

Angelika Kratzer: “Severing the External Argument from its Verb” (1996)

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10 April 2012

1 Basic Argument

1. If a given constituent is a true argument of V, then V may be sensitive to its semantic characteristics (i.e., its interpretive behavior will depend on the semantic features of the argument).
2. V is never sensitive to the semantic characteristics of external arguments (subjects).
3. Assume external arguments are true arguments of V; then V’s interpretation ought to depend on the semantics of the external argument. But it never does; therefore external arguments must not be true arguments of V.

2 The Data

[From Alec Marantz’s *On the Nature of Grammatical Relations* (1984).] The semantic character of internal arguments can “trigger a particular interpretation of [a] verb” (Kratzer 113):

- (6) “throw”
- a. throw a baseball
 - b. throw support behind a candidate
 - c. throw a boxing match (i.e., take a dive)
 - d. throw a party
 - e. throw a fit
- (7) “take”
- a. take a book from the shelf
 - b. take a bus to New York
 - c. take a nap
 - d. take an aspirin
 - e. take a letter in shorthand
- (8) “kill”

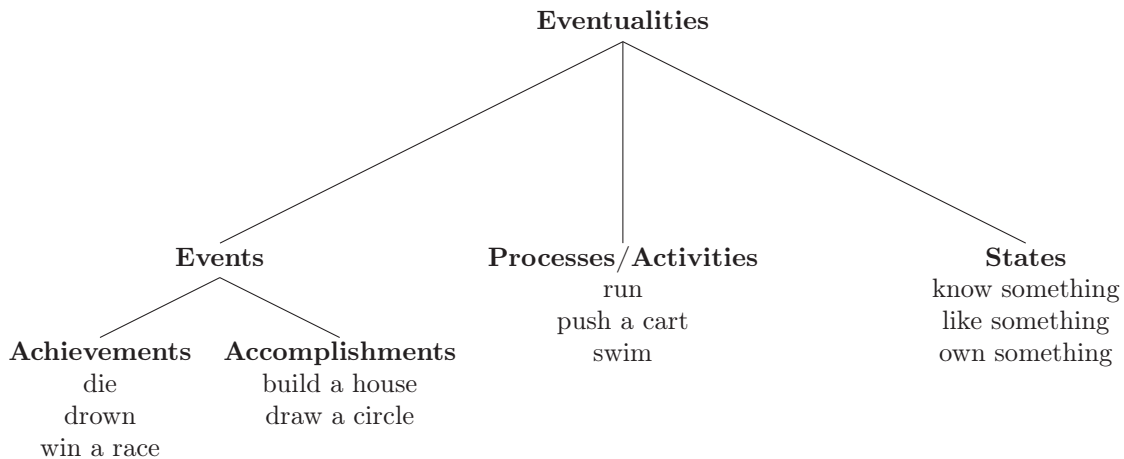
- a. kill a cockroach
- b. kill a conversation
- c. kill an evening watching TV
- d. kill a bottle (i.e., empty it)
- e. kill an audience (i.e., wow them)

3 Semantic Preliminaries

NOTATION	TYPE	METALANGUAGE	OBJECT LANGUAGE	SYNTAX
e	individual	$a, b, c \dots$	“Millie”, “the dog”	DP
t	truth value	1, 0	“Millie fed the dog”	IP/TP
s	eventuality (i.e., event)	s_1, s_2, \dots	?	?
$\langle e, t \rangle$	function from individuals to truth values	$\lambda x. Brown(x), \lambda x. Dog(x)$	“(be) brown”, “(be a) dog”	A, VP?, N
$\langle e, \langle e, t \rangle \rangle$	function from individuals to functions from individuals to truth values	$\lambda x. \lambda y. In(x)(y)$	“in”	P

- Functional Application: If α is a branching node with daughters β and γ such that for some types σ and τ , $[[\gamma]] \in D_{\langle \sigma, \tau \rangle}$ and $[[\beta]] \in D_\sigma$, then $[[\alpha]] = [[\gamma]]([[\beta]])$.
- Predicate Modification: If α is a branching node with daughters β and γ such that $[[\gamma]] \in D_{\langle e, t \rangle}$ and $[[\beta]] \in D_{\langle e, t \rangle}$, then $[[\alpha]] = \lambda x. [[\gamma]](x) \& [[\beta]](x)$.

