (1990, 1). Conceptual structure involves phenomena like predicate-argument structure, category membership, quantification, etc. It is "a hierarchical arrangement

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1. In the same vein, Dixon (e.g., 2005) takes into consideration not only the general semantic types of verbs and the semantic roles associated with them, but also their mapping onto syntactic frames.
2. The fact that Rappaport Hovav and Levin (1998) use *run* to illustrate the variable behaviour of verbs of manner of locomotion seems to be underlain by two reasons. First, *run* displays wide syntactic employability, which is a reflection of the verb's remarkable semantic elasticity. Second, *run* encodes relatively high speed, which predisposes the verb to be used in constructions implying a higher degree of "intensity of motion" (on this see Kudrnáčová 2010). Interestingly, the increase in speed lexicalized in *run* may, as shown by Adam (2010, 29), serve to indicate a gradation of the act in the transitional track of a sentence in terms of Firbasian dynamic semantics (cf., e.g., Firbas 1992).

built out of discrete features and functions" (2002, 346). Spatial structure concerns spatial configurations in the physical world, "the integration over time of the shape, motion, and layout of objects in space" (2002, 346). Although Jackendoff states explicitly that the two levels of meaning exhibit a partial overlap (2002, 347), spatial structure is, primarily, a matter of perceptual system, whereas conceptual structure belongs to the level of proposition.

In line with this approach, Jackendoff (1990, 45) treats motion situations in sentences like *John ran into the room* as cases of subordination of manner under an abstract verb GO:

Syntactic structure
$[_S[_{NP}$ John] $[_{VP}$ ran $[_{PP}$ into $[_{NP}$ the room]]]]

Conceptual structure
$[_{Event}$ GO ($[_{Thing}$ JOHN], $[_{Path}$ TO ($[_{Place}$ IN ($[_{Thing}$ ROOM])])])]^3

In spite of being aware of the difficulties connected with an adequate specification of the semantic structures of manner of motion verbs, Jackendoff views the differences between the manner of locomotion verbs *walk, limp, jog, strut* and *shuffle* as pertaining to a strictly spatial domain. He treats these verbs, in conceptual structure, simply as verbs of locomotion and claims that the verbs "differ only in manner of motion, one of those things that is extremely awkward to characterize through algebraic features. However, we can distinguish these words by their appearance (and how they feel in the body)" (2002, 350). In other words, since the verbs in question are differentiated only by spatial structure, their differentiation does not play a role in conceptual structure, which is why the verbs display syntactic parallelism. This interpretation follows from Jackendoff's contention that "any semantic distinction that makes a *syntactic* difference must be encoded in conceptual structure" (1990, 34). Put another way: grammatical phenomena belong to the level of conceptual structure – not to the level of spatial structure.

Jackendoff's conception of "abstract motion," disregarding semantic features that differentiate between, say, *walk* and *limp* and that have a bearing on their syntactic behaviour is evidently untenable. If the differences between *walk* and *limp* were a matter of perceptual (spatial) domain only, the two verbs would have to behave in the same way, which they do not. Consider:

(7)   a. *Harry walked.* (motion as an activity)
      b. *Harry limped.* (motion as an activity)

(8)   a. *Harry walked to the door.* (directed motion)
      b. *Harry limped to the door.* (directed motion)

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3. The verb corresponds to the Event-function GO (this sentence expresses motion). The subject of the sentence corresponds to the first argument of GO, and the PP corresponds to the second argument (the Path traversed). The Path function TO takes a Place as its argument. The Place then decomposes into the Place function IN and a Thing argument expressed by the object of the preposition.

(9)   a.   *Harry walked clear of the wreckage.* (directed motion)

       b.   *Harry limped clear of the chaparral.* (directed motion)

(10)   a.   *Harry walked the streets of London.*

                        (motion along a path, spatial preposition dropped)

       b.   ?**Harry limped the streets of London.*

                        (motion along a path, spatial preposition dropped)

(11)   a.   *Harry walked himself to exhaustion.*

                        (causation of the mover's change of state)

       b.   **Harry limped himself to exhaustion.*

                        (causation of the mover's change of state)

       c.   **Harry limped her to exhaustion.*

                        (causation of the patientive mover's change of state)

(12)   a.   *Harry walked his shoes to shreds.*

                        (causation of the object's change of state through motion)

       b.   ?**Harry limped his shoes to shreds.*

                        (causation of the object's change of state through motion)

