The Middle: where semantics and morphology meet

Cleo Condoravdi

Yale/Stanford

Introduction[1]

The middle construction presents problems on several fronts: a patient or theme argument of an otherwise transitive verb is realized syntactically as a subject; the agent argument licenses an instrumental phrase, yet is inexpressible; an otherwise optional modifier such as an adverb is obligatory; an episodic interpretation is not available; finally, only some verbs appear in this construction. (1) and (2) exemplify these puzzling properties.

(1) a. This bread cuts easily.
   b. *This bread cuts easily by John.
   c. ??This bread cuts.
   d. *This wall hits easily.

(2) a. The glass broke.
   b. This glass breaks easily.
   c. *The glass broke with a hammer.
   d. This glass breaks easily with a hammer.

More generally, the following are the four basic questions surrounding the middle:

1. How is the middle to be analyzed grammatically?

2. What is the interpretation of the middle?

3. Is there an agent present? If yes, in what sense and at what level of representation?

4. Do the verbs forming the middle constitute a coherent class? How is the class characterized? Why should there be a restriction at all?

How are these questions related? Previous approaches have often taken 1 to be the central question, subsuming 3 and 4. The question of the interpretation of the middle is generally assumed to be orthogonal to the other three issues.

In this paper, I propose an analysis of the middle which circumscribes its grammatical and semantic aspects in a novel way. First I provide a semantic analysis of the middle which accounts for the presence of the adverbial, resolves the question of the presence of an agent role, suggests a new characterization of the class of admissible adverbs and the class of middle-forming verbs and explains why there should be a restriction in the first place. The analysis implies that the middle is a notional category which can be identified independently of its grammatical features. Then I argue that there is no distinct lexical category of middle verbs and that middle formation can be reduced to other more general lexical and morpho-syntactic properties in a given language.

The interpretation of the middle

Middles are indisputably generic sentences,[2] yet what exactly is the regularity they express? Furthermore, how is this regularity related to the apparent dual character of the θ-role borne by the subject NP? As has been noted by van Oosten (1977), while the subject in the middle is a patient or theme argument of the verb, it takes on an additional quasi-agent role, which Hale & Keyser (1986) propose to formalize as a *constructional agent-role*. Van Oosten invokes a notion of 'primary responsibility', which, however, is rather vague and misleading since responsibility is, in common parlance, associated with volitional agents:

> when the patient is made the subject of the sentence it, or a property it has,
> is understood to be responsible for the action of the verb ... The patient–subject
> construction, then, is used when we want to say that the patient of the action
> is to some extent acting as agent. (p. 460–461)

The insight, nevertheless, is valid and can be made more precise if cast in the following terms: the regularity expressed by the middle is a non-accidental one and it is due to some inherent characteristic properties of the entity denoted by the subject NP. We now have to make more precise what kind of regularity the middle expresses.

In order to do this, we adopt the quantificational analysis of generics put forth by Heim (1982) and further elaborated by Pelletier & Schubert (1986), Krifka (1987b), Schubert & Pelletier (1989) among others, according to which generics are represented in logical form by a tripartite structure consisting of a generic operator, a restrictive clause restricting the domain of quantification of the operator, and a nuclear scope comprising the main assertion. The implicit generic operator or overt elements like adverbs of quantification, which supplant it, are unselective in the sense that they bind any free variable within their scope.[3] Genericity is a property of sentences, therefore, and the elements within a sentence interpreted generically are so interpreted derivatively. Heim (1982) developed this analysis for singular indefinite NP's, whose generic reading turns out not to be inherent to them but arises whenever they are within the scope of a generic operator. Consider (3a) and (3b), where the indefinite NP 'a cat' is interpreted generically. Its logical form is given in (4a).[4]

(3) a. A cat that drinks gin loses its teeth.
    b. If a cat drinks gin, it loses its teeth.
    c. A cat always lands on its feet.
    d. After dinner, John often smokes.

(4) a. G [x: cat(x), x drinks gin] [x loses x's teeth]
    b. *Always* [x: cat(x), x is in the air and falling] [x lands on x's feet]
    c. *Often* [t: after dinner(t)] [John smokes at t]

The indefinite 'a cat' contributes a variable x in the restrictor, which gets bound by the generic operator, hence the generic reading of the indefinite. Krifka (1987b) and Schubert &

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[2] A morphological correlate of this in languages in which the verb is marked with the perfective/imperfective aspectual category is that the verb in the middle, as in all generic sentences, is marked with imperfective aspect.