3.1 Events



NOTATION	TYPE
$\langle s, t \rangle$	function from eventualities to truth values
$\langle e, \langle s, t \rangle \rangle$	function from individuals to functions from eventualities to truth values
$\langle e, \langle e, \langle s, t \rangle \rangle \rangle$	functions from individuals to functions from individuals to functions from eventualities to truth values
$\langle \langle s, t \rangle, t \rangle$	function from functions from eventualities to truth values to truth values

4 Modes of Argument Association

Davidsonian “Ordered argument association” in the syntax and semantics. Verbs are syntactically and semantically three-place predicates. No separate predicates for agents or themes.

$$\lambda x. \lambda y. \lambda e. \text{Buy}(x)(y)(e)$$

Neo-Davidsonian (à la Castañeda or Parsons) Ordered argument association in the syntax but not the semantics. Verbs are syntactically three-place predicates but semantically either two- or one-place predicates. Separate predicates for either both theme and agent or just agent.

$$\lambda x. \lambda y. \lambda e. \text{Buying}(e) \& \text{Theme}(x)(e) \& \text{Agent}(y)(e)$$

or

$$\lambda x. \lambda y. \lambda e. \text{Buy}(x)(e) \& \text{Agent}(y)(e)$$

(Kratzer is a neo-Davidsonian about external arguments but remains agnostic about whether internal arguments have their own predicate in the semantics.)

5 External Arguments

Based on Marantz’s data, Kratzer and Marantz both conclude that subjects are not true arguments of their verbs. With premise 1, the asymmetry of argument behavior is explained.

- Bresnan (1982) and Grimshaw (1990) counter that mere earliness/lateness in semantic processing is sufficient to explain the asymmetry (thus premise 1 is not needed): because internal arguments are processed before external arguments, they are in a better position to affect the interpretation of the verb.
 - But Kratzer notes that Marantz’s data “do not involve completely frozen idiom chunks” (114) and that the source of the variable interpretation of the verb is not the linear order of semantic processing but rather its partial- or conditionally-definedness for certain types of arguments (in the sense “argument of a function”).

“Assuming (just for the purpose of illustration) that *kill* has its traditional denotation (agent and theme argument, no Event Argument), its denotation would be a function f with the following properties: If its argument is an animate being a , f yields a function that assigns truth to any individual b if b kills a . If its argument is a time interval a , f yields a function that assigns truth to any individual b if b wastes a . If its argument is a conversation or discussion a , f delivers a function that assigns truth to any individual b if b dampens a . And so on. If this is the correct account of the phenomenon illustrated in (6) through (8), we

would again expect that it should affect any argument of a verb, regardless of hierarchical position and order of semantic processing. Any argument of a verb could trigger a particular interpretation of the verb.” (115)

“Here is a fictitious example where the highest argument does so. Suppose that the (traditional) denotation of some two-place predicate is a function f that yields the following output for individuals a in its domain:

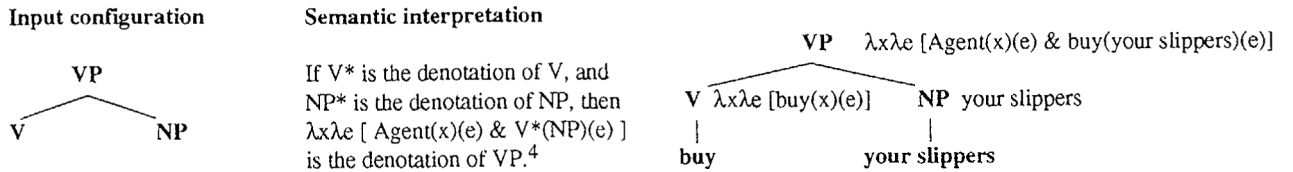
If b is a time interval, then $f(a)(b) = \text{truth}$ iff a exists during b .

If b is a place, then $f(a)(b) = \text{truth}$ iff a is located at b .

If b is a person, then $f(a)(b) = \text{truth}$ iff b is the legal owner of a .
...etc....”

“If the phenomenon [(a particular kind of internal argument triggers a particular interpretation of the verb)]... can be reduced to a **very narrow [atemporal] kind of semantic selection**, it should be able to show up with any one of a verb’s arguments, since a verb can impose any kind of selectional restrictions on any of its arguments *regardless* of its hierarchical position and the order of semantic processing.” (115)

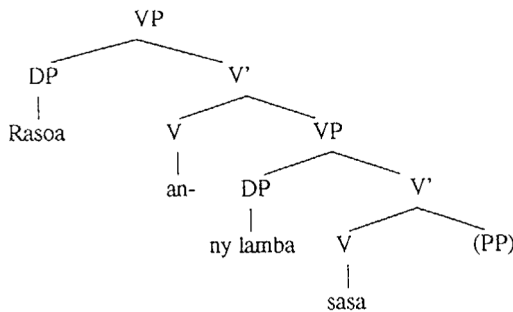
- Marantz’s semantic proposal is to “associate a special composition rule with syntactic configurations that combine a V and an NP into a VP” (Kratzer 113):