(13)   a.   *Harry walked himself to the door.*

                        (causation of the mover's change of location)

       b.   **Harry limped himself to the door.*

                        (causation of the mover's change of location)

(14)   a.   *John walked Harry to the door.*

                        (causation of the patientive mover's change of location)

       b.   **John limped Harry to the door.*

                        (causation of the patientive mover's change of location)[4]

As can be seen, *walk* and *limp* do not behave uniformly, in spite of their allegedly identical conceptual status (examples 10b and 12b are conceivable, but only under special circumstances). In actual fact, Jackendoff's treatment of conceptual structure and spatial (perceptual) structure inevitably results in the necessity to posit the differences between manner of locomotion verbs in terms of the differences in their conceptual structure.

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4. A terminological remark is due here. The term "mover" designates an agent as the sole executor of the movement. The term "patientive mover" designates a secondary agent (more precisely, a causee induced to move by the causer, who acts as a co-mover) in the direct object position. This participant thus represents a second energy source (on this see, e.g., Davidse and Geyskens 1998).

Deane (1996) and Taylor (1996) also observe that the role of visual phenomena cannot be restricted in the way proposed by Jackendoff. Taylor shows convincingly that Jackendoff's position cannot be maintained because an account of the syntactic behaviour of *run* and *jog* (used in the sense "to run slowly for exercise") must appeal to encyclopaedic knowledge that "cannot be accommodated by the algebra of conceptual structure, nor is this knowledge exclusively perceptual in nature" (1996, 3).[5] In other words, what also plays a role in determining the syntactic behavior of the verb is the knowledge of the situational background in which the movement is set. *Jog* carries information about the circumstances of the motion situation in that it encodes information about the purpose of the motion that transcends the motion *per se*. The restricted syntactic usability of *jog* can be illustrated by way of the following examples:[6]

(15) *Harry jogged.* (motion as an activity)

(16) *Harry jogged around the park.* (directed motion)

(17) *Harry jogged clear of a man rushing in the opposite direction.* (directed motion)

(18) *Harry jogged the streets of London for a couple of hours.*
      (motion along a path, spatial preposition dropped)

(19) a. **Harry jogged himself to exhaustion.*
              (causation of the mover's change of state)
     b. **Harry jogged her to exhaustion.*
              (causation of the patientive mover's change of state)

(20) **Harry jogged his shoes to shreds.*
              (causation of the object's change of state through motion)

(21) a. **Harry jogged himself around the park.*
              (causation of the mover's change of location)
     b. **Harry jogged her around the park.*
              (causation of the patientive mover's change of location)

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5. Pinker (1989, 103) rightly points out that "subtle semantic distinctions among subclasses of verbs can result in differences in their syntactic behaviour, often giving the appearance of their being arbitrary lexical exceptions to alternations."

6. The sentences in (15)–(18) are ambiguous in that *jog* as used in them may be interpreted as "running slowly, but not necessarily for exercise." On ambiguity as a natural phenomenon see, e.g., Kozubíková Šandová (2010, 97).

4. Perceptual Parameters in Faber and Mairal Usón's Theory

Faber and Mairal Usón (1999) also discuss the role of perceptual information encoded in the semantics of manner of motion verbs. They rightly point out that semantic and perceptual parameters may combine to characterize both the movement *per se* and the mover. They add, too, that the evaluation is generally negative because the movement is presented as deviating from the norm (1999, 113). For example, they characterize the verb *limp* discussed above as "to walk with difficulty in an uneven way, usually because one leg / foot is hurt" (1999, 111).

Although the authors strongly emphasize the role of perceptual information, i.e., "the way we process the sensory data received from the outside world" (1999, 109), they, rather surprisingly, take the parameters of, e.g., the verbs *swagger, strut, prance* or *parade* as "only semantic because they do not significantly affect syntax," which is the reason why "it is difficult to differentiate such verbs at a conceptual level" (1999, 114).

In view of the fact that Faber and Mairal Usón do not provide examples of types of syntactic structure into which the various manner of motion verbs may enter, their claim that manner of motion does not affect syntax does not rest on solid ground. Quite symptomatically, when such a description is offered (e.g., in the class of verbs of possession or verbs of cognition), the authors offer the proposal that "information about a predicate's paradigmatic location in the lexicon be integrated into its predicate frame in order to represent the interface between syntax and semantics" (1999, 142).