[3] For a discussion of adverbs of quantification and unselective binding see Lewis (1975).

[4] The logical forms in (4) are not complete, for instance, there are not variables corresponding to every NP. But my main interest in these representations is the segregation of material into the restrictor and the nuclear scope.

Pelletier (1989) generalize this analysis for other indefinite NP's and for habituals (cf. (3d) and (4c)). Crucial in the interpretation of generics, as they stress, is that more information enters the restrictor than is present in the linguistic context. In its salient interpretation, Schubert & Pelletier's (3c) does not assert, absurdly, that cats just land on their feet all the time. Rather, a cat, if it falls, or gets dropped, or finds itself in the air in some other way, then it will always manage to land on its feet. Landing presupposes descending and that presupposition is accommodated within the restrictor. Generics, therefore, are evaluated with respect to both linguistically present and accommodated elements, the *reference ensembles* of Schubert & Pelletier or *occasions* of Krifka.[5]

The quantificational analysis of generics allows us to phrase the question about the regularity expressed by the middle more precisely: what is the generic quantification over? Fellbaum (1985) and Fagan (1988), in effect, suggest that it is over the implied agents.[6] The hypothesis I will entertain here is that the generic quantification is primarily over events. The generalization expressed by (5a) below is that given the occurrence of some event of cutting by some agent, the event progresses in a smooth fashion, that is, the object bread determines the temporal structure of the cutting events it participates in.[7] So, as a first approximation, the logical form of (5a) is as in (5b), where we are assuming a neo-Davidsonian event-based semantics for predicates and thematic roles: verbs denote predicates taking events as their sole argument, and thematic roles are relations between individuals and events.[8] The predicate denoted by the middle verb enters the restrictor as a predicate of events, while the adverb appears in the nuclear scope providing a predicate for the event variable appearing in the restrictor.[9]

(5) a. This bread cuts smoothly.
 b. G [e: bread(x), cut(e), Patient(e, x)] [smooth(e)]

The entity denoted by the subject NP is the patient in the cutting events and, in no sense, the agent; its apparent quasi-agentive role stems from the fact that the generalization expressed by (5a) is understood as stemming from some inherent characteristic properties of that entity.[10] What is or counts as an inherent characteristic property is obviously too large a question to be answered here; perhaps what is construed as an essential structural property in our mental conception or naive modelling of physical objects. Verbs in the middle often denote some change with respect to material integrity, spatial position, qualities of shape and size, and, certainly, internal structural properties of objects determine the progress of such changes.

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[5]How these reference ensembles are determined is, of course, a big and unresolved issue. Schubert & Pelletier (1989) confine themselves to the following: "the relevant ensemble is determined in part or entirely by context and presuppositions, or in part or entirely by restrictive clauses and adverbials." (p. 194)

[6]In Fagan's analysis, in particular, the generic interpretation of the middle is, at least partly, the result of an assignment of the collection of features [+generic, +human] to the external θ-role. In another paper, "Arbitrary Reference and the theory of *pro*," I have argued that analyses of pronouns and implicit arguments with a generic interpretation utilizing such operations on thematic structures are wrong for pronouns and superfluous for implicit arguments.

[7]Unlike van Oosten's formulation then, the object *bread* is not responsible for bringing about an event of cutting, nor for acting as an agent in a cutting event.

[8]Cf. Dowty (1989) for an extensive discussion on this topic.

[9]Exactly how the adverb is to be interpreted is discussed in the next section. With respect to this example, note that the process of cutting can be smooth with the result of cutting being jagged.

[10]Often in the middle a subject of the form 'this X' has a 'this kind of X' or 'X's of this kind' interpretation: the regularity expressed by the middle is not characteristic of one single object but of the kind or a subtype of the kind that entity instantiates.

Given the neo-Davidsonian event-based semantics that we are assuming, the implicit agent can be had as an entailment of the lexical meaning of the verb. If a necessary ingredient of the meaning of the verb *cut* is that the event denoted by it always includes an agent participant, the implicit agent in the middle finds a place in the logical form representation – in the form of the clause Agent(e, x) – without having to be associated with a position in the syntactic represenation or a slot in the argument structure of the verb:[11]

(6) a. Bread always cuts smoothly.
    b. *Always* [e, x, y: bread(y), cut(e), Patient(e, y), Agent(e, x)] [smooth(e)]
    c. For all value assignments g to the triplet (e, y, x) such that $g(e)$ is an
       event of cutting,[12] $g(y)$ is bread and a patient in an event of cutting,
       and $g(x)$ is an agent in an event of cutting, then $g(e)$ is smooth.
    d. This bread rarely cuts smoothly.

