ADICITY AND REFERENCE: MIDDLE VOICE AND ITS COMPONENTS

by

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Abstract

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In this thesis I provide an analysis of middle voice sentences (as in *The book reads well*, *El libro se lee bien*, *Das Buch liest sich leicht*) in which the characterizing feature of middles is a mismatch with respect to predicate adicity and the number of argument expression occurrences in the syntactic structure. Throughout the thesis I rely on the distinction between linguistic types and linguistic tokens. Thus, although it might rightly be said, when considering orthography or phonology, that in the sentence *Lolita si legge facilemente*, there are two items: *si* and *Lolita*, we can also rightly say, when considering syntax or semantics, that together *si* and *Lolita* constitute a single abstract object. A significant feature of the analysis is indeed the proposal that the syntactic subject of middles and the weak reflexive together formally constitute a single syntactic object. The analysis predicts the various properties of the weak reflexive that appears in many languages' middle voice sentences, including their Case, referential, and agreement properties. Taking the aforementioned mismatch to be the core characterization of middles predicts that they are morphologically and semantically less restricted than previously thought. Data presented in the thesis support this conclusion.

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Chapter One: Introduction

1 Overview of Thesis

In this thesis I develop an analysis of the syntactic and semantic properties of middle voice sentences. The core of the thesis, though, is an exploration of the consequences of a particular set of views on predicate structure and argument expressions. Middle voice plays a central role in the thesis, as it turns out to be particularly illustrative given the concepts I wish to concentrate on. The analysis I develop ultimately shows that the properties of middle voice sentences are unsurprising, and in fact expected, when viewed in this light. Because of the role middle voice plays in the thesis, I first provide some clarification regarding the primary data that I will consider.

Among Indo-European and other languages, a host of reflexive-marked constructions often fall under the term *middle voice*. These include reflexives, inherent reflexives, middles (as discussed and defined here), and anticausatives. See (Kaufmann, 2007) for discussion of the historical development of the middle, and (Kemmer, 1993) for analysis and discussion of the heterogeneous constructions that are often considered middles. Homeric Greek, for example, expresses the middle as a dedicated voice; for a brief discussion, see (Monro, 1891). (Kaufmann, 2007) notes that historically speaking, in languages that express the middle with reflexive verbs, the media tantum—verbs that inflect only as middles—develops after both the direct reflexive and the anticausative.

The middles discussed here are those familiar from generative grammatical theory—sentences in which a verb that ordinarily requires two argument DPs

apparently appears with only one argument DP. Probably the most-discussed variety of middle is the 'argument middle,' an example of which is given below in three languages.

1. The book reads easily.		English
2. Das Buch liest sich leicht.		German
The book reads *sich* easily		
'The book reads easily'		
3. El libro se lee bien.		Spanish
The book *se* reads easily		
'The book reads easily'		

The small sampling of languages above serves to illustrate one of the most conspicuous ways in which middles vary from language to language: the presence or absence of a 'weak reflexive' (the term I will use for the morphology present in many languages' middle voice sentences, as in *se*, *si*, *sich*). German and Romance middles must include this morphology, while English middles are not subject to this requirement. I argue that despite this crosslinguistic morphological difference, what all middles have in common is a mismatch with respect to predicate adicity and the sentential syntax: one argument expression-occurrence must do the 'work' normally allotted to two argument expression-occurrences. In the thesis I argue that the DP subject and weak reflexive in middles like (2) and (3) should be analyzed as a single formal syntactic object.

Other varieties of the middle are adjunct middles and impersonal middles. Examples of these are below.

4. Dit stoel zit lekker. — Dutch, adjunct middle
   This chair sits nicely
   This chair sits nicely'

5. Het zit lekker op die stoel. — Dutch, impersonal adjunct middle
   It sits nicely on the chair
   'It sits nicely on the chair'
   (also 'This chair sits nicely')

In this thesis, I focus on argument middles. Middles in languages like German and Romance that require a weak reflexive will be termed 'reflexive middles'; middles in languages like English and Dutch that do not require this morphology will be termed 'plain middles'.[1] In the next chapter I devote some space to my views on predicates and argument expressions as they pertain to this thesis. In what remains of this introduction I briefly set out my main assumptions regarding predicates and argument expressions, and I review some of the major views on middles as developed in generative linguistic theory, indicating how these various aspects of middles will be treated here.

My primary assumption regarding predicates is that predicate adicity is a core aspect of a predicate. Predicates are listed with a basic lexical semantics and a number of *positions*. The number of positions corresponds to what I will call the *adicity* of the predicate. In the simplest case, the adicity of a predicate will correspond directly to the number of argument expression-occurrences in the syntax of a sentence in which the predicate appears. For example, the adicity of the verb *murder* is two, and in the simplest case, the syntax of a sentence in which *murder* is the primary predicate contains two

[1] In Chapter Four I discuss English reflexive middles, like *This book reads itself*, but for the bulk of the thesis, when discussing English, I concentrate on 'plain middles'.

argument expression-occurrences. To illustrate, the sentence *Dracula murdered Bunnicula* is one in which there are two argument expressions: *Dracula* and *Bunnicula*. My primary assumption regarding argument expressions is that they are syntactic expressions. Thus, an argument expression-occurrence is defined in part by the syntactic positions it is in. The view of syntax advocated here is one that assumes that the objects of syntactic inquiry are expression-types, including, most prominently, sentence-types. The relationship between types, tokens and occurrences is covered in the next chapter.

One claim advanced here is that a particular variety of mismatch is the primary characteristic of middle voice sentences. The predicates in these sentences have an adicity of two, but the sentential syntactic structure contains only one argument expression-occurrence. Thus, a specific question addressed here is how a single occurrence of an argument expression type can be distributed in a syntactic structure that typically contains two argument expression-occurrences.

2 Overview of Middles in Generative Linguistics

The primary aspects of middle voice sentences that have received attention in generative linguistic theory include: the status of the external argument (or logical subject); the relationship between unaccusatives, middles, and passives; the properties of the weak reflexive that appears in many languages' middle voice sentences; the aspectual profile of middle voice predicates and sentences; and the role of the nearly ubiquitous 'middle' adverb. Below I briefly survey these aspects as they have been treated in generative linguistic theory. Although middles are often viewed as unusual and often receive multiple middle-specific proposals to derive their basic properties, the

view taken here is that the linguistic principles operative in middle formation ought to be operative elsewhere: there should be no middle-specific operations.

The major divide regarding the logical subject of the middle predicate is whether it is realized in syntax or not. Those who argue that the logical subject is realized in syntax have proposed that it be realized as a phonologically null reflexive (similar to *se*/*si*) (Keyser and Roeper, 1984), *pro* (Hoekstra and Roberts, 1993), and PRO (Stroik, 1992). Those who argue that the logical subject is not realized in syntax include (Fagan, 1988), (Roberts, 1987), and (Ackema and Schoorlemmer, 1995, Ackema and Schoorlemmer, 1994). Standard syntactic diagnostics indicate that there is no syntactically active expression corresponding to the logical subject in the syntactic structure of middle voice sentences. And while the semantics of middles in some cases implicate an agent of an event denoted by the verb, there is no truth-conditional contribution made by the logical subject.

In this thesis I side with those who claim the logical subject is not present in the syntactic or semantic structure of middle voice sentences, as (Rapoport, 1999) notes for the case of English. One challenge posed by the middle is how to account for the fact that the logical subject is syntactically inactive (in contrast with passive constructions) yet is felt to be semantically present or implied (in contrast with unaccusative constructions). The answer one provides to these problems is connected to the relationship between passives, middles, and unaccusatives.

In the thesis I pursue the hypothesis that middle voice sentences can be characterized as sentences that have, as a primary predicate, a predicate with an adicity

of two, and that these sentences contain only one argument expression occurrence. I do not make this assumption about unaccusatives or passives. Thus, on my approach, middles are the only one of these three that have at their core the mismatch that is at the center of this thesis. I assume that in the case of passives, the two argument expression-occurrences are realized in a way that is different from what we see in active voice sentences, but there is no mismatch. The alternative realization of the argument expression-occurrences in passives is due to the syntax of these sentences, as discussed in (Chierchia, 1989/2004) and (Collins, 2005). I do not pursue here the hypothesis that unaccusatives have at their core the mismatch that I argue characterizes middle voice sentences. One obvious difference between middles and unaccusatives is that in languages that obligatorily include a weak reflexive in middle voice sentences, there is no absolute requirement that unaccusative sentences include this morphology. In the concluding chapter, however, I ask whether the approach to middles taken here can be extended to any of the varieties of unaccusative verbs. In a sense, this is the reverse of the standard procedure: typically it is asked whether analyses of unaccusatives can be extended to middles, and if so in what way (for example, Chierchia 1989/2004). Here I develop an approach to middles, and later ask whether any aspects of that approach might be extended to any of the varieties of unaccusatives.

The problem that I characterize in the thesis as a mismatch is typically approached as the question of whether middle-formation is a lexical or syntactic operation. Among those who argue that middles have as their source a lexical operation are (Fagan, 1992, Fagan, 1988), (Ackema and Schoorlemmer, 1995, Ackema and

Schoorlemmer, 1994), (Zwart, 2005), and (Williams, 1981). Among those who argue for a syntactic approach are (Hoekstra and Roberts, 1993), (Keyser and Roeper, 1984), and (Roberts, 1987). In the thesis I address the consequences of the mismatch and do not develop an account of the grammatical operations (if any) that might yield such a mismatch. On my account, the mismatch results from the interaction of predicate adicity (here, two) and the number of argument expression-occurrences in the sentential structure (here, one).

The weak reflexive in many languages' middle voice sentences is typically analyzed as a 'passivizer' or 'absorber' of some sort (Manzini, 1986). I argue that the weak reflexive in middle voice sentences is present as a result of the mismatch between predicate adicity and the number of argument expression-occurrences in the sentential structure. The configurational and referential properties of the full DP and the weak reflexive in middle voice sentences follow from the way in which the single argument expression-occurrence in middle voice sentences is distributed. One aspect of this is that the weak reflexive is analyzed as a non-referential anaphor.

The aspectual profile of the middle is a recalcitrant problem, in part, as I show in the thesis, due to consideration of an incomplete set of data. Much of this is clarified in the thesis by correcting false claims and viewing the mismatch described above, rather than an aspectual shift, as central to the characterization of the middle. (Keyser and Roeper, 1984) state that the middle is less acceptable in the past tense and that the middle cannot occur in the progressive, neither of which is true. It may be that (Keyser and Roeper, 1984) find these examples ungrammatical because they did not include an

adverb (which is frequently present in middles) and in two cases used bare plural subjects. Their examples are below.

6. *Chickens are killing.

7. *Bureaucrats are bribing.

8. *The walls are painting.

When these examples are compared with the examples below, we see that middles can indeed appear in the past tense and in the progressive.

9. The chickens are killing nicely.

10. The bureaucrats were bribing easily until that new law got passed.

11. The walls are painting poorly. I think we should have cleaned them first.

The mismatch discussed here does not alter the interaction that the verb has with tense or aspect, despite views that middles are stative (Roberts, 1987), stative-like (Keyser and Roeper, 1984), or non-eventive (Hoekstra and Roberts, 1993). Given my view that the mismatch between predicate adicity and argument expression-occurrences is the defining characteristic of middles, this freedom with respect to the verb's relationship with various tenses and aspects should go unchanged, which is in fact what we see. Given my view on the defining characteristic of middles, there is no theoretical cause for the necessity of a Generic operator in middle voice sentences, despite an abundance of

analyses of the middle as a generic construction (Fagan, 1988), (Zwart, 1997a, Zwart, 1997b), (Condoravdi, 1989), (Levin, 1982), (Fellbaum, 1985, Fellbaum, 1986). An example of the confusion regarding the middle and genericity comes from Fagan, 1988:195-196: "It is therefore not surprising that middles should appear in the simple present tense, since this is the tense used in English to express timeless propositions. [note omitted] Other generic sentences in English are subject to the same tense and aspect restrictions as middles. [note omitted]." My view is that the middle is not distinctively generic. My sense is that the view that middles are generics has come about in part because so many examples of middles in the generative linguistics literature do occur in the simple present.

Another problem in analyses of the middle is the so-called 'adverbial requirement', illustrated with the contrast below.

12. *W.S. Merwin's poems read.[2]

13. W.S. Merwin's poems read beautifully.

This 'requirement' is strict to varying degrees in different languages. Even in English, a language that is quite conservative in this regard, the 'requirement' is not absolute.

14. This dress buttons. (Fagan, 1988:201)

[2] I put a '*' here as this sentence would generally be so marked in analyses of the middle. I will show in the thesis that the strangeness of this sentence is not tied to syntactic or semantic conditions on well-formedness of middles.

15. Nobody thought that rap was going to sell.

(Darryl McDaniels, interviewed on NPR, 1997)

There are many accounts of the function of the adverb. (Grimshaw and Vikner, 1993), by way of a suggestion by David Pesetsky, suggest that the requirement that obligatory adjuncts (including the middle adverb) be present can be pinned to the requirement that a person "say something." (Hale and Keyser, 1987) suggest something similar, claiming that the adverbial requirement "is to be explained in extra-grammatical terms, specifically in terms of the requirement that an utterance be informative, as suggested by (Fellbaum, 1985)." The nature of the nearly ubiquitous adverb and the degree to which an adverb is felt to be needed follow from the analysis I present. Due to the absence of any formal object in the syntactic or semantic structure of middles that corresponds to the logical subject (or agent), adverbs of intent (*deliberately*, *maliciously*) are excluded except in unusual cases in which the DP subject is animate, as in *John deliberately bribes easily*. Even here, the adverb is not perfect, though I note examples like these as the only possibility for an adverb of intent in a middle voice sentence. In the thesis I simply show (in agreement with Hale and Keyser, 1987) that there cannot be any grammatical requirement that an adverb be present, if the mismatch I propose is in fact the defining characteristic of middles. As with the case of the relationship middles have to tense and aspect, the contribution of the thesis here is largely a consideration of a broader range of data. I view the adverb as expressing the relationship between the verb and its logical object or the mode of application of the verb to its logical object. In many cases the

applicability of the verb to the logical object is presupposed and an adverb will typically be present. *This book reads* may be strange since in a literate culture, books are among the things that include text, and in literate cultures text is known as something to read. In cases in which the applicability is not presupposed, an adverb will often not be present, as might be the case after test driving a number of terribly rusted bicycles. Steerability might no longer be presupposed, and thus, in this case, *This bicycle steers* needs no adverb, as the mere applicability of the verb to its logical object has become a relevant question.