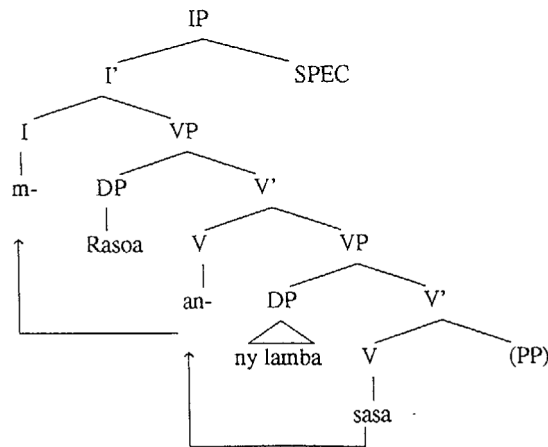
- Kratzer complains that “[t]his execution of Marantz’s proposal does not come for free, however. Its price is a semantic stipulation that would be a blemish for any serious theory of semantic composition. We would be forced to give up the fundamental generalization that heads and their arguments semantically combine via Functional Application. Marantz’s proposal, then, does not tell an optimal story about the introduction of the external argument.” (113)

6 The Syntax and Semantics of Voice

- To “keep the theory of semantic composition as general and elegant as it should be,” arguments must be introduced by heads (116). Are external arguments introduced by **lexical** or **functional** heads?
 - Suppose external arguments are introduced by **lexical** heads. In fact, Malagasy data from Hung (1988) suggest that something analogous to Larson’s (1988) vP hosts a lexical element which introduces the external argument:



M+an+sasa ny lamba (amin ny savony) Rasoa.
 wash+active the clothes with the soap Rasoa
 "Rasoa washes the clothes (with the soap)."

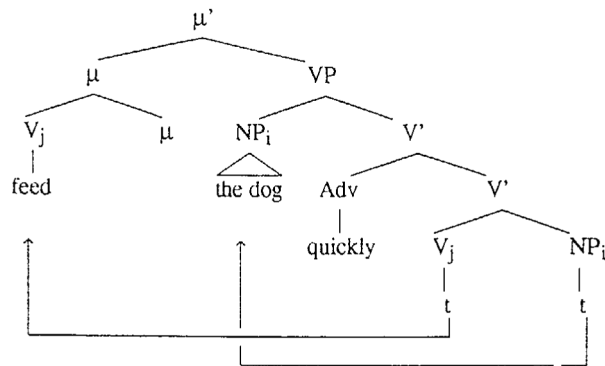


- But if this element is a lexical head, “its defective distribution [obligatory in finite constructions, absent in, e.g., gerunds] comes as a surprise. It is not a familiar phenomenon.” (118) Further, if we make “an assumption... made in much recent work (Chomsky 1991, 1992)... that Structural Case is Case that is assigned (checked) by inflectional (=functional) heads” (118), we can explain an apparent correlation between the assignment of accusative Case and the presence of an external argument, displayed in Ewe serial verb constructions:

Kofi a fo Ama wu.
 Kofi fut hit Ama kill
 “Kofi will strike Ama dead.”
 (Collins 1993: 140)

- “Assuming that the heads that introduce external arguments are functional heads, we are able to connect our analysis to proposals for English phrase structure such as Pesetsky (1989), Johnson (1991), and Bowers (1991, 1993). In making this connection, we can harvest many of the pleasant syntactic consequences of these proposals.” (119)

- Johnson (1991): Johnson’s μ (which assigns accusative Case), given semantic content, is the head that introduces external arguments. **Voice = μ + introduction of external argument + Agentive semantic content.**



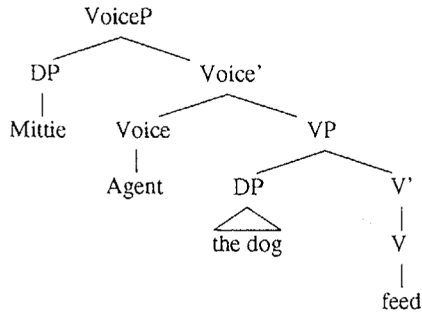
* $[[Voice]] = \lambda x.\lambda e.Agent(x)(e)$