(6b) is true (in a model) iff (6c) holds. (6c) reflects the assumption that the interpretation of the middle involves unselective binding of n-tuples of variables corresponding to events and event participants. Accordingly, (6d), with an adverb of quantification like *rarely* (i.e. an adverb with less than universal and more than existential force), would be true if few instances of cutting the bread are such that the cutting proceeds smoothly even if there are many people for whom, when they cut the bread, the cutting does not proceed smoothly. What matters is the overall count of events and event participants, which must be less than a contextually specified amount.

From the perspective of the approach I am pursuing, the reason for the requirement for some adverbial modification becomes immediately obvious. The presence of the adverbial is due to a well-formedness condition on logical form representations, namely, that the nuclear scope must not be devoid of content since, otherwise, the sentence would be uninterpretable. Without an adverb, which contributes to the content of the nuclear scope, we have set up a domain of quantification for whose members we end up predicating nothing. It follows that the obligatoriness of the adverb is not absolute; an adverb is not obligatory if something else contributes the content for the nuclear scope. This approach differs from most other approaches taken in the literature in that it does *not* implicate the presence of an implicit agent in the need for adverbial modification. In previous work (*i*) the obligatoriness for some adverbial modification and (*ii*) the kinds of admissible adverbs in the middle have been tied to the presence of an implicit agent. For instance, Pitz (1988) has attributed the obligatoriness of the adverb to the need of the recoverability of the deleted agent role.[13] Roberts' (1985) analysis is similar in attributing the presence of the adverbial modification to the need for *identification* of the agent θ-role.[14] It follows from such analyses that the types of adverbs admissible in the middle should be those which can guarantee this recoverability. In other words, such analyses imply that both (*i*) and (*ii*) must be traced to the presence of an implicit agent role.[15] In the next section I argue that the implicit agent is not implicated in the characterization of admissible adverbs.

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[11] This will be crucial in our analysis of the English middle.

[12] Perhaps we should introduce both events and event types in our ontology, an issue I will not pursue here. Cf. Link (1987).

[13] Pitz analyzes the middle as involving a lexical rule of agent deletion.

[14] In Roberts' theory, identification ultimately involves coindexation with and government by a non-head.

[15] Following a converse route of reasoning, Hale & Keyser (1987) attribute the presence of an implied agent to the presence of the adverbial.

It has been noted that in the presence of negation the adverbial is not obligatory any more. Presumably, that means that negation induces a segregation of material into the restrictor and the nuclear scope such that the nuclear scope is not devoid of content. But what does a negated middle mean exactly? This question, in fact, subsumes the following two porblems: (*i*) how is negation interpreted in an event-based semantics, and (*ii*) what is the quantification over in the middle? Intuitively, (7) below means that no attempt to cut this rock will be successful, in other words, for any attempt to bring about a cutting event, no cutting event will occur.[16]

(7) This rock does not cut.

Crucial here is the granularity of the event we must consider, and that is heavily context-dependent. For example, cutting 2 mm into a rock would not count as a successful attempt or an occurrence of a rock cutting event in some situations (e.g. road construction) but it would in others (e.g. testing the resistance of the rock material).

A further consequence of this approach is that it predicts that unaccusative verbs may appear in the middle construction, since inherent characteristic properties of objects may determine the progress of certain events regardless of whether there is an agent participant in the event or not. That is semantically, there is nothing to exclude an unaccusative verb from having the middle interpretation. This is precisely what we find. In (8) 'blacken' is construed as an unaccusative verb and the interpretation of the sentence is that when the raisins blacken in the dark, they blacken slowly. The only difference with the other middle sentences we have considered so far is that there is no agent involved in the blackening event.[17]

(8) These raisins blacken slowly in the dark.

