Document generated on 10/11/2024 10:49 p.m.

Revue québécoise de linguistique

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Volume 17, Number 1, 1988

Psychomécanique du langage

URI: https://id.erudit.org/iderudit/602623ar
DOI: https://doi.org/10.7202/602623ar

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Publisher(s)

Université du Québec à Montréal

ISSN

0710-0167 (print)
1705-4591 (digital)

Explore this journal

Cite this article

van Voorst, J. G. (1988). Thematic Roles Are Not Semantic Roles. *Revue québécoise de linguistique*, *17*(1), 245–259. https://doi.org/10.7202/602623ar

Article abstract

This article discusses the value of thematic roles for the description of phenomena of grammar. Notions like agent, patient, etc. do not have any explanatory value in the grammar. For instance, there is no relationship between the middle, subject selection in English and the impersonal passive in Dutch and these roles. This makes it impossible for the language learner to distil them from the grammatical system. The notion of Event Structure creates a more explanatory link between the grammar and semantics. This notion explains the functioning of impersonal passive in Dutch. It is notions like this one that should play a principal role in a more explanatory semantic theory.

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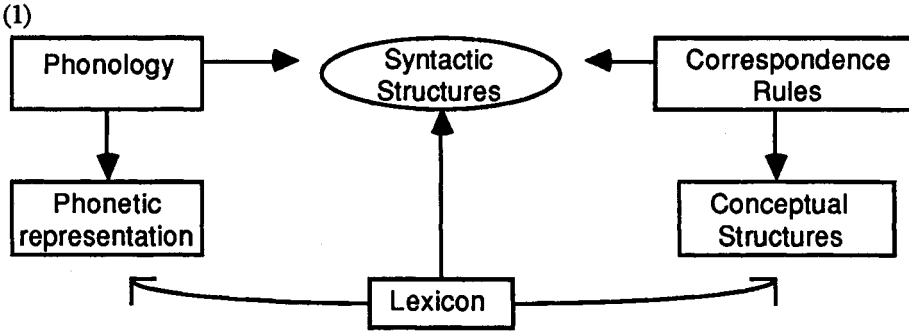
THEMATIC ROLES ARE NOT SEMANTIC ROLES*

Jan G. van Voorst

1. Introduction

In the model of grammar in (1), as proposed in Jackendoff (1983), we find a component of conceptual structures instead of a purely semantic component. This component contains not only all the information covered by language but also the information covered by other perceptual systems. A set of rules relating the Conceptual Structure Component and Syntactic Structures, the correspondence rules, determines which aspects of the conceptual structures are relevant for the semantics of natural language. Semantics in this model of grammar is the subset of Conceptual Structures that is mapped onto Syntactic Structures through the component of Correspondence Rules. In (1), I have omitted all the irrelevant aspects for the present discussion.

(1)



* I wish to thank two anonymous reviewers, as well as Paul Hirschbühler, Marisa Rivero and Co Vet for their comments on earlier versions of this paper.

In Jackendoff (1978) it is argued that the projection rules, the correspondence rules in (1), can be assumed to be relatively simple. This way, the language acquisition process is easy on the learner. A methodological assumption in this context is that there is a correspondence between grammar, Syntactic Structures, and Conceptual Structures: "Apparent grammatical constraints may reflect conceptual constraints"[1] (page 203). This correspondence is exemplified by the semantic analysis of, among others, prepositional phrases as denoting locations (2a) and paths (2b).

(2) a. John was in the house
b. John went into the house

These two notions are generalized to the abstract domains of indentification (3a) and possession (3b).

(3) a. David left Nora sick
b. Dick received the money

(3b), for instance, is analyzed as the motion GO that is modified by poss, which identifies the semantic field of possession. TO (DICK) stands for the path along which this motion takes place.

(4) GO (THE MONEY, TO (DICK))
poss

In this paper I will use the idea of a correspondence between Syntactic and Conceptual Structures to show that notions such as agent, patient, etc. are conceptual but not semantic notions in the grammar of Dutch and English. In Fillmore (1968) these notions are called case roles and in the Government and Binding Framework they represent the semantic part of thematic (θ) roles. Thematic roles in the latter framework also have a syntactic function in that they determine the well-formedness

1. This idea is not new and it can be found, for instance, in the work of Roman Jakobson. It is outlined in Waugh (1976) that Jakobson assumes a close relationship between form and meaning. This relationship is not arbitrary: «Forms are directly connected with a meaning and both are communicated by the speech signal» (page 48). An extensive analysis that follows these lines of thinking is given in Jakobson (1936), which is a semantic analysis of the Russian case system.

of syntactic structures. To do this, no reference need to be made to their semantic content (Styan 1984). However, I will not focus on the syntactic function of thematic roles, but only on their semantic content when referring to them. I will use the phenomena of subject selection and middle formation in English to show that a close relation between thematic roles and the grammatical system is hard to conceive. The discussion of impersonal passive in section 3 and 4 focuses on one conceptual structure that ties in more adequately with the grammatical system than thematic roles.

