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Brno studies in English. 2003, vol. 29, iss. 1, pp. [81]-90

ISBN 80-210-3346-0
ISSN 1211-1791

Stable URL (handle): https://hdl.handle.net/11222.digilib/104376
Access Date: 17. 02. 2024
Version: 20220831

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S 9, 2003 — BRNO STUDIES IN ENGLISH 29

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SPASMODIC BODY PART MOVEMENTS

The present paper offers a semantico-syntactic analysis of a group of verbs which denote spastic or reflex movements of body parts (movements that involve the whole body, as in *He started* or *He flinched*, are left aside here). The group is represented by the verbs *twitch, jerk* and *flinch* (*His muscles twitched nervously, His hand jerked away from the flame, His hand flinched from the pain*). These verbs denote movements which are caused by a nervous spasm or which occur as a reflex reaction to a certain stimulus.

First, a few terminological remarks must be made.

(a) I take movement as a sequence of kinetic quanta. I define 'kinetic quantum' in its most minimum sense, namely as the distance between the successive points along the path.

(b) I define 'kinetic phase' as a sequence of kinetic quanta that follow linear progression. 'Kinetic phase' is, then, a sequence of quanta without an implied reversal of direction. So *jerk* in *His hand jerked away from the flame* is a single-phase verb because the movement consists of just one kinetic phase; the movement in *His mouth was twitching from the strain* involves several kinetic phases (*twitch* as used here is thus a multi-phase verb).

(c) I take 'speed' as a temporal progression from one kinetic quantum to another, i.e. as the temporal intervals between individual quanta.

(d) I have introduced the terms the 'process-denoting component' and the 'goal-denoting component'. The two terms pertain not to the extralinguistic (physical) structuration of the movement as all the above-mentioned terms do, but to the intralinguistic domain. More specifically, the two components operate at the level of the verb's internal semantic structuration of motion. The 'process-denoting component' refers to the verb's internal processual phase (relating to the course of the movement), whereas the 'goal-denoting' component denotes the internal final phase (referring to the final kinetic quantum of the moving entity). As the verbs *jerk, flinch* and *twitch* are, as will be seen later, devoid of these components, let me adduce *raise* as an example: the presence of the process-denoting component enables the verb to occur with the progressive (*he was raising his hand*) and the goal-denoting component enables the verb to be em-

ployed in the pseudo-passive construction, which has a resultant meaning (*his hand was raised*).

(e) I have introduced the term the 'mental processing of the instigation (initiation) of the movement' since the strict bipolarity 'volitional versus nonvolitional movements' does not cover body (part) movements adequately. The initiation of the movement may be subject, to a varying degree (including its zero variant), to mental processing on the part of the manipulator of the body part(s). The scalar character of mental processing is able to encompass the subtler distinctions within the domain of intentionality of action (on this cf. Kudrnáčová 1998).

The decision regarding the degree of mental processing must take into consideration the type of causative chain in which the movement is set, the semantic content of the verb and the type of syntactic construction used.

Lexico-semantic content of the verbs and their behaviour

Spastic verbs encode in their semantic content two sets of components. The first set includes components that pertain to the genetic (i.e. non-physical, non-visual) domain. The second set comprises components that operate within the physical (visual) domain.

I. Genetic domain

The semantic components in this domain specify the type of genesis of the movement.

1. Type of cause underlying the movement
   - the movements may be caused by a nervous spasm or they may occur as reflex reactions to certain stimuli

2. Degree of mental processing of the initiation
   - in purely spastic verbs or in uncontrollable reflex movements as reactions to certain stimuli the initiation of the movement is marked by the absence of mental processing (this, of course, does not mean that the person cannot be aware of the movement)
   - certain reflex reactions are subject to a certain (however low) degree of mental processing of the instigation

II. Physical domain

1. Spatial properties

(a) Short length of kinetic phases

(b) Heterogeneous character of kinetic phases
   - the body part does not follow a strictly linear course, especially in the final kinetic quantum, in which the movement may be ended 'abruptly' (this feature is prominent especially in the verb *jerk*)

- sometimes the deviation from the linear progression is so sharp that the body part appears to turn backwards; the movement may thus consist of two phases, the second one being slightly shorter (as is the case in the verb *twitch*)
- in repeated movements, the heterogeneous character of the movement manifests itself also in the more or less irregular length of individual phases

2. Temporal properties
(a) Short intervals between individual kinetic quanta
- the movements are carried out 'quickly'

(b) Irregularity of temporal intervals
- the temporal intervals between individual quanta are not the same
- in repeated movements, the temporal intervals between the phases are not the same

3. Physical properties of the body part
- the moving body parts display an increased level of tonus

The two domains do not represent sums of autonomous semantic components. The relationships between their components (both between the domains and within them) are manifold and manifest themselves in language in various ways.[1]

1 Connections between the genetic domain and the physical domain

The movements as denoted by the verbs under discussion show a close connection between the genetic domain (genetic tier) and the physical domain (physical tier). First and foremost, a specific type of cause underlying the instigation of the movement plays a role in shaping the physical properties of the movement. For example, a nervous spasm raises the level of tonus in the body part and co-determines (together with the physical properties of the respective body part) not only the speed and length of the route the body part traverses, but also the above mentioned spatial and temporal heterogeneousness of the phases.