The role of the adverbs

As I mentioned in the previous section, several analyses of the middle have tied the presence of an implicit agent to the characterization of the class of admissible adverbs. Pitz (1988), for example, impressed with the frequent appearance of the adverb *easily* in the middle and the apparent synonymy between sentences like (9a) and (9b) proposes that the adverbs in the middle have a thematic structure of their own, containing a benefactive role.[18] An identification between the holder of the BEN role in the frame of the adverbial and the holder of the agent role guarantees the recoverability of the deleted agent. This predicts that the class of adverbs appearing in the middle should be coextensive with the class of adverbs having a benefactive role. But this is not true. On the one hand, there are adverbs which have a benefactive role but cannot appear in the middle: (9c), on Pitz's account,[19] would mean 'it is safe for anybody to shatter this rock,' and should be grammatical since *safely* can be construed as having a benefactive role identifiable with the agent of the shattering, but it isn't. On the other hand, there are adverbs for which no synonymy of the type

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[16]For a formalization of the idea that negated events are interpreted as the absence of occurrences of such events see Krifka (1987a) and Link (1987).

[17]I leave open the question here as to whether sentences like 'In the sun these raisins blacken quickly' with the interpretation 'whenever these raisins are put in the sun, they blacken and the blackening proceeds quickly' should count as a middles.

[18]Massam (1987) also claims, though less explicitly, that there is an "intuitive similarity" between middles and tough-constructions, which she then extends to a similarity in syntactic structure.

[19]This is also true of Fellbaum's account.

exemplified in (9a) and (9b) can be maintained: example (9d) from German, the language Pitz looks closely at, like its English equivalent, is *not* synonymous with (9e), contrary to the predictions of the account.[20]

(9) a. This bread cuts easily.
    b. This bread is easy to cut.
    c. *This rock shatters safely.
    d. Das Buch liest sich gut.
       the book read-3sg. REFL well.
       'The book reads well.'
    e. It would be good for anybody to read this book.

Roberts' (1985) positional characterization, whereby the admissible adverbs are delimited by their positional properties, that is by their requirement for a VP-internal position and by their ability to coindex with stative verbs, is too restrictive. The class picked out is Jackendoff's (1972) class IV including *completely, easily, totally*; adverbs like *quickly* (belonging to class II) or *well* (belonging to class V), though perfectly acceptable in the middle, are excluded by this characterization. Fellbaum (1986), while not tying the obligatoriness of the adverbial to the recoverability of the agent role, relates the presence of an implicit agent to the characterization of admissible adverbs, claiming that the adverb in the middle presupposes an agent. As she states it, the adverb "presupposes and modifies an agent's active, volitional involvement" (p. 6). Fellbaum discusses many of the subtleties involved in the interpretation of the adverbs in the middle and, building on Vendler's (1984) adverb classification, she proposes that the admissible adverbs are those constituting the class of 'facility' adverbs. She does not,however, explain how facility adverbs are related to manner adverbs and how they tie in with the interpretation of the middle.[21]

If the middle is about the way an object determines the progress of an event it participates in, the admissible adverbs must be those which specify something about the mapping of events onto time, or about the amount of change effected by an event over time. Therefore, a more profitable way of viewing admissible adverbs in the middle such as *quickly, smoothly, easily, evenly* is as *rate* adverbs.[22] In order to be more precise about the semantics of such adverbs, we need (*i*) an appropriate representation of the relation between objects, events and time, and their parts, (*ii*) a representation of the internal subconstituent structure of events.

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[20] A potential problem for my account are sentences like (i) below. One could argue that the 'for'-phrase is the benefactive role of the adverbial. But notice that the 'for'-phrase is also possible in the absence of any adverbial, as in (ii), or with an adverb like *smoothly* with no benefactive role, as in (iii).

(i) This bread cuts easily for John.
(ii) This bread won't cut even for John.
(iii) This book reads smoothly for John.

Perhaps, as Bature (1989) suggests, the 'for'-phrase expresses the implicit agent. The interpretation of the 'for'-phrase in the examples above is assumed to be different from the interpetation of the comparative 'for'-phrase as in 'John reads well for a college graduate.'

[21] For example, while Fellbaum correctly points out that the meaning of *easily* in the middle is closely related to that of *evenly*, she does not discuss how it still falls in the class of 'facility' adverbs.

[22] This is not to say that these are the only admissible adverbs. Time–span adverbs, such as *in a jiffy, in three hours*, are also acceptable in the middle. Krifka (1987a) analyzes these adverbs as denoting measure functions over events.