2. Subject Selection and Middle Formation

Fillmore (1968) has argued that the semantics of the subject in English can be explained by using thematic roles or, case roles in his terminology, and a so-called subject selection hierarchy. This hierarchy is given in (5). Note that the thematic role of Object has been replaced by the role of patient in later studies.

(5) Subject Hierarchy
If there is an Agent it becomes the subject; otherwise,
If there is an Instrument, it becomes the subject;
otherwise the subject is the Object.

The hierarchy in (5) predicts that if the Agent is left out from the case frame of a verb like open in (6), the Instrument becomes the subject NP, as in (7b). If the Instrument is deleted as well, then the Object becomes the subject NP, as in (7c).

(6) Open + [_Object (Inst) (Agent)]

(7) a. He opened the door with a key
b. The key opened the door
c. The door opened

That the above hierarchy is descriptively inadequate can be demonstrated quite easily. The ungrammatical sentence in (8) is predicted to be grammatical by the Subject

Hierarchy, as the Instrument is rightly selected over the Object and the Agent is absent.

(8) *This spoon eats the meat

It follows from this inadequacy that the Subject Hierarchy in (5) does not imply a complete correspondence between thematic roles and the subject NP. However, there is another way of looking at a strict correspondence between grammatical categories and semantic primitives. That is if thematic roles, except for describing the semantics of a noun phrase, play a role in the functioning of rules of grammar. Hypothetically this is the case when a rule X applies only to Agents but not to Instruments and Objects or when a rule Y applies only to Agents and Instruments but not to Objects, etc. A brief glance at passive and middle formation shows us that thematic roles do not provide us with this type of explanatory power. Both subjects in (9) would normally be considered to have the same thematic roles of possessor in a theory making use of thematic roles[2]. Still (9a) is grammatical but (9b) is not.

(9) a. That car is owned by the university
*b. That car is had by the university

A rule like middle formation in English is not sensitive to the thematic role of the subject either. Patient subjects are allowed in (10) but not in (11)[3].

(10) a. This book sells easily
b. This orange peels easily

(11) *a. This ball throws easily
*b. This story writes easily

---

2. Note that I simply assign here, and in later examples, thematic roles in an intuitive way. The absence of a well-worked out theory covering these semantic notion (Grunau 1985) makes it impossible to determine them in a more motivated way.

3. The data in (10) and (11) indicate that the patient-like character of the subject is not the essence of this construction. Semantic descriptions that consider the middle from a different perspective have been given in O'Grady (1980) and Oosten (1977).

If we take Jackendoff's ideas seriously, then we can demand from a semantic notion that it can be distilled from the grammatical system by the language learner without too much difficulty. But, as far as thematic roles are concerned, we can say that the language learner is confronted with an ambiguous input that offers no clues with respect to them. One time an Instrument may be the subject of a transitive sentence in English (7b); other times it may not (8). Rules like the passive and the middle do not help the language learner out either, as these roles distinguish between NPs bearing a similar thematic role.

3. Impersonal Passive

Within the Relational Grammar framework it has been argued that there is a correspondence between notions from the domain of thematic roles and the grammatical system. Perlmutter (1978) uses the notion of activity, which I consider to belong to the domain of thematic roles, as it implies agentivity. Subjects of verbs expressing activity are said to be nonderived (12a). Subjects of verbs not expressing activity are derived and originate in direct object position, as in (12b). In the Relational Grammar framework the direct object position is called a 2.

(12) a. He is sleeping
b. The vase$_i$ broke e$_i$

This distinction is said to correlate with the possibilities to apply impersonal passive in many languages, among which is Dutch. The rule of impersonal passive in this language inserts passive morphology and replaces the subject NP by the grammatical formative <u>er</u> 'there', as shown in (13). Only verbs that express activity may passivize, according to Perlmutter.

(13) Er wordt daar geslapen
there is there slept
'People are sleeping there'

Passive of intransitive verbs not expressing activity is excluded in the Relational Grammar framework for reasons we need not go into here.