While many of the accounts of middles approximate an accurate description of the facts, or at least of the facts considered in any given account, the primary weakness throughout is that very few of the characteristics of the middle are made to follow from anything. My hope is that my particular account of the middle will follow from my views on predicates and argument expressions.

3 Conclusion

The overview above highlights the main facts that an account of middles should address. These are: the status of the external argument; the relationship between unaccusatives, middles, and passives; the properties of the weak reflexive that appears in middle voice sentences in many languages; the aspectual profile of middle voice predicates and sentences; and the 'adverbial requirement'. The overview briefly touches on how they will be treated in this thesis and provides an indication of the views on predicates and argument expressions that form the core of the thesis.

Chapter Two:
Background to Mismatches: Linguistic Types and Tokens, Argument Expressions, and Predicate Adicity

1 Introduction

In this chapter I provide the background necessary to the development in Chapters Three and Four of the hypothesis that a) the core characterization of middle voice sentences is a mismatch with respect to predicate adicity and the number of argument expressions that appear in the sentential structure, and that b) many of the well-known aspects of middle voice sentences follow from (a). In Section 2 I address the distinction between linguistic types and linguistic tokens, including the distinction between an occurrence of an expression type and an occurrence of an expression token. This background is intended to make clear my assumptions regarding the objects of linguistic inquiry. I also hope that it will be useful in understanding my views on argument expressions. In Section 3 I establish my views and assumptions regarding predicates, primarily predicate adicity. In Section 4 I establish my views and assumptions regarding argument expressions and the ways in which argument expression occurrences can be distributed in a syntactic structure. Section 5 introduces the notion of mismatch as it is relevant to this thesis. Section 6 concludes the chapter.

2 Types and Tokens

In analyses of human language, a distinction (implicit or explicit) is made between expression types and expression tokens. For example, there is a sentence type—an abstract object—corresponding to the following sentence token: *Everybody wants a cupcake*. Here the sentence-token is characterized visually—it corresponds to a series of

ink impressions upon the page. Had the sentence been spoken, the sentence-token would have been characterized acoustically. I follow here the tradition that expression-types, not expression-tokens, are the objects of inquiry for generative syntacticians. A simple way of thinking about the distinction between types and tokens is that types are abstract objects that cannot be characterized in terms of things that the senses can perceive; tokens can be perceived in this way. One thing that is important from the outset is that a type (of anything, though I focus on expression-types here) will be made up of only types—never tokens. Similarly, a token will be made up of only tokens—never types.

One thing that can make the distinction between types and tokens confusing is that just as there are *occurrences* of types there are also *occurrences* of tokens.[3] Why do we need this notion of occurrence, in addition to the type-token distinction? I hope that some examples will make this clear. Starting with a token, it is clear that the token *2 + 2 = 4* contains two tokens of *2* or two *2*-tokens. If someone said this expression aloud and recorded it on a reel-to-reel, we could go to the tape and cut out the portion of tape corresponding to one of the *2*-tokens. We could then go to the tape again and cut out the portion of the tape corresponding to the other *2*-token. Similarly, if the expression were written (as it is here) we could ask a schoolchild to cut out one of the *2*-tokens and to then cut out the other *2*-token. So, in the token *2 + 2 = 4*, there are two *2*-tokens, or two tokens of the expression *2*. If we consider the type corresponding to the token *2 + 2 = 4*,

[3] For discussion of types, tokens and occurrences in linguistics see (Wetzel, 1993) and (Bromberger, 1983).

we will want to be able to say something about the number of 2s that the type contains. But clearly we cannot say that the expression type contains two tokens of *2*. This would be to say that the abstract type that corresponds to the token *2 + 2 = 4* contains pieces of paper with ink on them or pieces of recorded tape. Allowing occurrences of types and occurrences of tokens allows at least a satisfactory way of speaking about the expression token *2 + 2 = 4* and about its corresponding type.

Linguistic tokens are what we encounter in the world, but linguistic types are the objects of linguistic inquiry. The same ideas that apply to the case of *2 + 2 = 4* apply to natural language expression types and tokens. In the sentence type corresponding to the sentence token *John spilled wine on the couch, poured beer on the couch, and otherwise annoyed his family* there are two occurrences of the expression type *the couch*. If we consider the token instead, then it can be rightly said that there are two tokens of the expression type *the couch* in the token sentence *John spilled wine on the couch, poured beer on the couch, and otherwise annoyed his family.* If an actor were cued to read this sentence aloud, and if *the couch* corresponded to its own cue card, and if, furthermore, the economizing theater staff used that same cue card twice to get the actor to read her lines, then we would have the case of two occurrences of the same expression token.

Throughout the thesis, the objects of inquiry are expression-types, not expression-tokens. Even the brief discussion above shows that there are different kinds of questions that can be asked about types than can be asked about tokens. For now I simply hope to have established clearly the distinction between types and tokens, and the difference between an occurrence of a type and an occurrence of a token.

3 Predicate Adicity

There are two considerations relevant to this thesis with respect to the way in which the argument expression or expressions associated with a given predicate are realized in syntax: *What is the adicity of the predicate?* and *How many argument expressions appear in the syntactic frame in which the predicate appears?* In standard logic, the answers to these particular questions will always coincide: a two-place predicate will appear in a syntactic frame with two argument positions; a one-place predicate in a frame with one argument position, etc. In the domain of natural language the answers to these questions will also often coincide. However, this is not always the case, and the circumstances in which different answers can be given to the two questions above are discussed in Section 5. First, the notions *predicate adicity* and *argument expression* must be made clear. In this section I concentrate on predicate adicity.

I assume that the adicity of a predicate—sometimes called *valence*—is a fixed, unmanipulable aspect of the predicate, along with its basic lexical semantic content. This I assume on the grounds that we must have some basic means by which we might say that we are considering two cases of the same predicate rather than one case each of two similar predicates. The 'meaning' of a predicate may and sometimes does change over time; I assume that the adicity of a predicate might also change over time. But from a synchronic perspective, I assume that the adicity of a predicate is fixed.[4]

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[4] In some cases this will commit me to a 'multiple listing' approach to the lexicon, with some predicates listed twice, perhaps once with an adicity of one and once with an adicity of two. For example, *break* can appear in a transitive frame (*John always breaks his rackets*), as an unaccusative (*My blown glass racket broke yesterday*), and as a middle (*Ceramic rackets break too easily; this is why they are not allowed in professional matches*). As I noted in the introduction, I develop an analysis of

What I call the adicity of a predicate is sometimes defined in terms of a particular *argument structure*. I do not use this term here, as I take arguments to be defined partly in structural terms, not solely lexical terms or in terms of theta roles, as will be made clear in Section 4. What I call the adicity of a predicate is also sometimes defined as a particular *theta-grid.* I do not use this term either, as I view theta roles as epiphenomena that should fall out of a proper consideration of the lexical semantics of predicates and the syntactic positions that argument expression occurrences are in.

The approach advanced here differs from previous approaches to so-called argument structure or theta-grids. Some of these approaches make reference to theta roles, as in (Di Sciullo and Williams, 1987), (Marantz, 1984), (Belletti and Rizzi, 1988), (Grimshaw, 1990). Others avoid theta roles but indicate prominence relations among listed arguments, as in (Levin and Rappaport Hovav, 1986), (Levin and Rappaport Hovav, 1995), and (Zubizarreta, 1987).

It is sometimes argued that the theta roles associated with a given verb can be identified at a pre-syntactic level. But, the theta role associated with an argument of a verb is at times sensitive to whether the item denoted by the argument expression is animate or inanimate. For example, when the syntactic subjects of *open* and *arrive* below denote animate entities, some agency might be assigned to that entity, in this case, John.

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middles allowing that middles and unaccusatives may ultimately require distinct formal analyses. The approach I explore here is one in which transitive and middle *break* derive from the same predicate (a predicate with an adicity of two) while the unaccusative *break* may derive from a separate lexical entry (a predicate with an adicity of one). At the end of the thesis I ask whether the approach to middles taken here could be extended to some unaccusatives. But for the bulk of the thesis I assume that middles are more closely connected to transitives than to unaccusatives given that they have as their source verbal predicates with an adicity of two.

The expression *John* might be assigned the theta role Agent. However, the expressions *the wind* and *the train* might be assigned the theta roles Actor or Theme. This is true, even though there is no reason to think that we are dealing with multiple *open* predicates or multiple *arrive* predicates.

1. John opened the door.

2. The wind opened the door.

3. John arrived at the station.

4. The train arrived at the station.

The pair of sentences below also challenges the notion that theta roles are determined at a presyntactic level.

5. John died.

6. John died to annoy his parents.

In the first sentence, the DP *John* is associated with the Patient role, while in the second sentence the DP *John* is associated with the Agent or possibly Actor role. If theta roles were determined at a presyntactic level, then the examples above provide evidence that there are at least two English verbs *die*, one associated with an Agent or Actor argument

and one associated with a Patient argument.[5] Models that might accommodate the pair above are in (Jackendoff, 1990) and (Grimshaw, 1990). These models include two tiers at which theta roles are relevant: a thematic tier and an action or aspectual tier. I will not follow such an approach, partly due to the sensitivity aspect shows to syntactic and semantic factors. That is, although some action or aspectual information is encoded in a predicate, the syntactic and semantic environments a predicate appears in ultimately make significant contributions to the aspectual evaluation of the sentence. Although I prefer to speak in terms of adicity, in many cases no problems will arise should the reader prefer to think in terms of argument structure or theta-grids. My primary reason for developing an approach to middles in terms of adicity (and not argument structure or theta grids) is that I take predicate adicity to be a purely grammatical phenomenon. This is likely not the case for the additional thematic, aspectual, and action information that is included in any approach to argument structure, theta grids and the like.

Having briefly explained why I will use the term *adicity* and not make reference to a predicate's argument structure or theta grid, I return to the relationship between predicate adicity and the number of argument expressions that are in the syntactic frame in which the predicate appears. In the simplest case, the adicity of a predicate indicates the number of *argument expressions* associated with a predicate in the sentential structure in which it appears. For example, the verb *kick* is a predicate with an adicity of two. In

[5]Another pair that makes the same point comes from Ackema & Schoorlemmer (1994:77). There it is noted that the Dutch *stotteren* (*stutter*) and *trekkebenen* (*limp*) "allow a reading both with and without an Actor."

the sentence below, there is a one-to-one correspondence between the adicity of the predicate and the number of argument expression occurrences.

7. John kicked the car.

The adicity of the predicate *kick* is two, and there are two argument expressions: *John* and *the car*.[6]

The adicity of a predicate maps to syntax in that there are syntactic positional implications of predicate adicity: the number of argument expression positions in the syntactic structure that are filled is equal to the adicity of the predicate. When the number of argument expressions matches predicate adicity, as with the example above, these positional implications are satisfied.

The tension between predicate adicity and syntactic argument expressions (and thus between syntactic argument expressions and syntactic argument positions) is the domain of investigation here. In cases of what I call a *mismatch*, a syntactic 'solution' is required. A number of mismatches will be discussed at the end of the chapter, and the remaining chapters focus on the particular mismatch and solution to this mismatch that I claim is characteristic of middle voice sentences. First I present background regarding argument expressions.

[6] I omit for now trace positions or other positions that might ultimately contribute to a complete characterization of these two argument expression occurrences.

4 Arguments

The study of any formal language requires a theory of its expressions. This theory should deliver an understanding of how the expressions of the language are composed, how expression identity is determined, and what principles govern the distribution of expressions. This holds for natural languages, such as French, Yoruba, and Thai, as well as for the languages of logic, mathematics, and beyond.

Natural language expressions—everything from words to sentences—are, like expressions of any type of language, abstract objects that have no spatiotemporal properties. Nevertheless, they can correspond to objects in the physical world. For example, the sentence *Bruce Lee trained long and hard* can correspond to the speech signal produced by a moviegoer on June 27, 2007, and it can also correspond to a series of ink impressions on a page in the August 6, 1975, diary entry of a practitioner of Jeet Kune Do. This was discussed in Section 2, where I concentrated on the type-token distinction.

An argument is here taken to be a complex object: an argument expression, defined in terms of its composition, and a set of syntactic positions, as in Fiengo & May (1994: 201-202). On this view that arguments are complex objects, defined partly in terms of their syntactic positions, it follows that arguments are not present in the numeration. Neither are argument expressions, as they are complex objects built out of components present in the numeration, though the components of an argument expression (perhaps a determiner, a noun, an adjective, phi and Case features) will be present in the numeration. In some cases it may be possible to predict, simply by inspecting the

numeration, the number of argument expressions that will appear in the corresponding sentential structure.[7]

As noted above, in this thesis I maintain the distinction between arguments, argument expressions, and argument positions. Fiengo & May (1994:201) make this distinction, writing, "Arguments…are composite elements. They consist of two parts, neither of which in and of itself constitutes an argument: an argument expression and an argument position." This distinction also supports the idea that while binding within an argument is expected (perhaps required), questions of dependency within an argument do not arise. This idea is made explicit in Fiengo & May (1994:202, note 9):

> …Although Binding Theory is arguably sensitive to patterns of indexing among argument parts in a chain, as well as among arguments, Dependency Theory is irrelevant to the internal structure of arguments. Rather, its domain is the possible indexical relations among coindexed arguments only.

I use slightly different terminology here, but adopt the idea that Dependency Theory is not relevant and in fact cannot be relevant when a single expression occurrence is being considered, no matter how many positions it might be in.