- Bowers (1993): “heads syntactically realize their arguments in their specifier position at D-structure: external arguments are arguments of Voice, and hence are base-generated in SPEC

of VP. They do not have to move there as assumed by Johnson. Yet we still derive the ‘object first’ generalization that he was interested in.” (120)

6.1 Event Identification and the Semantics of Voice

Taking a simple sentence, we add Voice with its new semantic content just above VP where Johnson’s μ , Larson’s vP, and Hung’s second VP are all postulated to be located:



Given that the types of Voice ($\langle e, \langle s, t \rangle \rangle$) and VP ($\langle s, t \rangle$) won’t allow Functional Application, we introduce Kratzer’s special rule:

Event Identification

$$\begin{array}{ccc}
 f & g & \rightarrow \\
 \langle e, \langle s, t \rangle \rangle & \langle s, t \rangle & \\
 & & h \\
 & & \langle e, \langle s, t \rangle \rangle \\
 & & \lambda x_e \lambda e_s [f(x)(e) \ \& \ g(e)]
 \end{array}$$

Event Identification takes one function from eventualities to truth values and one function from individuals to functions from eventualities to truth values and conjoins them into a function from individuals to functions from eventualities to truth values which predicates of the event argument contents from both functions, and which predicates of the individual argument of the first function the agentive meaning of that function:

Example of Event Identification

$$\begin{array}{ccc}
 f & g & \rightarrow \\
 \langle e, \langle s, t \rangle \rangle & \langle s, t \rangle & \\
 \lambda x_e \lambda e_s [\text{Agent}(x)(e)] & \lambda e_s [\text{feed}(\text{the dog})(e)] & \\
 & & h \\
 & & \langle e, \langle s, t \rangle \rangle \\
 & & \lambda x_e \lambda e_s [\text{Agent}(x)(e) \ \& \ \text{feed}(\text{the dog})(e)]
 \end{array}$$

Now with this new rule we are able to do a complete derivation of the semantic value of the entire VoiceP:

VoiceP: semantic interpretation

1. **feed*** = $\lambda x_e \lambda e_s [\text{feed}(x)(e)]$
2. **the dog*** = the dog
3. (**the dog feed**)* = $\lambda e_s [\text{feed}(\text{the dog})(e)]$
From (1), (2) by Functional Application.
4. **Agent*** = $\lambda x_e \lambda e_s [\text{Agent}(x)(e)]$
5. (**Agent (the dog feed)**)* =
 $\lambda x_e \lambda e_s [\text{Agent}(x)(e) \ \& \ \text{feed}(\text{the dog})(e)]$
From (3), (4) by Event Identification.
6. **Mittie*** = Mittie
7. ((**Agent (the dog feed)**) **Mittie**)* =
 $\lambda e_s [\text{Agent}(\text{Mittie})(e) \ \& \ \text{feed}(\text{the dog})(e)]$
From (5), (6) by Functional Application.

6.2 Event-Types and External Argument Thematic Roles

If we condition event identification on the type of eventuality involved, we can “force” the apparent connection between the Aktionsart of a verb and the thematic role of its external argument; verbal predicates are partial functions which are only defined for events of the type we take them to express:

Agent “buy your slippers in Marrakesh” is only defined over accomplishments (s_a); Voice head *Agent* is only defined over s_a (and maybe some others); event identification between Voice head *Agent* and VP “buy your slippers in Marrakesh” proceeds.

Holder “own the dog” is only defined over states (s_s); Voice head *Holder* is only defined over s_s ; event identification between Voice head *Holder* and VP “own the dog” proceeds.

(Kratzer (forthcoming (?)) has a more complete theory of the connection between Aktionsart and external arguments.)

7 The Location of Voice

Existing proposals in the generativist tradition don’t really help is figure out where Voice is located (124), but:

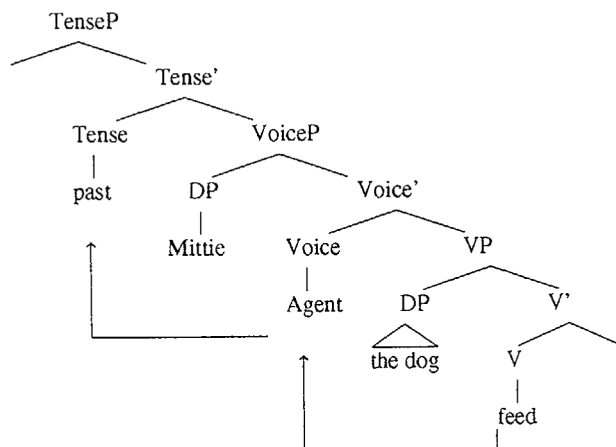
- Greek *-ik-* suggests that morphemes which introduce the external argument may also carry aspectual and tense information

plí - θ - ik - a - n
Root Voice Aspect Tense AGR

$[[ik]] = \lambda x. \lambda e. \text{Agent}(x)(e) \ \& \ \text{Past}(e) \ \& \ \text{Accomplishment}(e)?$