It can be shown that the relation between the semantic notion of activity and possibilities of passive is ill-conceived. Intransitive motion verbs in Dutch can passivize, as in (14a). Daar in (14a) is a locative adverbial. When these verbs subcategorize a directional PP, as in (14b), passive cannot take place. The directional PP in (14b) is the phrase de deur uit, which contains the postposition uit.

(14) a. Er wordt daar gelopen
there is there walked
'People are walking there'

*b. Er wordt daar de deur uitgelopen
there is there the door out walked

The corresponding active sentences are grammatical, as shown in (15).

(15) a. Ze liepen daar
'They were walking there'

b. Ze liepen de deur out
'They walked out the door'

In terms of the notion of activity, it is hard to make a distinction between the subject in (15a) and (15b) and the verbs of the two sentences. The entities denoted by the subjects in both sentences are actively involved in an event of walking and, as such, they are both agents.

We can conclude that Perlmutter's approach does not show convincingly that there is a correspondence between notions from the domain of thematic roles and the grammatical system. This means in Jackendoff's model of grammar in (1) that notions covered by thematic roles do not figure in the grammatical subsystem, if, again, we assume that there must be a correspondence between semantic primitives and the functioning of a grammar. In (1) this means that these roles are not mapped from Conceptual Structure onto syntactic structures by correspondence rules.

4. Event Structure

In the preceding sections I argued that thematic roles are conceptual rather than semantic notions. These roles are not mapped onto syntactic structures. We can ask now which conceptual notions are mapped onto Syntactic Structures so that we can explain phenomena like subject selection, middle formation and the limited possibilities of impersonal passive in Dutch. In this section, I will outline briefly what one such a conceptual notion may be. I will wholly concentrate on the Dutch impersonal passive data in doing this. I will not give an in depth account of this conceptual notion. I will only indicate the nature of one of the primitives that is more relevant to a semantic theory under our assumptions.

The two sentences in (15) in section 3 do not differ with respect to the thematic role of the subject NP. Still the sentence with the directional PP cannot passivize, but the sentence without this PP can. The semantic difference between these two sentences is describable using Vendler's (1967) notion of accomplishment. A sentence containing a directional PP implies the accomplishment or the terminal point of the event expressed by it. A sentence without such a PP does not. A way to show this difference is the insertion of an adverbial denoting a stretch of time like <u>for five minutes</u> or <u>vijf minuten</u>, in Dutch. An accomplishment cannot take place over a period of time (16a); a nonaccomplishment can take place for a certain number of minutes, as shown in (16b)[4].

(16) *a. Hij liep vijf minuten de deur uit
he walked five minutes the door out

b. Hij liep daar vijf minuten
'He was walking there for five minutes'

Accomplishment of intransitive constructions in Dutch is directly expressed by the grammatical system, because all intransitive accomplishment verbs select the auxiliary <u>zijn</u> 'to be' instead of the usual <u>hebben</u> 'to have'. A motion verb with a directional PP selects <u>zijn</u> (17a); when this PP is absent <u>hebben</u> is selected (17b).

---

4. Co Vet (personal communication) pointed out to me that (16a) is grammatical under an iterative interpretation. This fact is not counter to what I argue here, if the iterative reading is seen as the iteration of a certain number of accomplishments.

(17) a. Zij zijn de deur uitgelopen
they are the door out walked
'They walked out the door'

b. Zij hebben daar gelopen
they have there walked
'They have been walking there'

The notion of accomplishment is more directly reflected in the grammatical system than any of the thematic roles are. This means that it is quite easy for the Dutch language learner to set off intransitive accomplishment verbs from other verbs[5].

We may conclude on the basis of (16a) and (16b) that Dutch impersonal passive is sensitive to the distinction between accomplishment and nonaccomplishment semantics: intransitive constructions expressing accomplishment may not but the ones expressing nonaccomplishment may passivize. That this is not true is easy to show. There is another type of intransitive construction that cannot passivize although it does not express accomplishment. The intransitive verbs occurring in these constructions do not select the auxiliary zijn 'to be' but hebben 'to have'. In Perlmutter (1978) these verbs are classified along with verbs like breken 'to break' and vallen 'to fall' as belonging to the class of nonactivity verbs. The subject of these verbs is derived under Perlmutter's approach. (18a) and (18b) are examples of these constructions.

---

5. Except for intransitive accomplishment verbs, also copula verbs select zijn 'to be' as their auxiliary. This class of verbs in Dutch is easily distinguishable from the accomplishment verbs because they are always accompanied by a predicate. (a) and (b) are examples of two Dutch copula constructions.