Throughout the thesis a sensitivity to the traditional distinction between occurrences of an expression (here occurrences of DPs) and positions occupied by a given occurrence will be shown. I note that there is no requirement that two occurrences

[7] However, given a numeration that contains, among other things, *the*, *the*, *of*, *cat*, *house*, *ate*, it may not be possible to determine, *simply by inspecting the numeration*, whether the argument expression *the cat of the house* will serve as an argument of *ate*, or whether *the cat* and *the house* will serve as distinct arguments of *ate* (or of some other predicate also present in the numeration).

of the same DP (or other expression category) be assigned the same phonetic form, nor is there a requirement that two positions in which a single DP (or other expression category) appears be assigned the same phonetic form. A name, its reflexive and its pronoun can be occurrences of the same DP (and are related by 'vehicle change', discussed in particular with respect to cases of ellipsis in Fiengo & May 1994) and thus are syntactically identical but clearly are not phonetically identical.[8]

I assume that argument expressions have a set of powers, as do syntactic positions, as in (Fiengo, 2007). I assume that an argument expression occurrence can do each of the following at most once: refer, bear a theta role[9], bear structural Case, bear a set of phi features[10]. Not all expression occurrences will do all of these things. For example, the expression *it* in *It is raining* does not refer or bear a theta role. This expression is also not an argument expression. In this thesis I concentrate on argument expressions.

I assume that these basic features of argument expression occurrences hold no matter the theory of movement one adopts. Thus, whether chain-theory, trace-theory, copy-theory, or some other approach is adopted, this basic characterization of argument

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[8] That is, a given sentence might contain the following argument expressions: [Erika]$_1$, [herself]$_1$, and [her]$_1$. These are DPs of the same type, yet their phonetic forms differ.

[9] Which, as noted above, will be determined based on, among other things, the lexical semantics of the predicate it is an argument of and the syntactic position or positions in which it appears.

[10] By bearing a set of phi features at most once, I mean that an expression's phi features cannot change over the course of syntactic structure building; they are determined once and remain unchanged in terms of their value.

expressions must hold. A bit of this is apparent in the chain-theory doctrine that the base of an A-chain bears a theta role and that the head of an A-chain bears structural Case.

I also assume that an argument, which again is defined in part according to the syntactic positions it is in, can occupy one or more positions, and can be phonetically realized in any number of these positions. This allows the possibility that it will be phonetically realized in none of the positions it is in. An example of a DP argument expression occurrence that is not phonetically realized in any of the positions it is in is *pro* in *Compré un camión* (*pro compré un camión/I bought a truck*). Just as it is allowed that multiple occurrences of the same expression type are phonetically distinct, as is the case in *Mary likes herself*[11], it is allowed that when a single expression occurrence is in multiple positions, those positions will be phonetically distinct. The idea that an argument can be phonetically realized in multiple positions has been explored most recently in approaches to 'multiple copy spell-out'. See (Kandybowicz, 2006) for one analysis as well as discussion of previous approaches.

The relationship between expressions, the positions expressions are in, and the items that may be referred to through the use of expressions is complicated and will not be solved or even improved upon here. I will take an extension of the proposal (Quine, 1953) that "to be is to be the value of a variable" to be sufficient: namely, the syntactic

[11] See Footnote 8.

positions associated with the referential powers of an expression are the positions in which bound variables may appear.[12]

Although the syntactic category of an argument expression is not always D (see for example work by Jackendoff and others in which PPs, clauses and other phrases serve as arguments) I restrict myself here to DP arguments, due to my focus on middle voice sentences, sentences in which the sole argument expression is a DP.

4.1 Movement

The assumption that argument expressions participate in movement is implicit in the discussion of argument expressions above. Movement might most generally be characterized as the circumstance in which a single expression occurrence is in multiple syntactic positions, perhaps at different stages of structure building. This can be characterized as a relationship between two or more phrase markers such that each marker contains a syntactic position (independent of one of these markers containing the other) that 'hosts' a single occurrence of a given expression. For example, below, phrase marker A contains phrase marker B, and both phrase marker A and phrase marker B contain a position in which we see the expression Q. Phrase marker A contains such a position independent of its containing phrase marker B.

[Q [Q]]
PhaseMarkerA PhraseMarkerB

[12] Another, newer re-statement of the general idea is from Steinbach (2002:186): General Condition on A-Chains (GCC) A maximal A-chain (a_1, …, a_n) contains exactly one link—a_1—that is both [+R] and case-marked. For Steinbach, [+R] indicates +Reference/Referentiality. Thus, the GCC simply states that there will be one position in any argument chain that is Case-marked, and it will be this position that introduces reference or referentiality.

On its own, the above does not indicate whether there is one, or whether there are two, occurrences of the expression Q. If there is one, this is a case of movement; if there are two, it is not. Questions regarding the proper characterization of the two instances of *Q* above have been present since the beginning of the development of theories of movement.

The copy and delete implementation of movement, and gestures towards the more recent copy theory of movement, are found in *Lectures on Government and Binding:*

> Recall that in earlier work, the rule of movement was assumed to be decomposed into two elementary transformations: copying and deletion. Suppose that we were to continue to adopt this idea, rather than taking movement to be a copying rule leaving an empty category as trace. The natural way to work this out in the present framework would be to establish the convention for Move-alpha that when alpha is moved it is not deleted but left unchanged, apart from a feature D indicating that it is to be deleted in the PF-component (in fact, D is redundant, determinable from other properties of the grammar). Movement, then, consists of copying of alpha in a new position, and both occurrences of alpha enter the LF-component.
>
> (Chomsky, 1981)

One implementation of movement is trace theory, and chain theory developed out of this as a result of research on restrictions on movement. This version of movement allows that an expression that occupies a syntactic position at a given stage of structure building comes to occupy a different (traditionally higher) syntactic position, with a *trace* being in the original and 'subsequent' positions save the expression's highest position.

Another implementation of the idea that an occurrence of an expression type can occupy multiple positions in a syntactic structure is the copy theory of movement. Approaches to reconstruction effects and questions regarding the levels at which Binding Theory applies contribute to more recent versions of copy theory. Although there are different implementations of this approach, copy theory generally holds that each position a single expression occurrence is in has an equal status with respect to phonological, syntactic, and semantic properties. That is, copy theory allows, for any given expression occurrence, *complete* occurrences of that expression to be in multiple syntactic positions.[13]

A weakness of the copy approach to movement is that it cannot, without additional mechanisms, be distinguished from analyses in which a sentence includes multiple expression occurrences. To make this more concrete, in both of the examples below, on a copy approach to movement, there is a point in syntactic structure building in which there are three complete occurrences of the same expression.

8. [*John*]$_i$ seems [*John*]$_i$ to like [*himself*]$_i$

9. [*John*]$_i$ said [*he*]$_i$ likes [*himself*]$_i$

Looking at the first sentence, on the copy approach to movement, a process of deletion takes place that results in *John* being pronounced before *seems* is and not being

[13] Complete with respect to reference, phonetic realization, binding, etc.—complete in such a way that it might be impossible to distinguish an argument expression and its copy from two occurrences of that argument expression.

pronounced after *seems*. Although the phonetic content of the lower *John* is deleted, the capacity to bind is not, which we see given the acceptability of the reflexive DP. This process of deletion and maintenance of the relevant aspects of certain copies proceeds in a way that maximizes the opportunities for the sentence to be evaluated as grammatical, but it is not clear what guides these deletion and maintenance operations. It is also not clear, given the full status of the copy of *John* in the first example, what prevents the deletion of aspects of the DPs *John*, *he*, and *himself* in the second sentence, since they too will be evaluated as "full" versions of the same DP.[14]

I assume that a single expression occurrence cannot be in multiple structural Case positions, multiple referential positions, or come to be designated with multiple theta roles.[15] This is standard in most theories of movement and is made explicit in chain theory. I make a departure from copy theory in assuming that rather than *complete* copies being in the various positions that an expression occurrence may occupy over the course of structure building, that different aspects of the expression occurrence's powers might be connected to the different positions the expression occurrence is in. I will call the view considered here *expression spreading* due to the idea that the powers of an expression can be spread out among its various syntactic positions. Further, as noted

[14] Although copies are useful in accounting for reconstruction facts, distributing components of a linguistic expression throughout the derivation rather than merging full copies is likely more harmonious with reconstruction as executed in a phase-based model of syntax.

[15] The Visibility Condition will go unmodified here, and so the requirement that each argument occurrence bear *at least* one inherent case or one structural Case will be maintained.

above, consideration of an argument expression must include consideration of the different syntactic positions it is in.

The idea of one DP-occurrence being in multiple positions builds on other work in which a single occurrence is distributed over multiple positions. The idea of a "discontinuous pronominal element" was advanced by Borer (1986) to account for certain clitic phenomena in Hebrew and Spanish. This idea is distinct from movement in that the different pieces of the discontinuous pronominal are taken, in her approach, to be base generated in their respective positions. In particular, Borer argues for a discontinuous expression [*cl* [*e*]] with *cl* standing for *clitic* and *e* standing for a phonologically empty expression. This discontinuous expression is argued to be found in sentences like *Juan lo vi*, analyzed as *Juan* lo_i *vi* $[e]_i$. Given the attention I pay in this thesis to the weak reflexive found in many languages' middle voice sentences, it is worth noting here that the approach I take unites, in certain ways, middle voice sentences with clitic doubling phenomena.

Determining whether multiple varieties of movement are required or whether movement can be defined and applied in a uniform way is a question hinted at here, though the range of data considered is not sufficient to decide the issue. The assumptions I make regarding predicate adicity, taken together with my assumptions regarding argument spreading, are in line with, or at least analogous to, the proposal in (Chomsky, 1995) that there is a formal mechanism by which the number of expression occurrences in a given syntactic structure are kept track of, independent of questions of syntactic positions. Chomsky suggests that in the numeration, lexical items are listed

with an index that indicates the number of times that lexical item will appear in the syntactic structure associated with that particular numeration. Although the ideas are not strictly speaking identical, here the distinction between the number of occurrences of a given expression in a syntactic structure and its possibly multiple syntactic positions is maintained.

5 Overview of Mismatches

In the remaining chapters, I develop an analysis of middles as being primarily characterized by a mismatch with respect to predicate adicity and the number of argument expressions that appear in the syntactic frame. As noted in Chapter One, I concentrate here on the mismatch and not on the nature of the operations that might ultimately yield this mismatch. In fact, the possibility is left open that there is no formal operation behind the mismatch. Still, I review briefly some operations that have been proposed in this regard.

Much research has been done into questions regarding manipulation of argument structure, predicate valence, and theta-grids. I assume that there is a distinction between the lexicon and syntax, as was argued in Chomsky (1970), where it was shown that not all operations can be taken to be syntactic; some are reserved as lexical operations. Thus, I allow the possibility that the operation or operations that yield the mismatch considered here are lexical operations. I note that any proposals that posit syntactic or semantic operations at the lexical level cannot be considered cogent.[16]

[16] This does not preclude syntactic operations that manipulate arguments or their realizations, e.g. passive as analyzed in Jaeggli (1986) and Collins (2005).

Whatever operations that operate on lexical structures are lexical operations, whatever operations that operate on syntactic structures are syntactic operations, and so forth (as in (Woisetschlaeger, 1981) and (Chomsky, 1977). Any analyses of middles (or other natural language phenomena) that invoke a variety of notions of "binding" and "saturation" at a pre-syntactic level will thus necessarily be rejected. I briefly discuss two such cases here. (Levin and Rappaport Hovav, 1995) introduce linking rules that are applied to map Lexical Semantic Representations into Lexical Syntactic Representations (argument structure). To account for the difference between passive *break* and inchoative *break*, to take an example, (Levin and Rappaport Hovav, 1995) appeal to binding of the external argument at two different levels. If the external argument is bound in the mapping from Lexical Semantic Representation to argument structure, the result is inchoative *break*. When binding occurs at this level, the external argument is syntactically inactive. If the external argument is bound in the mapping from argument structure to syntax, the result is passivized *break*, and the external argument is syntactically active.

More relevant to the cases discussed here, (Steinbach, 2002) invokes lexical saturation and lexical binding in his analysis of apparently transitive reflexive sentences in German, to distinguish middles from anticausatives and inherent reflexives. Examples are below.

10. Middle:
    Das Buch liest sich leicht
    The book-nom reads reflexive-pronoun easily
    'The book reads easily'

11. Anticausative:
    Die Tür öffnet sich
    The door-nom opens reflexive-pronoun
    'The door opens'

12. Inherent reflexive:
    Herr Rossi erkältet sich
    Mr. Rossi-nom catches-a-cold reflexive-pronoun
    'Mr. Rossi catches a cold'

Steinbach (2002:4) claims that although in all three varieties the verb's logical subject has been reduced, there are differences in the nature of the reduction operation: in middles, argument saturation applies, while in anticausatives and inherent reflexives, argument reduction applies.[17] In the case of saturation, the external argument is bound by the generic operator 'GEN'.[18] In none of the three cases is the external or first argument of the verb syntactically realized.

Here I provide a brief overview of mismatches beyond middles, beginning with a reiteration of cases in which there is no mismatch.

5.1 Matches

In an active voice sentence there is a one-to-one correspondence between the adicity of the predicate and the number of argument expression occurrences. This is illustrated below with the verb *kick*. The adicity of the predicate is two, and there are two argument expression occurrences: *John* and *the car*. I omit for now trace positions or

[17] As noted above, I take saturation and binding to be semantic and syntactic, not lexical, operations.

[18] In Chapter Four I show that analyses of the middle as inherently generic fail to capture the facts and furthermore are flawed on theoretical grounds.

other positions that might ultimately contribute to a complete characterization of these two argument expression occurrences.

13. John kicked the car.

In a simple passive sentence, there is also a one-to-one correspondence between the adicity of the predicate and the number of argument expression occurrences. However, permissible manipulations of the syntactic structure yield a sentence that is structurally distinct from an active voice sentence. In a model such as that of (Chierchia, 1989/2004) this distinct structure is tied to type-shifting operations included in a definition of Passive and of Predication (the latter taken to be the function of the head of the Inflection Phrase, or INFL). In a revivalist proposal such as that of (Collins, 2005) this distinct structure is tied to permissible syntactic operations. In any case, the result will be a sentence that is syntactically and semantically distinct from its active voice correspondent, but nevertheless is a sentence with two argument expression occurrences.