The operation of the cause in the physical domain shows itself also in another way. For example, when the movement arises as a reflex reaction to a certain stimulus, the specific type of stimulus will shape the physical make-up of the movement. When the hand flinches from pain or jerks away from the flame, the motion is motivated by the effort to get away from the source of the unpleasant sensation—the body part will thus traverse a path from the initial point A to the final point Z. It follows that in rendering movements of this kind, language will resort to the path verbs *jerk* or *flinch*.

The close connection between the cause and the type of movement manifests itself in language also in the following way: reflex single-phase verbs, i.e. those verbs that denote movements in which the body part follows the path from A to

Z, cannot be used in an iterative sense. This constraint confines to the verbs *jerk* and *flinch* (*twitch* is not a directional verb and hence can be repeated). The reason underlying the said restricted use of *jerk* and *flinch* lies in the cause underlying the movement: when the body part successfully gets to the position Z (=away from the flame or the pain), it does not make sense to repeat the same movement again.

It will have been seen that a specific type of genetic tier elicits a specific type of movement. From this follows that a certain type of genesis is suggestive of a certain type of movement, and also that a certain type of movement is suggestive of a certain type of genesis.

2 Connections within the domains

Apart from the connections between the genetic and the physical domains, also the components within the individual domains enter into mutual relationships.

Within the genetic domain, there is a close relationship between a certain type of the cause of the movement and a certain degree of the mental processing of the instigation of the movement. For example, a nervous spasm, which may underlie certain movements denoted by the verbs in question, is accompanied by a zero degree of the mental processing of the instigation.

This fact manifests itself in language. As noted above, in purely spastic verbs (*his muscles twitched nervously*) or in uncontrollable reflex movements as reactions to certain stimuli (*his hand flinched from the pain*) the initiation of the movement is marked by the absence of mental processing. Verbs denoting such movements can only be employed in the intransitive (noncausative) construction with the body part in the subject position (*his muscles twitched nervously, his hand flinched from the pain*). Verbs denoting certain reflex reactions that are subject to a certain (however low) degree of the mental processing of the instigation are allowed both into the intransitive construction (*his hand jerked away from the flame*) and into the transitive (causative) construction with the manipulator in the subject position and the body part in the object position (*he jerked his hand away from the flame*).

Theoretically, *twitch* may also be used in the transitive construction with the person in the subject position and the body part in the object position (*He twitched his mouth*). The sentence does not, however, express a spastic movement, but only its willed imitation.

Apart from being excluded from causative constructions, genuinely spasmodic (i.e. uncontrollable) verbs cannot, naturally, appear in commands (**Twitch your fingers!*), in questions with the modal *can/able to* (**Can you twitch your fingers?*) and in combination with the conative *try* (**He tried to twitch his fingers*).

The physical properties of the moving body part may have a bearing on the kinetic shape of the movement. For example, the presence of an increased level of

tonus in the body part adds to the heterogeneous character of the kinetic phase. This is apparent especially in the verb *jerk*, which, as opposed to *twitch* and *flinch*, is suggestive of a more 'tonic' realization of the movement. Thus in *Webster's New Dictionary of Synonyms* (1978: 471) *jerk* is described as 'graceless' and 'forceful', whereas *twitch* is described as 'often light' (1978: 472).

Also, the fact that certain body parts, on account of their physical properties, cannot carry out certain movements may be seen as another evidence of the relation between the physical properties of the body part and the physical properties of the movement. For example, the nose can twitch, but it cannot flinch.

* * *

So far we have analyzed the various relations that hold between the individual semantic components. Let us now concentrate upon the individual verbs.

Flinch, as opposed to *jerk* and *twitch*, denotes movements of body parts only rarely. It is prevailingly used to express the movements of the whole body (for example, you can flinch when you hear the dentist's drill). Consider the following example with *flinch* expressing a body part movement:

1
He closes them [=hands] firmly so they would take the pain and would not flinch and watched the sharks come. (Hemingway 1987: 92)

As shown above, the verbs *jerk* and *flinch* are used to denote reflex movements as reactions to certain stimuli (*his hand flinched from the pain, his hand jerked away from the flame*); the movements they denote may be described as 'moving away from'. When used in this sense, the verbs are single-phase verbs: the moving body part traverses a path (i.e. without an implied reversal of direction) from the initial point A to the final point Z.