(a) Hij is ziek geweest
he is sick been
'He has been sick'

(b) Die jas is mij te groot gebleken
that coat is me too big seemed
'That coat turned out to be too big for me'

(18) a. Deze sigaren hebben nooit gestonken
these cigars have never stunk
'These cigars never stank'

b. Deze stof heeft tot nu toe zacht aangevoeld
this tissue has till now up soft felt
'This tissue felt soft up to now'

The constructions in (18) cannot be passivized, as shown in (19).

(19) *a. Er werd door deze sigaren nooit gestonken
there was by these cigars never stunk

*b. Er werd door deze stof tot nu toe zacht
there was by this tissue till now up soft
aangevoeld
felt

The constructions in (18) are different from constructions that express accomplishment or nonaccomplishment. They do not denote an event like these two constructions but a state. If states are defined as not taking place in reality, no reference can be made to their being accomplished or nonaccomplished. Under this definition states only imply the predication of a property, which is expressed by the VP in (18), over an entity denoted by the subject NP. This can be shown, among other ways, through the insertion of adverbials like zonder veel inspanning 'without much effort'. These adverbials describe the way the entity denoted by the subject NP is involved in keeping an event going, as shown in (20a). When used in a stative construction (20b), the sentence becomes ungrammatical. States do not take place, which means that they do not imply the involvement of the entity denoted by the subject NP[6].

---

6. Vendler defines states as expressing qualities. My definition includes Vendler's (1967) definition of facts. Facts do not take place. I think that the same is true of states. (a) is an example of a fact Vendler gives.

(a) For many years it was a fact that Africa was dominated by European powers.

(20) a. Deze man werkt altijd zonder veel inspanning aan zijn boek
'This man always works on his book without much effort'

*b. Deze man ruikt altijd zonder veel inspanning naar
this man smells always without much effort of
eau de cologne
eau de cologne

The grammatical phenomena of impersonal passive and auxiliary selection together make it possible to divide Dutch intransitive verbs into four classes, as shown in (21). When using the notions of accomplishment, nonaccomplishment and our definition of states, it is possible to create a correspondence between these classes and a semantic primitive.

(21)

	I	II	III	IV
auxiliary selection	hebben	hebben	zijn	zijn
impersonal passive	yes	no	yes	no
semantics	nonaccom-plishment	stative	?	accom-plishment
example	werken (20a)	ruiken (20b)	?	lopen+dirPP (17a)

The language learner can derive the semantic classes in (21) directly from the input data. One possible class in (21) contains no verbs. This is the class of verbs that can undergo impersonal passive and select the auxiliary zijn 'to be'. The reason for the nonexistence of this class will be understood better once we have explained why only verbs of the first class can be passivized. The fourth class in (21) contains only accomplishment verbs. Besides motion verbs that subcategorize a directional PP, many other verbs belong to this class. Among these we find verbs like breken 'to break' and sterven 'to die'. In this class we find most of the nonactivity verbs of Perlmutter (1978) except for the verbs of our class II, the statives.

To understand better why only verbs of class I can undergo impersonal passive, we have to take a closer look at the semantics of class I, class II and class IV

verbs. States, as we saw above, never allow an accomplishment reading. This means that states make no reference to an entity that can be used to identify their end. States only stop occurring, but they do not get to an end like events do. In contrast, the termination of the event of walking to a certain destination, as in (17), can be identified as soon as the zij have reached that destination. In addition to speaking about an entity used to identify the termination of an event, we can equally well speak of an entity used to identify the event's beginning. I will call the former entity the point of termination and the latter the point of origin. Accomplishment constructions imply an event that has an origin. This origin is left unexpressed in intransitive accomplishments. Only the point of termination of the event of breaking is expressed in (22a) but not its point of origin, as is the case in (22b). In (22b) the causer Jan is the point of origin of the event as this entity initiates the event.

(22) a. De vaas brak
' The vase broke'

b. Jan brak de vaas
'John broke the vase'

The point of origin of an event is always expressed in constructions containing verbs of class I in (21) but now the point of termination is not mentioned. In (23) the entity denoted by the subject NP de man is the origin of the event, as he initiates it.

(23) De man werkte
' The man was working'

Concluding we can say that constructions containing verbs of class I in (21) always contain an NP denoting the point of origin of an event; when containing a verb of class IV only the point of termination is part of the construction; when containing a stative verb of class II a point of origin nor a point of termination is included in it.