In an active voice unaccusative sentence, as noted above, I proceed on the assumption that there is a one-to-one correspondence between the adicity of the predicate and the number of argument expression occurrences. This is illustrated below with the verb *arrive*.

14. John arrived.

The adicity of the predicate is one, and there is one argument expression occurrence: *John*. I again omit trace positions, but note that a characteristic property of unaccusative verbs is the base-generation or initial merge of their sole argument internal to the VP.

5.2 Mismatches

In this section I briefly review some cases of mismatches. In the remainder of the thesis, argument middles will be the variety I concentrate on. However, I ultimately hope that my approach can be extended to other varieties of mismatches, including middles other than argument middles.

5.2.1 Argument Middles

In a middle voice sentence, there is a mismatch between the adicity of the verbal predicate and the number of argument expression occurrences. This is illustrated below with the verb *read*. The adicity of the predicate *read* is two. In the middle voice sentence with *read* as the primary predicate, there is one argument expression occurrence. In this case, *the book*.

15. The book reads poorly.

I argue that this is what characterizes middle voice sentences crosslinguistically, even in languages in which there is weak reflexive morphology--morphology that in all other analyses of the middle is analyzed as a linguistic expression that is distinct from the DP argument expression. German and French are such languages, and a middle voice example is below for each of these languages.

16. *Das Buch* liest *sich* leicht. German
The book reads *sich* easily
'This book reads easily'

17. *Ce poème se* comprend facilement. French
This poem *se* understands easily
'This poem understands easily'

Taking the proposed mismatch as central to middle voice sentences, and allowing the view on movement that I termed *expression spreading*, an account can be given of many of the middle's properties, including the properties of the weak reflexive (*se* and *sich* above) that is often identified as an intransitivizer or passivizer or absorber. The idea, to be refined in Chapter Three, is that *Das Buch* and *sich* in the German example and *Ce poème* and *se* in the French example constitute a single argument expression occurrence.

The examples above are commonly called *argument middles*. These middles get their name because a logical argument of the verb is realized as a syntactic argument that appears in syntactic 'subject' position. I concentrate on argument middles in the rest of the thesis, but I briefly describe some other mismatches below.

5.2.2 Non-Argument Middles

Non-argument middles get their name due to the appearance in syntactic subject position of an expression that is taken to not be a logical argument of the verbal predicate. Three such cases are resultative middles, adjunct middles, and impersonal middles.

18. Resultative Middle
Warm copper hammers flat easily.

19. Adjunct Middle

Deze	stoel	zit	lekker	(Zwart, 1997a)
This	chair	sits	good	

'This chair sits good'

20. Impersonal Middle

Het	zit	lekker	in	deze	stoel	(Zwart, 1997a)
It	sits	good	in	this	chair	

'It sits good in this chair'

On the view of resultatives argued for by (Hoekstra, 1988) and others, the verb *hammer* in (18) takes a small clause (SC) complement [SC *warm copper* [*flat*]]. Since the DP *warm copper*, rather than the verb's complement (the entire SC), appears as the syntactic subject, this is considered a non-argument middle.

Such middles are predicted on my view of middle voice sentences. A two-place predicate (*hammer*) takes a single syntactic argument. Syntactic principles of English allow that the syntactic subject position be filled by the SC subject. A mismatch is at the core, and syntactic principles produce a grammatical sentence.

In the Dutch examples above, a nonargument full DP and a nonargument expletive occupy the syntactic subject position. Such middles are also expected under the analysis proposed here. My proposal makes no specific claim about the type of expression that must fill the syntactic subject position. Grammar (of particular languages) permitting, a variety of expressions might fulfill that role, including expletives.

5.2.3 'Extra' Argument Expressions

In the case in which an additional expression is available, I assume that the syntactic solution is either adjunction or inclusion of an additional predicate (perhaps a causative predicate) in the syntactic structure to accommodate the expression corresponding to the additional lexical participant. For example, if the predicate *stab* appears with the argument expressions *Maria* and *Max*, the sentence *Maria stabbed Max* could be formed. Including an additional expression, like *Marvin*, might 'require' some sort of adjunction (*Maria stabbed Max for Marvin*) or inclusion of an additional predicate (*Marvin made Maria stab Max*). The first solution allows that the additional expression might be an argument of a preposition, for example, but still will likely not be an extra argument of the main predicate. Neither 'solution' truly constitutes a mismatch, as in both cases considered above there ultimately are the 'right' number of argument expressions given the adicity of the predicates considered.

5.2.4 Missing Complements

On the view of the mismatch argued here to be at the core of middle voice sentences, it might be expected that while the sole argument expression of a predicate with an adicity of two can be base generated or initially merged as an internal argument, the sole argument expression of such predicates could never be base generated or initially merged as an external argument. This is because there would be no way, save downward movement, for the single argument expression to satisfy the lower argument position. Some examples may make this clearer: If adicity has syntactic entailments in that a predicate with an adicity of two implicates two syntactic argument positions, then

in alternations like the one below, it is predicted that a variable or null object is in the complement position of *kick* in (22).

21. The little girl kicks beer cans when she's angry.

22. The little girl kicks when she's angry.

That is, if adicity has positional implications, and given the absence of any evidence that the expression *the little girl* is generated as a complement to *kicks*, the analysis of (22) will have to be along the lines of 22a or 22b, but not 22c.

22a. The little girl kicks *pro* when she's angry.

22b. $\exists x$ The little girl kicks x when she's angry.

22c. The little girl kicks when she's angry.

The case of *eat* provides an interesting pair.

23. I already ate 14 cupcakes.

24. I already ate.

Given the claim about the syntactic implications that follow from predicate adicity, it might be expected that the analysis of (24) will have to be along the lines of 24a or 24b, but not 24c.

24a. I already ate *pro*.

24b. ∃*x* I already ate *x*.

24c. I already ate.

Here, however, the difference in the lexical semantics of *eat* in (23) compared with (24) indicates that we are dealing with two distinct though related verbs. The first, transitive *eat*, can take most any DP complement; the second, intransitive *eat*, roughly means *dine*.

Some verbs appear to be strongly two-place, in that they do not allow alternations of the type exemplified by *kick* above, and furthermore do not appear to have a related one-place predicate, as seems to be the case with *eat*. *Devour* is one such predicate.

25. The little girl devours mice when she's angry.

26. *The little girl devours when she's angry.

27. I already devoured 14 cupcakes.

28. *I already devoured.

The question arises, then, why predicates like *devour* cannot avail themselves of the solution I propose here for the mismatch that characterizes middle voice sentences by base-generating a single argument expression as an external argument (rather than an internal argument, which is, I argue, the case for middles). I noted above that there are likely problems for an approach in which the single argument expression, base

generated as an external argument, moves downward to fulfill the syntactically implicated complement position. More significantly, however, the contrast between the success in base-generating a single argument expression in the complement position, and fulfilling the syntactically implicated external argument expression by way of movement and the failure in base-generating a single argument expression in the external argument position is connected to the distinction between logical objects and logical subjects. Although I avoid reference to theta roles, theta grids, or tiered argument structures, the contrast between the *devour* case and the case of middles indicates that at some level, the question of whether an argument is interpreted as a logical subject or a logical object is relevant. In this thesis, I address only middles—cases in which the single argument is ultimately analyzed as a logical object.

I do not offer in this thesis an analysis of apparent missing complements, though I note here that the mismatch I propose as being central to middles predicts that missing complements are at best much more restricted than middles. I further note that to produce a true example of a missing complement entails that there is no variable or other null object (such as object *pro*) in the complement position of the verb.

6 Conclusion

In this chapter I provided the background needed for developing an analysis of middle voice sentences that takes their core characteristic to be a mismatch with respect to predicate adicity and the number of argument expression occurrences in the syntactic structure. One key concept is the distinction between types and tokens. Types are abstract objects, and we can ask in linguistic theory how a single occurrence of an

expression type might be distributed in a syntactic structure. The answers to these sorts of questions will be different from the answers we might give to how a single occurrence of an expression token might be distributed in the physical world.

In the next chapter I develop an analysis of the syntax of middles that follows from this characterization and from the notion of argument expressions developed in this chapter. In Chapter Four I develop an analysis of the semantics of middles that also follows from this characterization of middles as well as from the syntactic analysis developed in Chapter Three.

Chapter Three: Syntactic Effects

1 Introduction

In this chapter I explore the syntactic effects of the mismatch that I argue to be the core characterizing property of 'argument middles'—middle voice sentences in which the syntactic subject corresponds to a logical argument of the verbal predicate.[19] The main feature I concentrate on is the reflexive morphology that appears in middle voice sentences in languages like French and German. To my knowledge, no previous work on middle voice has sought to *derive* the morphological, syntactic, or semantic properties of the weak reflexive of middle voice sentences. The analysis I propose predicts many of its properties, which I treat in turn.

2 Syntactic 'Solutions'

In Chapter Two I proposed that predicate adicity determines certain syntactic requirements, namely that a predicate with an adicity of two requires that two argument positions in the syntactic structure be filled. On an analysis of middles in which the argument expression is base-generated/initially merged as a complement to the verb, one argument position is filled when the argument expression is first merged in the syntactic structure. The second argument position—the syntactic subject position—can be filled in a variety of ways, so long as grammatical principles of the language under consideration are not violated.

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[19] That is, I do not concentrate on 'adjunct middles' or 'impersonal middles'—middles with an expletive in syntactic subject position.

In languages that freely allow impersonal constructions, an 'expletivization solution' might be possible: an expletive could fill the syntactic subject position. Or, a 'movement solution' might be used: the DP argument expression could move to the syntactic subject position. Dutch allows both possibilities.

1. Deze muur childert gemakkelijk (Hoekstra and Roberts, 1993)
   This wall paints easily
   'This wall paints easily'

2. Het zit lekker in deze stoel (Zwart, 1997a)
   It sits good in this chair
   'It sits good in this chair'

English is an example of a language that does not allow the expletivization solution, though a movement solution is allowed.

3. *It sits nicely in this chair.[20]

4. This wall paints easily.

German is an example of a language that employs an 'argument spreading' solution to the problem of realizing, in a well-formed syntactic structure, a two-place predicate when only one argument expression is available.[21]

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[20] * on the middle interpretation.

[21] German also allows the expletivization solution, though to a lesser degree than Dutch, according to Steinbach (2002).

5. Das Buch liest sich leicht.
   The book reads *sich* easily
   'This book reads easily'

In the example above, *sich* is in the complement position (complement to *liest*) and *Das Buch* is in the syntactic subject position.[22] The Romance languages, like German, employ an argument spreading solution.[23] One difference is that in the Romance languages, clitic placement principles require that the weak reflexive appear in a pre-verbal rather than post-verbal position. This is shown with the French example below.

6. Le livre se lit facilement
   The book *se* reads easily
   'The book reads easily'

In an infinitival context, the weak reflexive appears in a post-verbal position, as shown with the Italian example below.

7. Lo script deve leggersi bene domani, o licenzieremo gli scrittori
   The script should read-*si* well tomorrow, or we-fire-present the writers.
   'The script should read well tomorrow, or we are firing the writers'

[22] I assume *sich* is in the complement position, as in Steinbach (2002). I offer no original diagnostics indicating that this is in fact the position *sich* is in.

[23] In setting up the distinction between middles with reflexive morphology and middles without, I am calling 'argument spreading' the solution that produces reflexive middles and 'movement' the solution that produces plain middles. However, I ultimately believe that the two varieties can be considered argument spreading. Movement of the traditional sort, with a trace in one or more positions, can easily fit into the argument spreading model, with the primary difference being the the phonetic content associated with the syntactic positions that the argument expression occurrence is in.

In this chapter I motivate an analysis of middles in which *Das Buch…sich*, *Le livre…se,* and *Lo script…si* from the examples above are analyzed as a single argument expression occurrence. I introduce the predictions that the analysis makes, and show that these predictions are confirmed. To my knowledge, no previous analysis of middles has sought to derive the properties of the weak reflexive. Further, all previous analyses of middles, to my knowledge, have treated the weak reflexive of middles as a formal object that is distinct from the DP subject.

In the next section I cover in more detail the ways in which argument expressions are characterized in a syntactic structure. This includes the 'level' at which argument expressions are linguistically significant; it also includes information about the indexical properties of argument expressions. This provides the tools necessary to develop an understanding of how the notion 'argument spreading' can be characterized in syntactic terms; it allows a more formal characterization of what it means for a single argument expression occurrence to be in multiple syntactic positions.

3 Arguments and Argument Expressions

3.1 Argument Expressions are Syntactic

While the components of an argument are present in the numeration, the numeration does not contain arguments. In Chapter Two I noted that argument expressions are complex syntactic structures. This is expected, given that, in traditional ways of describing subcategorization, it might be said that a particular verb subcategorizes for a DP complement. The components of a DP (for example, determiner, noun, Case and phi features) will be in the numeration, but the DP structure will be

complete and eligible to merge with a verb (for example) only after some amount of structure building. This entails that the mismatch I investigate in this thesis will only become relevant 'after' the first merging of the argument expression. Positional implications will 'continue' yet, in the case of middles, no additional argument expression will be available (or constructible) given the material in the numeration.

Argument expressions bear syntactically relevant features, such as phi features and a Case feature, which interact with the syntactic structure in which the argument expression appears. In Chapter Two I noted that these aspects of an argument expression are unchangeable: an argument expression cannot be a first-person expression at one point in the derivation and be a second-person expression at a different point in the derivation. I assume that argument expressions bear additional syntactically relevant components—namely indices. In the next section I outline my assumptions regarding the indexical aspects of argument expressions.

3.2 Indexical Aspects of Argument Expressions

I assume that there must be some means by which we can determine whether we are dealing with two occurrences of the same expression type or one occurrence each of two distinct expression types. In this thesis I employ indices as the means by which argument expression identity can be determined and follow the approach and analysis of (Fiengo and May, 1994). A component of that analysis that is especially relevant here is the characterization of indices as complex objects that comprise an indexical *type* and an indexical *value*.