Twitch is a double-phase verb. The verb does not entail any displacement because the moving body part turns backwards. This fact plus the spastic genesis of the movement (the spastic genesis of the movement excludes the possibility to control the movement not only in its initiation, but also in its progression) are the two factors that enable the verb to denote also a repeated (multi-phase) movement (Snell-Hornby 1983: 157 refers to *twitch* as being used 'particularly in an iterative sense'). We must not overlook the fact that the repetition is, apart from the uncontrollable character of the movement, enabled also by the physical properties of the movement: the length of the kinetic phases is short (*twitch* implies shorter phases than *jerk)*, and the temporal intervals between the quanta and the phases are short, too.

The simple form and the *ing*-participle of *twitch* are, as to the (non)iterative reading, ambiguous. Consider:

2
Mr Alleyne flushed to the hue of a wild rose and his mouth twitched with a dwarf's passion. (Joyce 1974: 89)

3
Coldly she turned from him, her brow twitching. (Bellow 1971: 305)

The progressive unequivocally yields an iterative reading:

4
His mouth was twitching from the strain. (*New Shorter Oxford* 1993: 3438)

In example 5, the inchoative *begin* expresses the beginning of a sequence of repeated movements:

5
And as he gazed at his father the little finger of his hand began to twitch and tremble; of that he was unconscious, too. (Bellow 1966: 33)

Here, both the spastic *twitch* and the oscillatory *tremble* denote involuntary repeated movements consisting of short phases which are carried out quickly. However, *twitch*, as opposed to *tremble*, is suggestive of a more marked heterogeneous character of the movement.

Though not specified, the number of phases in the repeated spastic movement is, due to its heterogeneous, irregular physical make-up, limited. That is, the duration of the repeated movement is implicitly bounded. (Implicit unboundedness of oscillation in *tremble* is facilitated by a more or less homogeneous, regular character of the oscillating movement.)

In example 6 the number of kinetic phases of the spastic *twitch* is explicitly stated (it is evident that the author of the novel aimed at achieving a specific stylistic effect):

6
He looked Dixon up and down from under his heavy brow, and his lips twitched into a pout and back again two or three times. 'If I'd been asked [...]' (Amis 1975: 212)

Apart from *twitch,* also the spastic *jerk* may be used to express a repeated movement. To illustrate:

7
I could feel my chin jerking up and down the way it does before I start crying [...] (Kesey 1987: 212)

8
He stopped in front of her [...] then ran his hand through the glass. [...] The glass came apart like water splashing, and the nurse threw her hands to her ears. [...] 'I'm sure *sorry*, ma'am,' he said. [...] He turned and left her sitting there with her face shifting and jerking and walked back across the day room to his chair [...] (Kesey 1987: 155)

In the iterative *jerk* the spatial and temporal heterogeneousness of the phases is, in comparison with the iterative *twitch*, more prominent (probably due to the fact that *jerk* implies a relatively higher level of tonus in the body part). This is the reason why the contrast between the iterative *jerk* and the oscillatory *quiver* is sharper than the contrast between the iterative *twitch* and the oscillatory *tremble*. To illustrate:

9
[...] shrunken body continued to jerk and quiver [...] (*Webster's Dictionary of Synonyms* 1978: 472)

Let us now turn our attention to a very specific usage of the verb *jerk*. Consider the following examples:

10
'You—are very, very strong, Mr Gideon.'
It's the Big Nurse.
Everybody's head jerks towards her—mine too, but I check myself and pass the motion off like I'm trying to scrub a speck I just discovered on the wall [...] (Kesey 1987: 122)

11
She went leafing through her basket. 'What was it, do you remember, Doctor Spivey?'
The doctor's head jerked up. 'No... wait... I think...' (Kesey 1987: 208)

12
She smiles [...] and shakes her head gently. '[...] I wish you wouldn't lean against the glass there, please; your hands are oily and staining from the window [...].'

> He jerks his hand away, and I see he starts to say something and then stops, realizing she didn't leave him anything else to say [...]. (Kesey 1987: 87)

As we already know, *jerk* in its spastic (or reflex) sense denotes relatively short and quick movements, with a heterogeneous progression and with implied tension in the body part. We know, too, that the particular physical make-up of the movement is an outcome of the fact that the movement arises as a reflex reaction to strong stimuli. We also know that the physical make-up of the movement as denoted by the verb correlates, to a certain extent, with the cause (let us recall, again, the sentences *He jerked his hand from the flame, His hand jerked away from the flame*).