The theories of Hinrichs (1985) and Krifka (1987a), designed to account for the aspectual properties of verbs and their arguments and based on the idea that objects are made up of subparts and events are made up of subevents, represent objects, events and time as algebraically structured by a join semi-lattice. Further algebraic relations are defined between the event-representing lattice on the one hand and the time-representing and object-representing lattices on the other. Conditions on those relations capture the different properties of the different thematic roles and their consequences in terms of aspectual interpretation. Crucial in the analysis of several aspectual phenomena are those functions from the event-lattice to the object and time-lattices which are homomorphisms. The idea of events being composed of constituent eventualities of different types (e.g. processes, states, etc), related with some "contingency" relations[23] has been explored recently by Moens & Steedman (1987), Pustejovsky (1988), Wechsler (1989).

More concretely then, the interpretation of the adverb *smoothly* in (10) is that the distance covered is constant across subevents of crossing of certain granularity. In this case, such subevents must correspond to intervals of time of equal length since we wouldn't want to say that the desert crossing progresses smoothly if we look at a subevent of crossing lasting 2 minutes and a subevent lasting 2 hours and the distance covered in each one of them is the same.[24]. Notice that *smoothly* is interpreted here not as a manner adverb but as a rate adverb – the desert can be said to cross smoothly even for those with rather awkward crossing manners. This diversity in interpretation of some adverbs and the switch they exhibit in certain environments from a manner to a rate reading is a consequence of how fine an event structure they are sensitive to. When they are interpreted as purely manner adverbs, i.e. agent sensitive, the subevents considered are those constituting the crossing, not themselves crossing but the events of body-part movements making up the crossing.

(10) This desert crosses smoothly.

Adverbs may or may not be particular with respect to the event structure they look into. *Quickly* and *rapidly* exemplify this contrast rather sharply. While both are rate adverbs, they differ with respect to how fine-grained an event structure they are sensitive to. *Quickly* is not particular about the type of event it looks into, whereas *rapidly* requires to look into subevents below the atomic crossing events. Assuming that *rapidly* focuses in on subconstituents of events below the minimal subevents, for example, movements of crossing which are not themselves crossing – those performed by the agent of crossing – then we cannot say that inherent structural properties of the desert determine the rate of those. In other words, to account for the contrast observed in (11a) we need to make appeal both to the special requirements of *rapidly* and the clash with the semantics of the middle. On the other hand, inherent structural properties of raisins can determine crucially the subprocesses, e.g. chemical reactions, making up the blackening of raisins.

(11) a. This desert crosses quickly/??rapidly.
     b. These raisins blacken quickly/rapidly in the sun.

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[23] For Moens & Steedman these are intended to capture temporal, causal, as well as other relations of a vaguer nature.

[24] Depending on context, we might add that this constant rate of distance covered over time units is greater or lower than some average. In other words, I don't consider *smoothly* to be necessarily comparative, as opposed to adverbs like *quickly* or *easily*.

Furthermore, if one of the subconstituents of events is a state, an adverb may focus in on that state and predicate something of it. This is the case of *well* in (12), which, as has been argued in Fellbaum (1986), predicates something of the result state of washing.

(12) This fabric washes well.

Verbs allowing the middle

Giving an adequate characterization of the class of verbs appearing in the middle has been a sticky problem. Regardless of the characterization and its success, however, the pervasive view so far has been that the constraint on the class of verbs has to be stated as a constraint governing middle formation. An example of such a constraint is the *affectedness constraint*. For Jaeggli (1986) the affectedness constraint governs operations deleting an agent role; in Roberts (1985) the θ-role Th in the operation Ext(Th) is defined in such a way as to include only affected themes. Such accounts, naturally, fall prey to the criticism that 'affectedness' is either too restricted a notion or ad hoc and unrevealing.

Tenny (1987) has shown that the affected arguments cannot be simply those undergoing a change of state. The internal arguments of verbs like *read* or *cross* do not undergo a change of state yet they count as affected arguments with respect to the grammatical phenomena in which affectedness is implicated. Tenny preserves the affectedness constraint as a constraint on grammatical operations but reconstructs the notion of affectedness. Affectedness, in her view, is construed as delimitedness and an affected argument is a delimiting argument. But why should middle formation be subject to any constraints at all?

Let us look at the class of middle forming verbs more closely. Tenny isolates and separates the verbs forming the middle into the classes in (13) and argues that their common element is in including a delimiting argument.