The generalization is that Dutch intransitive constructions can only be passivized when the point of origin of an event is present. This is the case for (23) but not for (18) and (22a). Under this interpretation, the preposition door 'by' in the door-phrase that contains the NP that is the subject in the corresponding active

sentence subcategorizes a "point of origin". Only verbs from class I passivize: statives do not imply an origin and constructions containing intransitive accomplishments only express the point of termination. If we assume that the selection of the auxiliary zijn automatically implies that a verb expresses accomplishment, it can be understood why class III in (21) does not contain any verbs. Passive requires a point of origin, but this point is not expressed in constructions containing an intransitive verb selecting zijn.

The conceptual structure that is mapped onto syntactic Structure in a Jackendoff model of grammar is called Event Structure. Events consist of a point of origin and a point of termination. These two aspects of events are related through a correspondence rule to the subject and the direct object NP in Syntactic Structure. The correspondence rule is shown in (24)[7].

(24)	Event Structure	point of origin	point of termination
		o----------o	
	Syntactic Structure	subject NP	direct object NP

The direct object NP comes into play in transitive constructions. Here the accomplishment of the event is always related to the direct object NP rather than to the subject NP. This is shown in (25). This sentence only means that the entity denoted by the direct object NP gets tired but not the one denoted by the subject NP. The person denoted by the NP haar 'her' is the point of termination of the event: it is its tiredness that makes the termination of the event identifiable.

(25) Hij danste haar moe
'He danced her tired'

---

7. The notions of point of origin and point of termination can represent the semantic content of thematic roles in the Chomskian framework. Then, NPs are not considered as participants in events but as representing constituents of Event Structure. Other NPs than the subject NP and the direct object NP can be analyzed as constituents of Event Structure as well. At this moment, I can only speculate as to the nature of their constituency. One possibility is to think in terms of the notions used to describe the semantics of case morphemes in studies like Jakobson (1936). Unfortunately, these notions have not been developed with the aspectual notion of Event Structure in mind.

The subject in transitive constructions denotes the point of origin of the event. The subject in (26a) stands for the point of origin of the event of seeing; the subject in (26b) for the origin of the event of eating.

(26) a. Hij heeft gisteren de koningin gezien
'He saw the queen yesterday'

b. Hij heeft een snoepje gegeten
'He ate a candy'

That the direct object NP is the only NP that can denote the point of termination can be generalized to intransitive constructions. This makes it necessary to assume that a number of intransitive verbs have a derived subject. (27a), but not (27b), has a derived subject if we follow this line of thinking. (27a) is an accomplishment and contains a point of termination; (27b) is a nonaccomplishment, which means that it only contains a point of origin[8] .

(27) a. Hij_i liep e_i de deur uit

'He walked out the door'

b. Hij liep de hele dag op en neer
'He was walking up and down all day'

---

8. These assumptions are radically different from Perlmutter's. In the Relational Grammar framework the derivation of the subject of certain intransitive verbs is linked to the notion of activity. We exclude the statives from having a derived subject by our approach, but we include other cases in Dutch that are absent from Perlmutter's enumeration of nonactivity verbs. These are constructions containing a motion verb and a directional PP and constructions like (a). The verb werken 'to work' subcategorizes the perfective particle uit 'out' and selects the auxiliary zijn. When not subcategorizing this particle hebben is the auxiliary of the verb (b).

(a) Hij is uitgewerkt
he is out worked
'He has finished working'

(b) Hij heeft gewerkt
'He worked'

Copula constructions remain a separate problem as they do not express accomplishment but still select zijn like accomplishment verbs. See for this note 5.

Although it is likely that the NP hij in (27a) is also the point of origin of the event, we are forced to say that this is not expressed by the sentence meaning. The accomplishment is linked to this NP: the event is accomplished when the hij is out the door. This analysis of intransitive accomplishments makes it possible to maintain a one-to-one mapping between Event Structure and Syntactic Structures.

When the language learner encounters a transitive construction, it is either a state and cannot passivize (28) or it denotes an event (29). When it denotes an event a point of origin is present. Passive may apply in this case because the rule is sensitive to the presence of the point of origin of an event, as is also the case with impersonal passive.

(28) *a. This book was had by him

*b. Dit boek werd door hem gehad

(29) a. This pie was eaten by him

b. Deze taart werd door hem opgegeten

Again the language learner is faced with a set of syntactic input data from which he can easily discern semantic primitives.

5. Conclusion

We have seen that notions covered by case or thematic roles are not reflected unambiguously in the grammatical system. It is hard, for instance, to explain phenomena like subject selection and middle formation in English using thematic roles. The discussion of the Dutch impersonal passive showed that one of the semantic primitives that is directly reflected by the grammatical system belongs to the domain of aspect. This primitive is Event Structure. As such Event Structure is a more likely candidate than thematic roles for mapping from the conceptual onto the grammatical system.

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