Only the existential quantification and binding that is often presumed to come with tense operators (Higginbotham 1985) puts hard constraints on the location of voice:

“Once the Event Argument is existentially quantified, the operation of Event Identification becomes inapplicable. From this, we conclude that Voice cannot appear above whatever existentially quantifies the event argument. . .” (126)



“If we have more than one inflectional head in addition to Voice (possibly all of Tense, Agr, Mood, and Aspect), we have to find out which head does the existential quantification. . . For the time being, let us tentatively assume that Voice is located directly above VP, but stay open to the possibility that it may turn out that there are intervening inflectional heads after all.” (126)

8 Gerunds and Participles: Windows into the Hierarchy of Inflectional Heads

“Gerunds are formed by nominalizing different segments of a verb’s extended projection. . .” (127) These now include V, VP, VoiceP, IP, etc.

- Of-ing gerunds:

- Direct objects in of-ing gerunds cannot receive accusative Case → the nominalized constituent must not contain Voice → the nominalized constituent must be *at most* a VP. “[I]n of-ing gerunds, the absence of accusative Case is accompanied by the absence of the verb’s external argument.”

(34) Maria’s reading of *Pride and Prejudice* received better reviews than Anna’s.

(35) Maria enjoyed a reading of *Pride and Prejudice*.

(36) The killing of her cat upset Maria.

- Adverbs can appear in of-ing gerunds → the nominalized constituent must be *at least* a VP.

(37) The shutting of the gates regularly at ten o’clock had rendered our residence very irksome to me.

(38) From the daily reading of the Bible aloud to his mother. . .

- Poss-ing and acc-ing gerunds:

- Direct objects receive accusative Case → the nominalized constituent must include Voice → the nominalized constituent must introduce an external argument

- (39) We remembered Maria’s reading *Pride and Prejudice*.
 (40) We remembered Maria reading *Pride and Prejudice*.
 (41) Maria enjoyed reading *Pride and Prejudice*.
 (42) Killing her cat upset Maria.

Borer’s (1984) lexical account, which assumes external arguments to be true arguments of verbs and posits that nominalization occurs in the lexicon, might work, but there are two unexplained phenomena:

- Why, even though the lexicon is assumed to be the place where lexical requirements can be violated, are internal arguments mandatorily preserved?

- (44a) The felled *(trees).
 (44b) The felling *(of the trees).
 (45a) They destroyed *(the city).
 (45b) The destroying *(of the city).

- If nominalization occurs in the lexicon, why can gerunds be formed by attaching -ing to a phrasal constituent?

- (37) The shutting of the gates regularly at ten o’clock...
 (38) From the daily reading of the Bible aloud to his mother...

9 Abolishing the Notion ‘External Argument’

9.1 The Realization Principle

“On the present proposal, we don’t have to say anything special about the realization of external arguments. All we seem to need is a very general principle for the syntactic realization of all arguments (excluding the Event Argument, which doesn’t have to be syntactically realized.”

- (49) The Realization Principle
 Arguments of a head must be realized within the projection of that head.

“The fact that the external argument must be realized outside of VP follows from the Realization Principle and the fact that external arguments are introduced by inflectional heads.” (132)

9.2 Conclusion

“The discussion in the previous sections makes it possible to do away with the notion of external argument (Williams 1981). This notion has no theoretical significance any longer. It does not figure in any theoretical statement. While I have continued to use Williams’ term ‘external argument’ informally for arguments like the agent argument in active sentences, this term has now acquired a different meaning. Strictly speaking,

the agent argument of a verb is not really one of its arguments anymore. Here is an illustration of the different kinds of arguments in the present framework:” (131)

We bought your slippers in Marrakesh.

$\exists e$ [bought(your slippers)(e)₁ & Agent(we)(e)₂ & in(Marrakesh)(e)₃]

- a. (your slippers): internal argument of *bought*
- b. (e)₁: Event Argument
- c. (we): internal argument of *Agent*; informally, external argument of *bought*
- d. (e)₂: Event Argument
- e. (Marrakesh): internal argument of *in*
- f. (e)₃: Event Argument