An analysis of the causative chains, in which the movements in examples 10, 11 and 12 are set, reveals, however, that there is a certain discrepancy between the physical make-up of the movement as denoted by *jerk* and the type of cause underlying its instigation. In example 11, for example, it would be possible to resort to *shoot up*, which also denotes a quick movement, but—perhaps owing to a more linear course of the movement and less marked tension in the respective body part—less heterogeneous than *jerk*. *Shoot* may thus seem more 'suited' to bear the proper correlation between the movement and the specific type of cause. It is evident that the use of the verb *jerk* is motivated by the aim to point at a very specific mental state of the manipulator of the body part—*jerk* implies both heterogeneousness of the course of the movement and increased tension in the body part, which are implicative of a very agitated mental state of the manipulator of the body part.

Needless to say, the said discrepancy between the physical character of the movement as denoted by *jerk* and its genetic phase produces a specific stylistic effect. (It is important to realize that such a use of the verb *jerk* is enabled by the fact that certain movements are implicative of certain causes because certain causes elicit certain movements.)[2]

It does not, therefore, come as a surprise to learn that all the examples with the discussed evaluative use of *jerk* are taken from Kesey's novel, which depicts the impaired mental world of its characters.

The evaluative *jerk* may occur both in the transitive (causative) construction with the person in the subject position and the body part in the direct object position (example 12) and in the intransitive construction with the body part occupying the subject position (examples 10 and 11).

In the light of the evaluative status of *jerk*, consider also the evaluative use of *twitch* in example 13:

> **13**
> His ears twitched at the sound of a footfall on the landing. Hilary?

He leapt out of bed, rushed to the window, flung it open and furiously flapped the bedclothes. (Lodge 1983: 201)

It is clear that no twitching of the ears occurred. The movement serves to vividly characterize the agitated state of the person. (Note also the use of the verbs *leap out, rush, fling open* and of the adverb *furiously*—they all have intensifying semantic components built in their lexico-semantic content.)

Internal semantic structure of the verbs

The spastic or reflex (or impulsive, as in the re-evaluated meaning of *jerk*) character of the movement as denoted by the verbs under discussion suppresses the quantization of the movement. The motion is linguistically rendered as a compact, unanalyzable continuum. The internal semantic structure of the verbs cannot therefore be decomposed into a process-denoting and a goal-denoting components.

The goal-denoting component is absent in spite of the fact that the last kinetic quantum of the verb *flinch* and of the non-repeated *jerk* relates to the final localization of the body part (when your hand flinches from pain, your hand jerks away from the flame or when you jerk your head back, the body part does get to a certain position). The reason for the absence of the process- denoting and the goal-denoting components lies in the powerful operation of the genetic tier. The genetic tier, apart from operating at the level of the lexico-semantic content of the verb (i.e. apart from shaping the physical characteristics of the movement), operates also at the level of the verb's internal semantic structuration in that it overshadows the orientation of the movement towards assuming a certain position. In other words, it considerably weakens the implication of a final localization of the body part.[3]

The compact, non-segmented character of the internal structure of the verbs manifests itself in their syntactic behaviour.

(a) The verbs cannot occur with the progressive, unless they denote a repeated movement (cf. example 4).

(b) The verbs cannot occur with the inchoative *begin* (unless, again, they denote a repeated movement (cf. example 5).

(c) The verbs cannot occur in the passive form, which has a stative, resultative meaning (**His hand was flinched/was jerked/was twitched*).

* * *

The discussion has shown the following:

(a) The verbs under discussion encode in their lexico-semantic content components pertaining to two domains, namely to the genetic and the physical domains. The two domains (tiers) are not autonomous—the relationships between

their components (both between the domains and within them) are manifold and manifest themselves in language in various ways.

(b) The semantic structures of the verbs have a direct bearing upon the syntactic behaviour of the verbs.

(c) The genetic tier operates also at the level of the internal semantic structuration of the verbs (this fact shows itself at the syntactic level).

Notes

[1] The complexity of semantic features shows itself in the choice of attributes that dictionaries use to describe the movements in question. Apart from 'semantically simple' attributes that refer to only one feature of the movement (e.g. 'short', 'quick' or 'nonvolitional'), dictionaries often resort to 'semantically complex' specifications which represent a combination of features. For example, the movements are labelled as 'spasmodic', 'convulsive', 'forceful', 'jerky' or 'sharp' (see e.g. *Collins Cobuild English Language Dictionary* 1988, *The Chambers Dictionary* 1994, *The New Shorter Oxford English Dictionary* 1993, *Webster's Encyclopedic Unabridged Dictionary of the English Language* 1996, *Webster's New Dictionary of Synonyms* 1978).

[2] On the evaluative status of impulsive verbs, see Kudrnáčová 1999.

[3] Note that Levin (1993: 106) classes *jerk* among inherently nondirected motion verbs.

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