(13)

1. Verbs of consumption and creation *cross, read, traverse, perform, transmit,* ...

2. Verbs of change of physical state *open, burn, redden, dry, ripen,* ...

3. Verbs of abstract change of state *bribe, convince, surprise, annoy,* ...

4. Achievement verbs *break, explode, crack,* ...

5. Verbs of motion *spin, rotate, float,* ...

The idea I would like to put forth here is that the constraint on the middle is not, in fact, a constraint on any middle-forming operation, it is not a grammatical constraint *per se*, rather it is a consequence of the interpretation of the middle. First of all, notice that a characterization in terms of delimitedness is not exactly adequate since it wrongly predicts that verbs with an ambiguity between a 'become-Adj' and a 'become-Adj-er' reading[25] should have only the former reading in the middle. Moreover, there is another way of viewing the class of middle-forming verbs, that is, as constituted of verbs denoting a change of state (2, 3, 4, 5) and of verbs with an incremental theme or path argument (1, 2, 3,[26]

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[25]For a discussion of such verbs see Abusch (1985).

[26]With respect to this class the incremental theme is not the bearer of the mental state but the mental state itself, which can be gradually affected.

5). But verbs with an incremental theme or path argument are precisely those which, as Krifka (1987a) and Dowty (1988) have argued, allow a theme/path-to-event homomorphism, and, therefore, denote events for which progress specifying predicates like rate adverbs can be meaningfully defined. For change of state verbs for which the theme arguement is not incremental with respect to the change of state we can perhaps say that the theme argument is incremental with respect to the subevents leading to the change of state.

I must now spell out a consequence of the analysis of the middle offered in this paper which so far has emerged only covertly. The middle is a type of interpretation certain sentences receive and can, therefore, be seen as a notional category independently of its grammatical properties. It follows that there cannot be great divergences across languages with respect to the adverbs admissible in the middle and the middle-forming verbs.[27] It has been claimed, however, that languages other than English are both more lax in the constraints they impose on middle formation and are significantly different in terms of the types of admissible adverbs. Fellbaum & Zribi-Hertz (1987), for example, have made such claims for French and Pitz (1988) for German. However, a sentence like the French (14a) or the German (14b) may have identical morphology with the middle,[28] they may both be generic sentences and yet they do not have the middle interpretation.

(14) a. Aristophane se traduit rarement dans les lycées.
　　　　Aristophanes REFL translates rarely in the high schools.
　　　　'Aristophanes is rarely translated in high schools.
　　　b. Hier lebt es sich gut.
　　　　Here lives it REFL well
　　　　'Here one lives well.'

The Grammatical Analysis of the Middle

So far I have argued that the middle can be identified independently of its merely grammatical features. Now I will argue that there is no *distinct lexical* category of middle verbs. The argument has three steps. (*i*) We can abstract the restrictions on the verbs appearing in the middle away from the actual middle formation. This was argued for in the previous section. (*ii*) We can abstract the inexpressibility of the agent role away from the operation(s) of middle formation.[29] That is, there is no rule of agent deletion as part of middle formation. (*i*) and (*ii*) show that middle formation has no special distinguishing property. (*iii*) Middle formation does not constitute a uniform process: it is formally diverse both across languages and even within the same language. Moreover, it can be reduced to other more general morpho-syntactic processes and transitivity alternations to be found in a language.

Let us refer to any construction with the semantic properties outlined above as the middle. The problem, then, that the middle poses in terms of its grammar is, on the one hand, the presence of an implicit argument and, on the other, the inexpressibility of that argument. The need to distinguish between the implicit argument of passive and that of the middle has prompted theorists to pursue one of the following two routes: either

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[27] As will be discussed in the next section, divergences may arise as a result of differences in the operations forming the middle.

[28] As we will see, this is for a reason.

[29] I use the term 'middle formation operation' for those operations which, alone or in combination with other operations and principles, give rise to the middle.

assume a deletion process plus some recoverability condition (so the implicit argument of passive is present but unlinked, whereas the implicit argument of the middle is deleted but recoverable), or assume that whereas the middle verb has the implicit argument represented in the LCS but not in the θ-grid (or some other corresponding level of representation) the passive has it represented in both.[30] The underlying assumption of such approaches is that there is a *distinct* category of middle verbs, defined, formally, in terms of its argument structure, or in terms of its lexical meaning.

Notice that nothing in the semantic analysis of the middle prohibits the expression of the agent role; this possibility is specifically allowed[31] and there are languages in which it is actually manifested. In Greek, as seen in (15), the agent *can* be expressed in the middle.[32] All the verbs in (15) have in common that they are marked with the mediopassive suffix.[33] This suffix also marks the passive, inherent reflexives and some inchoative verbs.[34] In fact, the sentences in (15) are formally identical with the equivalent passive sentences, for reasons to be explained shortly.