Indexical values are familiar to anyone who has studied basic binding theory. In the example below, the DP *John* c-commands and binds the DP *himself*. The expression *John* and the expression *himself* bear the same indexical value, in this case *1*.

8. John confuses himself.

9. [John]$_1$ confuses [himself]$_1$

The restrictions on the distribution of reflexive argument expressions (*himself*, in this example) require that they be locally c-commanded by an expression with the same indexical value. This is the core of Binding Theory Principle A.[24] It is in fact required that the reflexive in (8) and (9) bear the same indexical value as the DP *John*. That is, the following distribution of indices yields an ill-formed syntactic structure.

10. [John]$_1$ confuses [himself]$_2$

Indexical *values* have now been mentioned, but not yet indexical *types*. (Fiengo and May, 1994) identify two indexical types: alpha and beta. An alpha-occurrence of an index is an occurrence that is independent of other occurrences of that same indexical value. A beta-occurrence of an index is one that is dependent on another occurrence of

[24] Principle A asserts that, given an occurrence of a reflexive DP, there must be another c-commanding co-indexed expression that is 'close'. Principle B asserts that, given an occurrence of a pronominal DP, there cannot be another coindexed c-commanding expression that is 'close'. Principle C asserts that given an occurrence of a non-reflexive non-pronominal argument DP, there cannot be another co-indexed c-commanding expression in the sentential structure.

that same indexical value. A beta-occurrence can be dependent on another beta-occurrence or on an alpha-occurrence. In the simplest case, a beta-occurrence of an index borne by an expression depends on an alpha-occurrence of an index borne by the same expression-type. This can be illustrated by taking example (8) from above and including information about indexical type in addition to indexical value.

11. $[\text{John}]_{1,\alpha}$ confuses $[\text{himself}]_{1,\beta}$

Here there are two occurrences of the same expression type, defined in terms of indexical value, and two argument positions. Each argument expression occurrence corresponds to one argument position. A beta-occurrence of an index (borne by the expression *himself*) is dependent on, in this case, an alpha-occurrence of the same index (borne by the expression *John*). The occurrence on which the expression *himself* (bearing a beta-occurrence) depends must be borne by a distinct argument expression occurrence.

I have not considered the option that an argument expression occurrence bear no index, and hence have no indexical value. On this view, Binding Theory is concerned with the distribution of (at least) argument expressions, and indices express expression identity, essential for expressing type membership in syntax. They do *not* express sameness or difference of reference.

As I noted in Chapter Two, in this thesis I maintain the distinction between Binding Theory and Dependency Theory.

> Dependency Theory applies to coindexed argument expressions, and not to coindexing in general. Thus, it does not apply to the binding of a variable by a quantifier or *wh*-word, since these expressions are operators, not arguments. Nor does it apply to the binding of DP-trace found in passive and raising constructions, since this is binding within an argument, not between two arguments.
>
> (Fiengo and May, 1994:61-62, Note 11)

The distinction between Binding Theory and Dependency Theory will become relevant in Section 5.6, where I consider some *apparent* sloppy interpretations of elided structures. For now I note that given my proposal that *Das Buch…sich*, *Le livre…se,* and *Lo script…si* from the introductory examples be analyzed as a single argument expression occurrence, there will be no question of Dependency as there might between two distinct arguments.

Just as the phi features borne by an argument expression occurrence are determined once, and cannot change during the structure-building process, I assume that the index borne by an argument expression occurrence cannot change over the course of structure building. In this thesis, coindexing indicates the presence of two occurrences of the same expression-type or binding within one occurrence. Next I turn to a brief overview of previous analyses of the reflexive morphology in middle voice sentences before returning to the analysis presented here and its predictions.

4 Previous Approaches to the Weak Reflexive

There are two main approaches to the reflexive morphology in middle voice sentences: the reflexive is an independent expression corresponding to the external

argument of the verbal predicate; or the weak reflexive serves some sort of function, whether as a 'passivizer', 'absorber', 'suppresser', or 'marker of valency reduction'.

Belletti (1982) is among the proposals that take the weak reflexive to be assigned the external theta role of the medialized verb. If the proposal that the weak reflexive is an independent expression corresponding to the external argument were correct, the external argument would be syntactically active, which the Control data in Section 5.3.1 show is not the case. Further, the *wh*-question data in Section 5.3.2 indicate that the structural Case position in middle voice sentences is the syntactic 'subject' position (not the position that the weak reflexive is in). Thus, if proposals like that of Belletti (1982) were correct, the requirement that syntactic arguments bear Case could no longer hold.

It is less clear what would be predicted by a passivizer, absorber, or suppresser approach. In discussion of absorbers and suppressers, the items absorbed or suppressed are typically Case or theta-roles. It is not clear what absorption or suppression (in linguistic theory) really means, nor is it clear what it would mean to be a piece of passivizing morphology (in contrast with passive morphology) or a marker of valency reduction (rather than morphology that is present due to some set of syntactic principles). Nevertheless, I briefly address such proposals here, as they constitute the bulk of previous work on the weak reflexive of middles.

In analyses of clitics (including the weak reflexive of Romance middles), the notion *absorption* is often invoked, with the clitic being taken to 'absorb' Case or a theta role. Absorption is likely generally viewed less as a linguistic procedure than a correlation between overt morphology and 'missing' Case or 'missing' theta roles.

(Jaeggli, 1986) is unusual in actually offering a definition of the term: "Absorption, then, can be analyzed simply as an instance of assignment to a bound morpheme." If this is all that absorption is, then absorption is but a variety of assignment.[25] Having no reason not to take Jaeggli's characterization seriously, and knowing of no clearer specification of what absorption is, I treat approaches that rely on absorption to be in fact relying on assignment.

Weak reflexives are also often taken to be 'suppressers' in that they 'suppress' the assignment of Case or the syntactic realization of an argument NP or a theta role.[26] The mechanisms of suppression are also not clear, but if suppression of Case or a theta-role by, rather than assignment of Case or a theta-role to, the clitic is to be pursued, there are two options: the clitic suppresses a structural Case position or 'theta-position'; or the clitic turns a position that in the absence of the clitic is a structural Case position (or theta-position) into a position that is not a structural Case position (or theta-position). I view both options as non-sensical. Instead, as with the question of 'absorption' I suggest that if sense is to be made of such proposals, that the suppression mechanism be made

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[25] See Chomsky (1981:124) for discussion of absorption and a precursor to Burzio's generalization, and also for idea that morphological processes: a) transmit theta roles uniformly; b) block them uniformly; or c) assign a new role uniformly.

[26] Zubizarreta (1982) argues that *se*/*si* suppresses NP argument realization in syntax. The clitic blocks assignment of the verb's external theta role to the syntactic subject position, and the NP argument that would otherwise be in syntactic subject position is not included in the phrase marker at all. Although this NP argument is not realized in overt syntax, it is realized at LF. This particular proposal fails because there is no source at any level prior to LF for the external argument. Arguments cannot be inserted at LF, and if *se*/*si* suppresses NP argument realization in syntax, it is not clear why this suppression should no longer hold at LF, LF being but another level of syntax.

formal and transparent, or that suppression, like absorption, simply be viewed as a variety of assignment.

With absorption and suppression tied together as methods of assignment, approaches in which the weak reflexive absorbs the external theta-role fall together with approaches that take the weak reflexive to be assigned the external theta-role. These analyses fail, as there is no evidence that the external argument is syntactically or semantically active (as the Control and *wh*-question data in Sections 5.3.1 and 5.3.2 show). Approaches in which the weak reflexive absorbs Accusative Case (including Belletti (1982) and (Roberts, 1987) may not ultimately be problematic, save the fact that if the weak reflexive bears structural Case, the weak reflexive is an independent argument of the verb. These approaches would then fall together with approaches in which the weak reflexive is assigned the external theta role of the verb. And as noted, there is no evidence that the external theta role is syntactically active.

Approaches in which the weak reflexive of middle voice sentences serves as a 'marker of valency reduction' ((Steinbach, 2002), (Lekakou, 2005)) are probably the closest to the analysis proposed here. Treating this morphology as a marker of valency reduction, though, does not address questions about the syntactic and semantic properties of the weak reflexive. Although I do not include adicity or valency reduction in the analysis of middles (in fact, the analysis treats predicates with an adicity of two as such even in syntactic environments that contain only one argument expression occurrence), I do treat the appearance of the weak reflexive as part of the syntactic solution, in some languages, to the problem of the mismatch investigated here. Thus, the

weak reflexive might be seen as a consequence of a mismatch—a mismatch that is typically treated as valency reduction or some other operation on argument structure.

One of the contributions I hope to make in the thesis is to develop an explanation for the syntactic and semantic properties of the weak reflexive that appears in some languages' middle voice sentences—something that previous proposals fail to address. In the next section I outline the predictions that my proposal makes with respect to the weak reflexive morphology in middles.

5 Predictions the Present Analysis Makes for the Weak Reflexive

Analyzing the reflexive morphology and the DP 'subject' of middle voice sentences as a single argument expression that is phonetically realized in multiple positions predicts the following: the dependent position will be realized as reflexive morphology; there will be a formal syntactic distinction between middles and other string-identical 'constructions'; the phi-features of the DP and reflexive will match; one Case position will be shared between them; only one referent will be introduced between the two of them; and their indexical properties will be the same.

In this section, I review these predictions individually, and address the most significant aspects—namely the way in which the analysis predicts a formal distinction between middle clauses and other string-identical clauses—last. This is in part because the analysis presented in 5.6 builds on the other predictions, predictions that are largely entailed by the hypothesis that the weak reflexive and the DP subject of middle voice sentences together constitute a single formal syntactic object.

5.1 Prediction One: Phi Features

The syntactic subject of a middle can be first-, second-, or third-person.[27] This variation with respect to person has, I think, generally been missed because of the very strong preference in middle voice sentences crosslinguistically for inanimate subjects. For example, when middle voice sentences are exemplified in the literature, the verbs 'read' and 'wash' are frequently used:

12. Il libro si legge facilemente. Italian
    The book *si* reads easily
    'The book reads easily'

13. Las camisas se lavan bien. Spanish
    The shirts se wash well
    'The shirts wash well'

With these inanimate subjects, the DP argument expression is third person. The fact that the overwhelming majority of middle voice sentences discussed in the literature are middles of this type has lead to the misconception that middles must have third-person syntactic subjects. However, two musicians, arguing about their record sales could have the following (German) conversation:

14. Madonna
    Prince, du verkaufst dich schlecht, sogar in deinem Heimatstaat Minnesota.
    Prince, you sell *dich* badly, even in your homestate Minnesota
    'Prince, you sell poorly, even in your home state of Minnesota.'

[27] Universal Grammar does not restrict middles to any particular person (1st-, 2nd-, or 3rd-). Within languages, however, there are some restrictions. First- and second-person middles in Italian are ungrammatical; such middles in Romanian are degraded.

15. Prince:

Luegnerin!	Ich	verkaufe	mich	noch	immer	besser	als	du!
Liar(fem)!	I	sell	*mich*	still	always	better	than	you!

'Liar! I always sell better than you!'

Agreement between the syntactic subject and the weak reflexive is obligatory, as the following German examples show.[28]

16. *Prince, du verkaufst sich/mich schlecht, sogar in deinem Heimatstaat Minnesota.

17. *Luegnerin! Ich verkaufe sich/dich noch immer besser als du!

Constructing scenarios in which ordinarily inanimate entities are animate shows both that the generalization that the subjects of middle voice sentences are third person subjects is not a grammatical restriction and that agreement between the syntactic subject DP and the weak reflexive is obligatory. For example, in a play in which the characters are books, there could be the following exchange regarding the readability of *War and Peace* and *The Brothers Karamazov*.

18. *War and Peace*: Spanish

Yo	me	leo	bien.
I	*me*	read	well

'I read well'

19. *Moby Dick*: Spanish

¿Tú?	No,	no	te	lees	bien
You?	No,	no	*te*	read	well

'You? No, you don't read well'

[28] (16) and (17) are * on the middle interpretation.

Here, as above, agreement between the syntactic subject and the weak reflexive is obligatory[29]:

20. *(Yo) te/se leo bien. Spanish

21. *¿Tú? No, no se/me lees bien Spanish

Examples of middles with non-third-person syntactic subjects are scarce in the literature, but the following examples show that they are part of the grammar and in fact occasionally appear in the literature on middles.[30]

22. Ich wasche *mich* schneller als alle anderen
I wash RP.1SG faster than all the.others
'You can wash me faster than the others'[31]
(German, from Steinbach, 2002:134)

23. Du verkaufst *dich* gut – ich meine, dein Buch verkauft *sich* gut
You sell RP.2SG well – I mean, your book sells RP.3SG well
'You sell well – I mean your book sells well'
(German, from Steinbach, 2002:134)

Here too, the syntactic subject and the weak reflexive must agree with respect to phi-features:[32]

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[29] (20) and (21) are * on the middle interpretation.

[30] Steinbach (2002) glosses *sich*, *mich*, *dich* as RP (Reflexive Pronoun) regardless of their (non)referential status.

[31] Or 'I wash faster than all the others' on a middle interpretation. This example may also have an unaccusative interpretation, but the paraphrase given in the source and my consultation with an informant show that it also has a middle analysis and interpretation.

24. *Ich wasche sich/dich schneller als alle anderen.

25. *Du verkaufst sich/mich gut – ich meine, dein Buch verkauft mich/dich gut.

The examples in this section show that while there may be a numerical preference regarding the animacy of the syntactic subject of middle voice sentences, there is no general grammatical restriction with respect to animacy or person. These examples also illustrate that the person of the weak reflexive must be the same as the person of the syntactic subject.

The analysis I propose predicts that the DP in syntactic subject position and the weak reflexive agree with respect to phi features. In fact, it is entailed, given that together they constitute a single argument expression occurrence. To my knowledge, no other analysis makes such a prediction.

5.2 Prediction Two: One Case Position

On the view that argument expressions bear one and only one structural Case, the proposal I advance in this thesis predicts that the sole argument expression occurrence in middle voice sentences is in one and only one structural Case position. Given my analysis of the DP subject and weak reflexive as a single syntactic object, this means that the syntactic subject position or the position of the weak reflexive is a structural Case position, but not both. In Section 5.3.2 I use *wh*-questions to diagnose the Case position of middle voice sentences, showing that the syntactic subject position, rather than the position of the weak reflexive, is the structural Case position.