5. The Correlation between the Verb's Descriptivity and the Verb's Syntactic Usability in Boas's Theory

Boas (2006) rightly argues that it is necessary to reconsider the ways in which verb classes have been defined. Drawing on Snell-Hornby's (1983) theory of verb descriptivity (which can be roughly glossed over as the complexity of the verb's meaning, involving the nucleus plus one or more modificants) Boas suggests that there is a correlation between the degree of the verb's descriptivity and the range of syntactic constructions into which a verb may enter. For example, *walk*, as opposed to *stagger* or *totter*, displays the lowest degree of descriptivity, which explains its wide syntactic employability. According to Boas, *totter* displays a higher degree of descriptivity than *stagger*.

Although Boas's observation concerning the relationship between the verb's descriptivity and its syntactic usability is essentially correct, a question still remains as to how to account for the fact that both *stagger* and *totter* display the same syntactic behaviour in spite of the fact that they are claimed to encode different degrees of verb descriptivity.[7] Consider the following examples adduced by Boas (2006, 143):

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7. In this connection it is perhaps not without interest to mention that in Faber and Mairal Usón (1999, 113) the verbs *stagger* and *totter* are described as involving the same parameters, namely, "weakness / drunkenness" and "lack of uprightness."

(22) *Gerry walked (/staggered/tottered).*

(23) *Gerry walked (/staggered/tottered) down the street.*

(24) a. *Julia walked the town.*
  b. **Julia staggered the town.*
  c. **Julia tottered the town.*

(25) a. *Cathy walked herself to exhaustion.*
  b. **Cathy staggered herself to exhaustion.*
  c. **Cathy tottered herself to exhaustion.*

(26) a. *Claire walked the dog down the street.*
  b. **Claire staggered the dog down the street.*
  c. **Claire tottered the dog down the street.*

6. Conclusions: Verbal Semantics in Relation to Types of Causal Patterning of Motion Situations

The facts adduced thus far show, hopefully convincingly, that syntactic constructions that explicitly encode a causative patterning of the motion situation are generally barred for verbs that bear reference to additional, modifying features (be it physical features and / or features that refer to the self of the mover or to the self of the patientive mover) or features that bear reference to the circumstances accompanying the movement (this issue is dealt with in, e.g., Boas 2003, Boas 2006, Filipović 2007, and Kudrnáčová 2008).

This is the case of constructions in which (a) both the subject position and the direct object position is taken up by an executor of the movement (by the mover), or in which (b) the subject position is taken up by an executor of the movement (by the mover) and the direct object position is taken up by a patientive mover (a second mover), or in which (c) the subject position is taken up by an executor of the movement (by the mover) and the direct object position is taken up by an object that changes its state.

These structures designate:

a) the causation of the mover's change of state through motion (examples 11b, 19a, 25b, 25c)
b) the causation of the patientive mover's change of state through motion (examples 11c, 19b)
c) the causation of the object's change of state through motion (examples 12b, 20)
d) the causation of the mover's change of location (examples 13b, 21a)
e) the causation of the patientive mover's change of location (examples 14b, 21b, 26b, 26c).

An explanation of the verb-sensitivity of these constructions should most probably be sought in total object inclusion (see Anderson 1971). In concrete terms, total object inclusion requires that the direct object position be reserved for participants that are included in the event "in their entirety." This fact has important ramifications for verbal semantics: all aspects of the movement must fall under the scope of the operation of the participant in the direct object position (which is not the case in verbs like *stagger, totter* or *limp*).

There are, however, other aspects of meaning that decide on the verb's employability in the constructions in question (e.g., the verb *jog* lexicalizes the position of the movement in the overall situational frame).

There is yet another type of construction which is verb-sensitive, namely, the construction in which the path traversed is expressed by means of the prepositionless noun phrase (i.e., the noun phrase in the direct object position). This is the case in examples (10b), (24b) and (24c). At this stage of my research I am not yet in a position to provide an explanation for this phenomenon.[8]

By way of conclusion, it can be stated that it is necessary to have a closer look not only at verbal semantics in relation to types of syntactic constructions but also at the type of event structuration encoded in the constructions themselves.

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8. I owe the idea that it is constructions with noun phrases in the direct object position that are verb-sensitive to Ludmila Veselovská (personal communication).

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