(15) a. Afto to psomi kovete efkola akoma ki apo pedia.
    this the bread cut-MP3sg. easily still and by children
    'This bread can be cut easily even by children.'

    b. Afto to vivlio diavazete akoma ki apo enilikus.
    this the book read-MP3sg. still and by adults
    'This book can be read even by adults.'

    c. Afto to potami diashizete efkola akoma ki apo anembirus.
    this the river cross-MP3sg. easily still and by inexperienced
    'This river can be crossed easily even by inexperienced people.'

    d. Afto to provlima linete akoma ki apo hazus.
    this the problem solve-MP3sg. even and by idiots
    'This problem can be solved even by idiots.'

Greek verbs divide in two classes, as shown in (16). Verbs in class I appear in the middle in their regular active form (as in English),[35] whereas verbs in class II appear in the middle with the overt mediopassive suffix.

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[30] In a more daring move, Hale & Keyser (1987) go even further in assuming that the agent role is missing from the LCS.

[31] In terms of the logical form representation, expression of the agent would amount to some restrictive clause, that providing descriptive content for the variable corresponding to the agent of the event.

[32] Russian is another language where the agent may be expressed in the middle, as the example below, discussed in Greenspon (1987), illustrates.

    Eta zadača trudna dlya pervokursnikov, no ona lexko
    this problem difficult for 1st-year-students but it easily
    rešaetsja studentami vtorovo kursa.
    solve-MP3sg. students-INSTR. second-GEN course
    'This problem is difficult for first year students but it can be solved
    easily by second year students'

The equivalent of the 'by'-phrase in Russian is an instrumental-case-marked NP.

[33] The suffix is actually a portmanteau suffix marking mediopassive, person and number specifications.

[34] It also appears on some transitive verbs.

[35] Morphologically, the active is the unmarked category.

(16) Class I *anigo* 'open', *girizo* 'turn', *ligizo* 'bend', ...
     Class II *kovo* 'cut', *diashizo* 'cross', *gializo* 'polish; shine', ...

Crucially, with class I verbs the agent is inexpressible:

(17) a. *Afti i porta anigi akoma ki apo pedia.
       this the door open-3sg. still and by children
       'This door opens even by children.'

    b. *Afti i sfera girizi efkola akoma ki apo pedia
       this the sphere turns easily still and by children
       'This sphere opens even by children.'

The division of the middle-forming verbs in Greek in two classes is of great significance. First of all, assuming that there is a middle-forming operation, (15) and (17) are united only in terms of the interpretation they receive. In other words, any account of the Greek middle would have to rely on a notional definition of the middle since the two middle-forming processes are entirely different. Secondly, the division and its morphosyntactic consequences imply that the idea of the middle as a distinct *lexical* category is quite misleading. Consider what we would have to assume for such a category in Greek. The category either arises out of processes of a different type (one deletes the agent role, the other simply demotes it), or comprises lexical items with different lexical structures.

Now this lack of uniformity in middle formation *within* Greek, far from being exceptional, is a mere reflex of a more general phenomenon: there is no uniform way of expressing the middle *across* languages.[36] The import of the difference is not simply a matter of form, for example, Romance languages use a reflexive clitic, English doesn't. Rather, the middle is the result of different lexical and morphosyntactic properties of these languages. This is a conclusion that everybody who has looked at the middle from a cross-linguistic perspective has reached, though this particular distinction, the one in terms of the *realization* of the middle has often been confounded with matters pertaining to its interpretation (e.g. adverbs, type of verb). For example, Hale & Keyser (1987, 1988) consider the English middle to be the result a lexical transitivity altenation (that between unergatives and unaccusatives), and the Romance middle the result of a general morpho-syntactic operation. As they state:[37] "the English middle is simply a realization of a particular LCS while the Romance middle voice is the result of a morpho-syntactic rule which affects a particular syntactic position, namely, the external argument."