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[32] (24) and (25) are * on the middle interpretation.

The morphology of the weak reflexive is vague with respect to Case, and so this cannot provide conclusive information. However, if the weak reflexive bears an independent structural Case, this predicts that it is an independent argument. This cannot be the correct conclusion, given the absence of evidence that the 'external argument' of the middle verb is syntactically or semantically present. Thus, between the two syntactic positions—the one that the full DP is in and the one that the weak reflexive is in—only one can be a structural Case position. With respect to morphology, then, the case of the DP and the case of the weak reflexive instantiate an absence of a mismatch rather than a complete match.

To my knowledge, no other proposal makes the prediction that the DP in syntactic subject position and the weak reflexive, in this sense, share a structural Case position. Questions about Case-licensing of the weak reflexive do not arise under the assumption defended here, given that it does not independently require Case.

5.3 Prediction Three: Only One Referent

The analysis I propose entails that the combined referential contribution of the DP and the weak reflexive is the same as the contribution that an ordinary single argument expression occurrence makes. This is because together the DP in syntactic subject position and the weak reflexive constitute a single argument expression occurrence. To the extent that syntactic diagnostics are sensitive to the number of argument expression occurrences in a sentential structure, these diagnostics lead to the conclusion that one, not two, referring argument expression occurrences are in the sentential structure of middle voice sentences.

The idea that only one referent is introduced in middle voice sentences is a semantic notion, but I include it in this chapter on syntactic effects as there are two syntactic diagnostics that support this idea: One is that there is no expression in the syntactic structure of middles that corresponds to the 'external argument' of the verb and that is able to serve as a controller for a PRO in an adjunct clause; the other is that there is only one position tied to reference in the syntactic structure of middles—only one R-position, as it is sometimes called.

5.3.1 Control

Control into an adjunct is often taken to diagnose the syntactic presence of an 'agentive' argument, even when that argument is not realized in its standard position or with its standard phonetic assignment. The contrast between the English passive and middle below is often taken to indicate that the verb's external argument or logical subject is present in passives and absent in middles.

26. The ship was sunk [PRO to collect the insurance]

27. The ship sank easily [*PRO to collect the insurance]

There are, as is well known, many cases of PRO in which there is no syntactic manifestation of a controller. In the two examples below, there is no syntactically active expression that could serve as the controller for PRO. This poses no problem for the discussion advanced here, as the cases below are not cases of controlled PRO.

28. Grass is green PRO to promote photosynthesis. (Williams, 1974)

29. Yesterday's attempt PRO to break out of jail was unsuccessful.

The failure of control in the Spanish example below shows that the weak reflexive should not be analyzed as corresponding to the logical subject of the verbal predicate.

30. El libro se lee bien (*para PRO disfrutar un dia buena).
The book *se* reads well (for PRO enjoy.INF a day good)
'The book reads well in order to enjoy a pleasant day'

That the Spanish example (31) is grammatical may seem at first to challenge the conclusion drawn from (30).

31. El libro se lee bien para PRO ser un libro de Chomsky.
The book *se* reads well for PRO be.INF a book of Chomsky
'The book reads well for being a book of Chomsky's'

However, (31) does not challenge the line of argumentation once its interpretation is considered. *Para* can mean *in order to*, but when it appears in an adjunct clause to a middle voice sentence it doesn't have that meaning—rather it means *considering that*. PRO in this example is syntactically controlled, but it is controlled by the DP *El libro*.

The proposal in this thesis entails that the weak reflexive in middle voice sentences does not instantiate the external argument. The weak reflexive and the DP in syntactic subject position together constitute a single argument expression occurrence. I

know of no other analysis from which it *follows* that the weak reflexive is not an instantiation of the verbal predicate's logical subject.

5.3.2 *Wh*-Questions

Wh-questions can be used to diagnose the syntactic position tied to reference. The position that contains a variable in middle voice questions is the syntactic subject position—the same position that contains a variable in middle voice sentences with quantified DPs. I noted in Chapter Two that I take these positions to be the syntactic positions tied to reference.

32. Question
    Que *t* se lee bien?
    What *t se* reads well
    'What reads well?'

33. Quantified DP
    Todos los libros *t* se leen bien.
    All the books *t se* read well
    'All the books read well'

34. Question
    Was *t* wäscht sich gut?
    What *t* washes *sich* good
    'What washes well?'

35. Quantified DP
    Alles französisch *t* wäscht sich gut.
    Everything French *t* washes *sich* good
    'Everything French washes well'

The examples above show that the syntactic subject position, or Case position, rather than the position that the weak reflexive is in, is the position tied to reference.

Wh-questions can be responded to with an expression (often included in a sentence) that picks out the item 'asked for'. For example, in response to the *wh*-questions below, someone might respond with the answers below.

36. Question
    Who kicked the dog?

37. Answer
    The cat (kicked the dog).

38. Question
    Who did the cat kick?

39. Answer
    (The cat kicked) the dog.

Taking a predicate that uncontroversially only appears with one argument DP expression (*die*), we see that there is a *wh*-question that corresponds to the declarative form.

40. Question
    Who died?

41. Answer
    John died.

There is no *wh*-question that can target another, different, argument DP. That is, the examples below are ungrammatical.

42. *Who died John?

43. *Who did John die?

Middle voice *wh*-questions always can be responded to with the value for the item that the middle predicate applies to, i.e., the logical object.

44. Que *t* se lee bien?
What t *se* reads well
'What reads well?'

45. El libro se lee bien.
The book *se* reads well
'The book reads well'

46. Que *t* se lava bien?
What t *se* washes well
'What washes well?'

47. La camisa se lava bien.
The shirt *se* washes well
'The shirt washes well'

No question can be asked, however, the answer to which provides a referent or value for the 'reader' or 'washer'. This further indicates that the weak reflexive in the examples above is not referential. Any question that did ask about the washer or reader and that did not contain *se* or *sich* would be asking an active voice question rather than a middle voice question. That is, *Quien lee bien?* can be asked to find out who is a good reader, and *Cual lava bien?* might be asked to find out which person does the wash best, but neither of these questions can ask for the value of the argument expression that saturates the middle predicate.

One of the major divides in previous analyses of middles is the question of whether the 'external argument' of the verb is syntactically realized. I side in this thesis with those who argue that the 'external argument' is not syntactically realized. The data above support that conclusion, a conclusion that is an entailment of my proposal.

5.4 Prediction Four: Indexical Properties are the Same

My proposal entails that the indexical properties of the DP in syntactic subject position and the weak reflexive will be the same. This, as is the case with the phi-features, is an entailment that follows from analyzing the DP and the weak reflexive as a single expression occurrence.[33] For now I simply note this as one of the predictions made by the proposal in this thesis. This entailment will be relevant in the discussion of ellipsis in Section 5.6, where questions regarding the indexical properties of the weak reflexive of the middle as compared with the indexical properties of other weak reflexives will arise.

5.5. Prediction Five: The Dependent Position is Realized as Reflexive Morphology

Although the weak reflexive is not an independent argument expression occurrence that is bound by a co-indexed (and distinct) independent argument expression, it is found in a position that is local to and c-commanded by the DP that (necessarily, on the view argued for in this thesis) shares its indexical properties. Here the distinction between expressions and positions arises. The position is realized as reflexive morphology; the position may contain 'part of' an expression (as is the case

[33] I know of no linguistic argument expression occurrence that can bear one index in one syntactic position and a different index in another.

with the middle) or an independent expression (as is the case with some active-voice cliticized constructions). To my knowledge, no other analysis predicts the morphological form of the weak reflexive in middles.

5.6 Prediction Six: String-Identical 'Constructions' are Formally Distinct

In this section I use ellipsis data to show that any analysis of middles must provide a formal distinction between middles and other string-identical 'constructions'. In particular, I show that there is a contrast between the sloppy active and the 'sloppy' middle, a contrast that is due to the fact that two argument expression occurrences are in the syntactic structure of the active voice sentence, but only one argument expression occurrence is in the syntactic structure of the middle voice sentence. The analysis I propose in this thesis provides a means by which this insight can be formally captured in a theory of syntactic representation. In fact, it entails that the weak reflexive in middles is formally distinct from the weak reflexive in other 'constructions'. I do not know of other analyses that discuss or capture this structural non-identity. I start with some background on ellipsis before turning to the central data.

I assume that ellipsis is a syntactic phenomenon, with ellipsis being licensed in cases of structural identity. In some cases, the data in this section illustrate *apparent* strict-only interpretations of certain elided sentences. Although the data do not in all cases properly illustrate strict-sloppy contrasts, they do illustrate the presence or absence of structural identity.

The strict-sloppy distinction is relevant in determining the *referent* of an elided expression. The example below can be interpreted strict or sloppy.

48. John likes his sister and Fred does too.

On the strict interpretation, John likes John's sister and Fred likes John's sister. The term *strict* is used here as the pronoun in the pronounced clause and the elided clause bear the same indexical value. The characterization of the pronoun is fixed for both clauses. An illustration is below.

49. John$_1$ likes his$_1$ sister and Fred$_2$ [likes his$_1$ sister] too.

The elided pronoun refers, and its referential properties are the same as the referential properties of the pronounced pronoun.

On the sloppy interpretation, John likes John's sister and Fred likes Fred's sister. The term *sloppy* is used here as the pronoun is not strict with respect to the index it bears in the pronounced and elided clauses. On this interpretation the elided pronoun bears the same index as the expression *Fred*. An illustration is below.

50. John$_1$ likes his$_1$ sister and Fred$_2$ [likes his$_2$ sister] too.

Although the pronoun bears a different index in the two clauses, the nature of the relationship between *John* and *his* in the first conjunct is identical to the relationship between *Fred* and *his* in the second conjunct. That is, the dependency relationship is the same. In strict cases, the indexical value of the elided item in question is identical to the

indexical value of the corresponding non-elided item; in sloppy cases, the dependency of the elided item in question is identical to the dependency of the corresponding non-elided expression.

A consequence of the proposal in this thesis is that the weak reflexive in middle voice sentences does not, on its own, constitute a referring argument expression. Rather, it is instantiated in one of the multiple syntactic positions that the sole argument expression occurrence of middle voice sentences is in. However, a distinction similar to the one described above is at work. Below, when there is only an apparent strictness or sloppiness, I put *strict* and *sloppy* in quotation marks. Questions of structural identity regarding elided expressions are relevant when considering the data below, and on the view, which I assume here, that ellipsis is licensed under structural identity, a satisfactory account of the data must be one in which middles are analyzed as structurally distinct from other string-identical 'constructions'. In some of the cases below, I will use admittedly unusual contexts in which ordinarily inanimate entities are animate (as might be the case in a play or children's story).

Middle voice predicates can appear in active-voice syntactic frames with two distinct arguments. This allows cases in which a middle-voice sentence and an active-voice sentence will be string-identical. The Spanish examples below illustrate this. In the ellipsis context (52) and (54), the interpretation of (51) and (53) must be active voice or middle voice across the board.

51. El coche se lava bien y la camisa se lava bien.
The car *se* washes well and the shirt *se* washes well

52. Ellipsis:
El coche se lava bien y la camisa también.
The car *se* washes well and the shirt too.

53. El articulo se lee bien y el cuento se lee bien.
The article *se* reads well and the story *se* reads well

54. Ellipsis:
El articulo se lee bien y el cuento también.
The article *se* reads well and the story too

The first ellipsis case, (52), can have any of the three meanings indicated below.

55a. The car did a good job of washing the car and the shirt did a good job of washing the car.

55b. The car did a good job of washing the car and the shirt did a good job of washing the shirt.

55c. The car washes well (is easy to wash) and the shirt washes well (is easy to wash) too.

The (a) interpretation is strict, the (b) interpretation is sloppy, and the (c) interpretation is the middle interpretation. In a sense the (c) interpretation might be called 'sloppy' as well, save the fact that the weak reflexive on the (c) interpretation does not make a unique referential contribution.

In the ellipsis case, (52), it is not allowed that the matrix clause be interpreted as a (cliticized) active voice sentence, and the subordinate clause be interpreted as a middle. It is also not allowed that the matrix clause be interpreted as a middle and the

subordinate clause be interpreted as (cliticized) active voice sentence. That is, neither of the interpretations below can be assigned to (52).

55d. The car did a good job of washing its own self and the shirt washes well (is easy to wash).

55e. The car washes well (is easy to wash) and the shirt did a good job of washing its own self.

The second ellipsis example, (54), can have any of the three meanings indicated below.[34]

56a. The article reads the article well and the story reads the article well.

56b. The article reads the article well and the story reads the story well.

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[34] The example is, given the inanimate nature of the syntactic subject, most typically interpreted as a middle voice sentence, as is the example below.

(i) El articulo se lee bien.
The article *se* reads well
'The article reads well'

However, if a story had been written about an article that does a number of things well (reading, cooking, ironing), and that further, the article does some of these things to its own self (reads its own pages, irons its pages while ironing a basketful of clothes) then the example above could be interpreted as meaning that the article reads its own pages well. Further, just as middle voice sentences can have first, second, or third person syntactic subjects, transitive cliticized reflexive sentences can as well. The examples below illustrate this for first and second person.

(ii) Yo me leí. (Can be said if the speaker were a dictionary that read its contents)
I *me* read.PAST
'I read myself'

(iii) Tú te leíste. (Can be said if the addressee were a dictionary that read its contents)
You *te* read.PAST
'You read yourself'

56c. The article reads well (is easy to read) and the story reads well (is easy to read) too.

The (a) interpretation is strict, the (b) interpretation is sloppy, and the (c) interpretation is the middle interpretation. As above, there is a sense in which the (c) interpretation might be called 'sloppy', save the fact that the weak reflexive on the (c) interpretation does not make a unique referential contribution.

As with the first example of ellipsis, it is not allowed that in (54) the matrix clause be interpreted as a cliticized active-voice sentence and the subordinate clause be interpreted as a middle. It is also not allowed that the matrix clause be interpreted as a middle and the subordinate clause be interpreted as a cliticized active-voice sentence. Neither of the interpretations below can be assigned to the second of the ellipsis examples, (54), above.