But if there is no unified process of middle formation either across languages (e.g. English vs. German or Romance) or, more dramatically, within the same language (e.g. Greek), are there middle-forming processes at all? My claim is that there is no "rule of middle formation" or a family of rules expressly dedicated to the middle. Hence, the middle is not a distinct lexical category, either as a formal class of verbs or as an operation on lexical structure. Expression of the middle may exploit a general morphosyntactic operation or a lexical transitivity alternation (e.g. that between unergatives and unaccusatives). Therefore, the verbs in sentences with the middle interpretation are either the result of some morphosyntactic operation[38] (passive in Greek, detransitivization[39] in Romance) or

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[36] By middle I mean the notional category, which I take to be identical across these languages.
[37] Hale & Keyser (1988, p.52)
[38] Earmarks of an operation are overt morphology and the expressibility of the agent role.
[39] I intend this as a cover term and do not nake any claims about the proper analysis of such processes.

the intransitive member in a transitivity alternation pair (English, Greek).[40] The problem of the realization of the middle has not disappeared, but it has come under a more familiar guise, reformulated and reduced, as it has been, to the more general problem of lexical operations and alternations. In this view, if there is a theory of the middle proper to be had, it would amount to a theory of the choice of the means a language may choose to express it.

The idea that in English the middle verb is no different from the unaccusative member in an ergative alternation is to be found already in Hale & Keyser (1987).[41] In that work, however, the arguments, underlying assumptions and consequences are quite different. For Hale & Keyser the transitivity alternation is, in fact, a consequence of an alternation at the level of Lexical Conceptual Structure. That is, the transitive member has a LCS containing a causation component and, therefore, an agent argument, while the middle and unaccusative members are stripped of that component in their lexical meaning.[42] The general issue in such an approach is this: which verbs can denote both an event with an agent participant (i.e. an event which is the result of an action) and an event of the same type without an agent participant? In the view presented here the relation of a verb in the middle to an unaccusative verb is in its *form* and argument structure, not in its *lexical meaning* as well. The problem that this approach raises is that the mapping between LCS and argument structure becomes even less straightforward, though not completely arbitrary. The question one must address is this: which verbs, and under what conditions, allow their intransitive form to express a meaning which includes an agent? That is, transitivity alternations are not simply coextensive with ergativity alternations.

The idea of the middle being parasitic on a transitivity alternation and the particular instantiation of it proposed here find further support from the facts of Greek. If the verbs in the middle which appear in the active form (Class I verbs) are the intransitive member in a transitivity alternation pair, then they should form a subclass of those verbs participating in such an alternation, the ergative alternation.[43] The rest must all belong to class II. This is precisely what we find, as seen in the table below, where X stands for verb in active form, Y for verb with a mediopassive suffix:

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[40]The inability of the implicit argument in the middle to control into purpose clauses must be sought in the interaction of the semantics of the middle with that of purpose clauses.

[41]Fellbaum & Zribi-Hertz (1987), while analyzing the French and English middle as "derived, synchronically, by means of a mechanism that is analogous to that of the derivation of transformational passive", claim that the differences of the middle construction in the two languages "follow from the assumption that the English middle is diachronically and cognitively related to the ergative construction, while the French middle is related to passive" (p. 23). I cannot quite understand the notions of 'variant' and 'outgrowth' that the authors invoke to explicate that relation but clearly the conclusions and consequences of that work are different from the ones of this paper.

[42]These are assumed to differ with respect to the presence or absence of a means clause.

[43]The difference between English and Greek is that the latter has transitivity alternation only for inchoative verbs. English employs this alternation for a wider class of verbs, e.g. *cut*. This alternation is not manifested only in the middle. Consider, for example, 'Yesterday when I cut this bread it cut like butter,' imperatives (of desperation) 'cut (damn you),' or the example of Roberts' (1985, p. 428) 'The bureaucrats bribed to keep each other happy last Christmas.' Haitian Creole, as reported in Massam (1988), employs such an alternation even more widely.

	Transitive	Unaccusative	Middle	
(Ia)	*anigi*	*anigi*	*anigi*	'open'
(IIa)	*gializi*	*gializi*	*gializete*	'polish, shine'
(IIb)	*peristrefi*	*peristrefete*	*peristrefete*	'rotate'
(Ib)	X	Y	X	(predicted gap)
(Ic)	X		X	(predicted gap)

In other words, the division of middle-forming verbs in two classes is not entirely arbitrary. A verb will not appear in the middle in the active form unless it participates in the ergative alternation and its intransitive counterpart is also in the active form. Subclasses (Ib) and (Ic) are predicted not to exist and are unattested. The arbitrariness lies within the class of verbs participating in the ergative alternation, that is between (Ia) and (IIa).

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