56d. The article reads its own self well and the story reads well (is easy to read) too.
56e. The article reads well (is easy to read) and the story reads its own self well too.

On the view that ellipsis is licensed under syntactic identity, the cliticized active-voice clauses and the middle voice clauses above must be structurally distinct. This is apparent given the data above and the allowable and non-allowable interpretations of the elided examples. When the elided cases restrict the allowable interpretations, this is due to the structural non-identity of the middle clause compared with the active voice clause. The reason the elided clauses are restricted in their interpretation is that the

requirements of structural identity are met when both clauses are active or both clauses are middle, but are not met when one clause is middle and the other is active. Thus, the data show that, for example, the clauses *se lava bien* and *se lee bien* above require at least two distinct structural analyses—one corresponding to middle voice and one corresponding to active voice.

One potential locus of this syntactic difference is the nature of the weak reflexive. The analysis of middles I propose does in fact make predictions that will ultimately require a formal analysis of the weak reflexive in middles that is distinct from the weak reflexive in the active voice cases above. Taking just the 'read' example from above, and providing information about indexical values in the cliticized active-voice case, we have the following.

57. Strict:
[El articulo]$_1$ [se]$_1$ lee bien y [el cuento]$_2$ [se]$_1$ lee bien.

58. Sloppy:
[El articulo]$_1$ [se]$_1$ lee bien y [el cuento]$_2$ [se]$_2$ lee bien.

Below is the middle case, with information about indexical values.

59. [El articulo]$_1$ [se]$_1$ lee bien y [el cuento]$_2$ [se]$_2$ lee bien.

I noted that there is a sense in which the elided middle voice case is necessarily 'sloppy'. Regarding indexical values, it patterns with the sloppy case above. But it isn't truly 'sloppy' as there is no question about the referent introduced by the weak reflexive (the

overt or elided one) as the weak reflexive does not, in either case, independently introduce a referent.

The above representations fail to indicate any structural distinction between the active voice clause and the middle voice clause. But including information about indexical type shows that the two clause types are in fact structurally distinct.

60. Active voice
[El articulo]$_{1,\alpha}$ [se]$_{1,\beta}$ lee bien y [el cuento]$_{2,\alpha}$ [se]$_{2,\beta}$ lee bien.

61. Middle voice
[El articulo]$_{1,\alpha}$ [se]$_{1,\alpha}$ lee bien y [el cuento]$_{2,\alpha}$ [se]$_{2,\alpha}$ lee bien.

As noted in Section 5.4, the indexical properties of the DP in syntactic subject position must be the same as the indexical properties of the weak reflexive. This predicts that the weak reflexive of the middle will be formally distinct from the weak reflexive argument expression that appears in the active voice examples above. This provides the formal distinction necessary to account for the ellipsis data considered in this section.

In this section I have used ellipsis to show that even in cases in which a middle clause and an active voice clause are string-identical, they are structurally distinct. I concentrated on the nature of the weak reflexive that appears in the active voice and middle voice clauses I considered, given that the proposal in the thesis makes predictions regarding the formal nature of the weak reflexive. The weak reflexive of the middle voice clause bears an index of type α, while the weak reflexive of the active voice clause bears an index of type β. The formal difference between the weak reflexive of the

active voice clause and the weak reflexive of the middle voice clause provides a formal distinction between the two clause types. Thus, one clause type cannot be substituted for the other in cases of ellipsis, under the assumption that ellipsis is licensed only in cases of structural identity.

5.6.1 Italian Clauses and Another Source of Structural Non-Identity

Although I have provided an account of the ellipsis data in terms of the syntactic characterization of the weak reflexive, there is also the possibility that differences regarding *placement* of the weak reflexive provide yet another source of structural non-identity when the two clause types are compared. I explore this possibility here for Italian.

Research on clitic placement in Romance languages has shown that, crosslinguistically, there are syntactic positions in the CP, IP, and VP 'fields' that clitics can be in. Below I review some middle voice data that has not, to my knowledge, appeared in the literature on middles, as well as an analysis of participial clauses developed in Benincà and Tortora (2008). The two come together to indicate that the syntactic position of the weak reflexive in active and middle voice clauses may also be a source of structural non-identity.

Two standard diagnostics—conjunction and placement with respect to negation—are inconclusive with respect to placement of the weak reflexive in Italian middle voice sentences. The conjunction test appears to show that the weak reflexive is somewhat low, though exact placement is hardly clear, especially given that whether

each medialized verb is a associated with its own, or a shared, adverb, changes the status of the sentence.

62. Il libro si legge bene e *(si) traduce facilemente.
The book *si* reads well and (*si*) translates easily
'The book reads well and translates easily'

63. Il libro si legge e ?(si) traduce bene.
The book *si* reads and (*si*) translates easily
'The book reads well and translates easily'

The negation test shows that the surface position of the weak reflexive is lower than the surface position of negation.

64. Il libro non si legge bene.
The book *non si* reads well
'The book doesn't read well'

65. *Il libro si non legge bene.
The book *si non* reads well
'The book doesn't read well'

The only thing that can clearly be determined on the basis of these two standard diagnostics is that the weak reflexive is lower than the surface position of the negative morpheme.

I now turn to a discussion of Italian participial clauses—absolute small clauses in particular—in an attempt to better determine the syntactic position of the weak reflexive of Italian middles. Benincà and Tortora (2008) provide evidence that participial clauses in Italian are missing the IP and CP 'fields' that might (in finite clauses) provide

syntactic positions for certain clitics. If a clitic can be shown to be incompatible with participial clauses, a logical conclusion, then, is that the clitic in question is located in the I or C field (but not the extended VP field). Benincà and Tortora (2008) provide data from Borgomanerese that show that the position of impersonal *si* is higher than the position of reflexive *si* in that language. The examples below are their (3a) and (3b).[35]

66. Al vônga-**si** Reflexive *si*
SubjectClitic sees-*si*
'He sees himself'

67. A**s** môngia bej chilonse. Impersonal *si*
Si eats well here
'One eats well here'

They then explore the hypothesis that, as in Borgomanerese, Italian impersonal *si* is in a relatively high syntactic position. Given these two hypotheses—a) that participial clauses do not include the IP and CP 'fields'; and b) that impersonal *si* is in a syntactic position in the IP or CP 'field'—it is predicted that impersonal *si* will be incompatible with participial clauses.

The first piece of evidence in favor of this hypothesis is the comparison of some examples from Burzio (1986:194-195). The first example (68) contains a finite relative clause; the other contains a participial relative clause (69).

[35] For discussion of the phonological distinction between reflexive *si* and impersonal *si*, see Benincà and Tortora (2008).

68. Gli individui [che si$_{impersonal/reflexive}$ erano presentati al direttore] furono poi assunti.
The individuals that *si* were presented to.the director were then hired

'The individuals that one had introduced to the director…' Impersonal *si*
'The individuals that had introduced themselves to the director…' Reflexive *si*

69. Gli individui [presentati- si$_{impersonal/reflexive}$ al direttore] furono poi assunti.
The individuals presented-si to.the director were then hired
*'The individuals that one had introduced to the director…' Impersonal *si*
'The individuals that had introduced themselves to the director…' Reflexive *si*

In (68), two analyses are possible. *Si* can be analyzed as impersonal (and thus must be in a syntactic position compatible with impersonal *si*), or it can be analyzed as a reflexive clitic (and thus must be in a syntactic position compatible with reflexive *si*). The tensed relative clause contains, by hypothesis, the IP and CP fields. Thus, it is expected that both an impersonal and reflexive analysis of the clitic are available.

In (69), an impersonal analysis of *si* is not available. Given hypotheses (a) and (b), this is expected. The participial clause, by hypothesis, does not contain IP or CP. Impersonal *si* is in a higher (higher than VP) syntactic 'field', and thus impersonal *si* is incompatible with the participial relative clause in (69). The only available analysis is that si is reflexive. And, this is in fact the case. Thus, the data in (68) and (69) provide confirmation of the analysis argued for in Benincà and Tortora (2008).

Benincà and Tortora (2008) provide further evidence that participial clauses do not contain the IP or CP fields, through exploration of the clitic and verb combination *volerci* ('to be needed'/'to be necessary'). They pursue the hypothesis that the *ci* that

appears with *voler* in the *volerci* 'construction' is associated with deontic semantics and is in a syntactic position within CP. Thus, *volerci* is predicted to be incompatible with participial clauses (given the hypothesis that participial clauses do not contain IP or CP). And, indeed, this prediction is correct. They provide the following example, with *volerci* in a participial clause. The example is not grammatical, as judged by Italian speakers.[36]

70. *La pasta [voluta-ci] era troppa.
The pasta wanted-*ci* was too.much
'The pasta necessary was too much'

With this background in place, I pursue here the hypothesis that the weak reflexive in Italian middle voice clauses is in a higher position than other weak reflexives, and higher than the weak reflexive that appears in some unaccusative sentences. The data show that the weak reflexive of middle voice sentences in Italian is incompatible with participial clauses (here absolute small clauses). Given the discussion above, this leads to the conclusion that the weak reflexive of Italian middle voice sentences is in IP or CP, higher than the extended VP domain.

In Italian, unaccusative verbs (here those that participate in an intransitive/transitive alternation) can appear as the main predicate of an absolute small clause. In such cases, the weak reflexive is obligatory. The examples below that include *si* are grammatical; those without *si* are not.

[36] Benincà and Tortora (2008) note that Paduan-Italian speakers provide different judgments on examples like (70), and provide an explanation for the data that is in keeping with, and in fact follows from, the primary hypotheses they advance in their analysis.

71. Essendosi raffreddato, il caffe' non era piu' buono.
Being-*si* cooled, the coffee not was anymore good
'Having cooled, the coffee was no longer good'

72. *Essendo raffreddato, il caffe' non era piu' buono.
Being cooled, the coffee not was anymore good
'Having cooled, the coffee was no longer good'

73. Raffreddandosi, la colla diventa dura.
Cooling-*si*, the glue turns hard
'Cooling, this glue becomes hard'

74. *Raffreddando, la colla diventa dura.
Cooling, the glue turns hard
'Cooling, this glue becomes hard'

75. Essendosi scaldata, Maria si senti' meglio.
Being-*si* warmed, Maria *si* felt better
'Having warmed up, Maria felt better'

76. *Essendo scaldata, Maria si senti' meglio.
Being warmed, Maria *si* felt better
'Having warmed up, Maria felt better'

Medialized verbs, though, cannot serve as the main predicate of an absolute small clause.

77. ??/*Essendosi letto bene come al solito, il lavoro di Lucia vinse il lode della critica.
Being-*si* read well as the usual, the work of Lucia earned the praise of.the critics.
'Having read beautifully as always, Lucia's work earned the critics' praise.'

78. *?Leggendosi bene come al solito, il lavoro di Lucia vinse il lode della critica.
Reading-*si* well as the usual, the work of Lucia earned the praise of.the critics
'Reading beautifully as always, Lucia's work earned the critics' praise.'

79. *Non essendosi guidata bene, la Buick fu eliminate dal mercato.
Not being-*si* driven well, the Buick was eliminated from.the market
'Not having driven well, the Buick was eliminated from the market.'

It seems that the problem is likely not a semantic problem, or at least cannot be tied to the fact that middle predicates express properties of their associated arguments. The adjectival absolute small clause constructions below show that property-denoting predicates can be the main predicates of such clauses. The following examples illustrate this with a Stage-Level Predicate (*affamato*) and an Individual-Level Predicate (*francese*). A weak reflexive is not required with such predicates.

80. Essendo affamato, il bambino rubo' dei soldi per comprare cibo.
Being hungry, the boy stole of money to buy food
'Being hungry, the boy stole some money for food.'

81. Essendo francese, alla donna fu negato il visto per la Russia.
Being French, the woman was denied the visa for the Russia
'Being French, the woman was denied entry into Russia.'

The predicates in (80) and (81) ascribe properties to the entities denoted by the syntactic subject of the subordinate clause. This is the case with middles as well. So it seems that there is no semantic problem with middles serving as absolute small clauses.

Unaccusative verbs can appear as the main predicates of absolute small clauses, and in

these cases the weak reflexive is required. Given this, it is evident that there is a position that a weak reflexive can be in within the syntax of the participial absolute small clauses. Given that a) Italian middle voice sentences must contain a weak reflexive; and b) that absolute small clauses in Italian can include weak reflexives, a reasonable conclusion is that the weak reflexive of Italian middle voice sentences is in a position that is higher than the position for weak reflexives that is available in absolute small clauses.

The conclusion that the weak reflexive in Italian middle voice sentences is in IP or CP (but not VP) provides an explanation for the ungrammaticality of the medialized absolute small clause examples above. If correct, this conclusion is consistent with the hypothesis advanced in Benincà and Tortora (2008) that there are positions above the VP domain that host certain clitics, and that non-finite clauses in Italian cannot host such clitics due to the absence of IP or CP 'fields' in such clauses.

This conclusion provides yet another source of structural non-distinctness when comparing Italian active voice and medialized clauses—even when they are string-identical. This conclusion also casts doubt on the general assumption that the syntax of middles in languages that require reflexive morphology is the same as the syntax of unaccusatives in those languages (when the reflexive morphology is required with unaccusatives).

In Section 5.6 I concentrated on the contrast between string-identical middle voice and active voice sentences. There are, as is well known, a host of other 'constructions' that include weak reflexive morphology, such as impersonals, *se*-passives, 'inherent' reflexives, and some unaccusatives. There is less, and in some cases,

no overlap as far as string-identity is concerned between these 'constructions' and middles. Impersonals and *se*-passives will necessarily have third person subjects; 'inherent' reflexives generally do not have a middle variant—for example *shame/'be ashamed'* is often realized as an inherent reflexive, with obligatory weak reflexive morphology, but it cannot appear with a full reflexive in active voice, nor can it appear in middle voice. In the next chapter I discuss some interpretive differences between unaccusatives and middles, for now simply noting that not all unaccusatives can appear as middles (*die*, *arrive*) and that while some unaccusatives appear with reflexive morphology (in languages that require such morphology in middles) not all unaccusatives appear with this morphology and in some cases it appears to be optional—for example, *Le vase (se) casse/The vase breaks*.[37]

6 English Reflexive Middles

At the outset of the thesis I suggested that there are a variety of syntactic solutions to the problem of having a single argument expression available to do the work normally allotted to two distinct argument expressions. I introduced the idea of argument spreading, which as described can be viewed as an approach to movement broadly speaking. Movement is often taken to be a syntactic operation that leaves a trace (or set of traces) in the syntactic positions that a linguistic expression has been in and which are c-commanded by its final syntactic position. This is in fact one variety of argument spreading. Another variety—one that I have explored in more detail in the

[37] With this apparently optional weak reflexive sometimes being treated as an aspectual marker (Hulk and Cornips 2000).

thesis—is the variety in which more than one syntactic position is phonetically realized. These are the cases of middles that require a weak reflexive. Earlier I noted that the 'trace' variety of argument spreading, as well as the 'weak reflexive' variety of argument spreading are both possible solutions to the syntactic mismatch at the core of middle voice sentences. I also noted that an expletivization solution might be used, assuming that the grammar of the language in question permits this.

English is typically taken as a language that only allows the 'trace' variety of the argument spreading solution, but I would like to suggest that examples like the following have both an active voice analysis and a middle voice analysis—that is, they are structurally ambiguous with a distinct structural analysis corresponding to the distinct 'meanings' noted below.

82. This book reads itself.

'This book reads this book'	Active
'This book reads easily'	Middle

I will refer to examples like the one above, on the middle interpretation, as the English reflexive middle. To the extent such examples are analyzed as middles (see (Fiengo, 1974), (Fiengo, 1980), (Fellbaum, 1989)), it is often noted that the reflexive bears stress—perhaps more stress than expected in sentence-final position. I do not have anything further to contribute to this observation, save the following: The relationship between the stress an expression bears and the referent of an expression has been discussed in (Akmajian and Jackendoff, 1970) and (Fiengo and May, 1994), among

others. Most of these discussions have focused on pronouns rather than reflexives. In Akmajian and Jackendoff, stress on the pronominal indicates absence of coreference with (in their cases) a name. In the Akmajian and Jackendoff cases, this means reference to a different object. Extending the observation to the English reflexive middles, stress on the reflexives indicates could, within the approach I have adopted here, indicate absence of coreference given that the reflexive does not independently refer. In the absence of reference, there is necessarily absence of coreference. When discussing English reflexive middles here, I will use all capitals for the reflexive to indicate stress and distinguish the middle form from the active voice form.

With this variety of middle, as is the case with the Romance and German middles, the referent of the reflexive is not at issue: the reflexive does not, *on its own*, refer. The Control data below show that in the English reflexive middle, as with the Romance and German middles, the 'external argument' is not syntactically realized.

83. The dress washed itself.

84. The dress washed ITSELF.

85. The dress washed itself PRO to satisfy the costume director.[38]

86. *The dress washed ITSELF PRO to satisfy the costume director.[39]

[38] Presumably an animate dress.

[39] * on the middle interpretation of the matrix clause.

Wh-questions also show that there is only one R-position in the English reflexive middle. Below, in the middle voice question, corresponding to the declarative middle, the *wh*-expression *which book* A-bar binds the trace in syntactic subject position.

87. This book reads easily.

88. Which book *t* reads easily?

The R-position of the English reflexive middle is the same. A variable in the syntactic subject position is A-bar bound by a *wh*-expression in the middle voice question below corresponding to the English reflexive middle.

89. This book reads ITSELF.

90. Which book *t* reads ITSELF?

A question targeting the post-verbal position is not a middle question. This shows that the reflexive DP in the English reflexive middle is *not* in a referential position, or at least is not itself referential.

91. What does this book read *t*?

92. This book reads ITSELF.
(Not a possible answer given the middle interpretation)

93. This book reads itself.
(A possible answer, given the active interpretation)

94. This book reads essays by MFK Fisher.
(Another possible answer if the book is taken to be animate)

The question below also shows that in the English reflexive middle, the DP in syntactic subject position is the only referential DP in these sentences.

95. How does this book read?

96. It reads beautifully.

97. It reads ITSELF.

The Control and *wh*-question data show that in the English reflexive middle, like with the Romance and German middles, there is only one argument expression occurrence and only one R-position or structural Case position in the sentential structure.

As is the case with the Romance and German middles, contrasts with respect to ellipsis arise, as (98) (and its three possible 'meanings') illustrates.

98. The book reads itself and the magazine does too.

99. Middle: The book reads easily and the magazine reads easily.

100. Transitive: The book reads its own self and the magazine reads the book.

101. Transitive': The book reads its own self and the magazine reads its own self.

This sentence (98) must be interpreted as middle across the board (with the pronounced and elided clauses both medialized) or as active voice across the board (with the

pronounced and the elided clauses both active voice clauses, with a strict or sloppy analysis of the elided reflexive allowed, as is standard).

The reflexive and the DP in syntactic subject position will both bear the same indexical value. Thus, (98) would be as below, with indexical values noted.

102. [The book]$_1$ reads [itself]$_1$ and [the magazine]$_2$ reads [itself]$_2$

The regular transitive versions (as paraphrased in (100) and (101)) will allow a strict or sloppy interpretation (true strict or sloppy). The reflexive DP here is an independent argument expression, and it makes its own referential contribution. The strict example would be as below, with indexical values noted.

103. [The book]$_1$ reads [itself]$_1$ and [the magazine]$_2$ reads [itself]$_1$
'The book reads its own self and the magazine reads the book'

The sloppy example would be as below, with indexical values noted.

104. [The book]$_1$ reads [itself]$_1$ and [the magazine]$_2$ reads [itself]$_2$
'The book reads its own self and the magazine reads its own self'

If indices constituted solely indexical values, the reflexive middle and transitive sentence (on the sloppy indexing) would be structurally identical. This is not expected, given that under ellipsis, the elided expression must be interpreted as the matrix (middle across the board or transitive across the board). In Section 5.4 I noted that the analysis presented here entails that in the middle voice examples, the DP and weak reflexive will bear the

same indexical value and the same indexical type, as together they constitute a single argument expression occurrence. Including information about indexical type shows that the active and middle analyses of (98) are structurally distinct.

105. Middle: [The book]$_{1,\alpha}$ reads [itself]$_{1,\alpha}$ and [the magazine]$_{2,\alpha}$ reads [itself]$_{2,\alpha}$

106. Active: [The book]$_{1,\alpha}$ reads [itself]$_{1,\beta}$ and [the magazine]$_{2,\alpha}$ reads [itself]$_{2,\beta}$

As was the case with the Spanish examples I discussed in Section 5.6, the analysis of middles proposed in this thesis entails that the middle and active voice clauses with reflexives will be structurally distinct. And as above, this prediction is desirable given the ellipsis data considered. Before introducing the ellipsis data in this section on English reflexive middles I provided some diagnostics to support the hypothesis that sentences like (82) are structurally ambiguous.

7. Proposed Requirement

Conditions on reflexive DPs are often written with the aim of accounting for how their referents are determined. In this chapter I have provided a formal analysis of the weak reflexive in middle voice sentences that follows from the proposal I make in this thesis. I have argued here that the reflexive DPs in middle voice sentences do not make a unique referential contribution. Since they do not refer, they cannot be coreferent with anything and they cannot depend for reference on anything. This entails that an account of anaphora without coreference must be provided. The formal requirement stated

below capitalizes on the distinction between types, occurrences, and tokens that I outlined at the beginning of the thesis.

> For any number *n* positions corresponding to the same expression-type, there can be *at most* one referent. This requirement is met under the following three circumstances: 1) All positions refer, and they refer to the same item; 2) Some positions refer, some do not refer, and those that do refer all refer to the same item; 3) No positions refer.

The requirement is written in such a way as to handle all sentences that include one or multiple occurrences of an expression type. The first circumstance handles situations like *John confuses himself* (setting aside Case-driven movement) in which both *John* and *himself* refer, and they refer to the same item. The second circumstance handles the middles that appear with reflexive morphology: there are two phonetic realizations of the same expression, with one appearing in an R-position and the other appearing in a non-R-position. The third circumstance is relevant in quantificational contexts[40].

It is known (see for example, (Fiengo and May, 1994)) that expressions with distinct indices may refer to distinct items or to the same item. It might be thought that all linguistic items (the full DP and the weak reflexive, for example) that bear the same index must refer to the same item in the world, but the data and account provided here argue against such a view. If one or more items bear the same index, the requirement rather is that no more than one referent is picked out. It is allowed that some or all of the items do not refer at all. The requirement holds in all cases described here: those with

[40] If the fact that the Case position associated with a quantifier picks out a course of values, then the third case presented in the requirement need not be separated. I included this distinction here, given the distinction between picking out a course of values and picking out an 'ordinary' referent.

referential and nonreferential reflexive DPs, and those in which an occurrence occupies more than one position.

Returning to the ellipsis data, we now have a formal explanation for the fact that although there is a middle version of *The salami sliced itself* (meaning the salami sliced easily) the sentence *John sliced himself and the salami did too* cannot mean that John sliced John and the salami sliced easily. That is, one clause cannot be a middle with the other being active because in such a situation, the formal properties of the overt reflexive (*himself*) and the elided reflexive would not be the same. The overt reflexive constitutes an independent argument expression and bears a beta-occurrence of an index, an index with the same value as the index borne by *John*. The elided reflexive does not constitute an independent argument expression. Together with the DP *the salami*, the elided reflexive constitutes a single argument expression. The DP *the salami* and the elided reflexive bear the same indexical value and the same indexical type. In an active-voice case like *John sliced himself*, the requirement that no more than one referent be picked out by the two expressions *John* and *himself* is met. In both cases, the same item is picked out (picked out once by *John* and picked out once by *himself*). In a case like *The salami sliced ITSELF* (on the middle interpretation) the requirement is also satisfied. Together, *the salami* and *ITSELF* pick out a particular item in the world, with reference being satisfied once.

8 Conclusion

In this chapter I outlined some of the predictions that my proposal makes with respect to the syntactic structure of middles, in particular with respect to the syntactic

analysis of the weak reflexive. The analysis I have given here predicts the various properties of the weak reflexive that I considered in Section 5.6. To my knowledge, no other analysis of middles makes such predictions or attempts to account for the various properties of the weak reflexive that I outlined in the chapter. The ellipsis data in this chapter have not been discussed in the literature, to my knowledge, and my hope has been to show how the entailments of my basic proposal deliver a structural analysis of the weak reflexive in middle voice sentences that predicts the interpretation of the ellipsis cases presented here.

The ellipsis data introduce the question of whether there is, formally speaking, any distinction between trace and the weak reflexive of middles, phonetic assignment aside. I return to this question briefly in Chapter Five. This chapter also introduced questions regarding the nature of identity: identity of phi features, case properties, and indices, in particular. With respect to case properties, I allowed that a 'match' might be satisfied so long as there is no 'mismatch'.

How close the connection is between the weak reflexive of middles and the clitic in doubling constructions is something I leave open here. I also leave open the question of why some languages exhibit clitic doubling, other varieties of pronoun doubling, or the multiple phonetic realization of a single argument expression that I discuss in this thesis. Very little work addresses the underlying reason behind the presence or absence of weak reflexive morphology in middles (though see (Lekakou, 2005) for an account that hinges on the pronominal inventory of languages). I have no contribution to make

to this particular question; the contribution made here is to propose an analysis that predicts the properties of these weak reflexives when they do appear.

In the introductory chapter I noted that I would term the solution that the Romance languages, German, and to some extent English 'use' when a single argument expression occurrence is available to satisfy the syntactic requirements of a two-place predicate 'argument spreading'. These are cases in which a single argument expression is overtly (phonetically) realized in multiple positions. However, the standard view on movement, in which an argument expression is phonetically realized in one of its positions and leaves traces in other positions can ultimately be included in the term 'argument spreading'. I also noted that an expletivization 'solution' to the middle mismatch problem may be available in certain languages.

Recent work on the phonetic realization of a single expression in multiple positions has been characterized as 'multiple copy spell-out'. I choose a different way of viewing this, largely because I reject the basic assumption of such proposals, namely that full (full with respect to syntactic, semantic, and phonetic contribution) copies can co-exist in a syntactic derivation. I also do not suggest here, as is generally suggested in work on 'multiple copy spell-out' that the multiple phonetic realizations are tied to linearization (in the sense of (Kayne, 1994)). Much of this work requires that, in cases of 'multiple copy spell-out' the copies be 'housed' in distinct ways (perhaps one is an ordinary DP while the other is a DP housed in a FocusPhrase). Work on multiple copy spellout as proposed by Kandybowicz (2006) is (for the particular set of data considered there) tied to prosodic considerations and so-called *that*-trace effects—considerations

and clause types that are not relevant or even similar to the middle data at the center of this thesis.

In the next chapter I consider the semantic consequences of the main proposal in this thesis. Given the foregoing, there is not yet any reason to expect that the primary predicate of middles will be significantly different in middle contexts than in non-middle contexts. With respect to items of type <e> the foregoing provides reason to expect that only one such item will be included in the semantic representation of middles, setting aside questions regarding the possibility of including an event argument, questions which I turn to presently.

Chapter Four: Semantic Consequences and Interpretive Effects

1 Introduction

In this chapter I set out the semantic consequences and the interpretive effects of the analysis of middles I propose in this thesis. The semantic analysis builds on the proposal that middle voice sentences are a) different from their active voice counterparts in that they contain one argument DP expression, and b) similar to their active voice counterparts in that no linguistic operation introduces changes to the verbal predicate. I concentrate here on English, but hope that the basic analysis proposed here can be carried over without too much complication to other languages.

The first goal of this chapter is descriptive. The aim is to set out more fully the range of middle voice sentences that must be accommodated in any analysis of middles, and to provide a preliminary characterization of their semantic properties by applying standard diagnostics. The second goal of the chapter is to sketch the formal semantics of middle voice sentences, in light of the findings of the descriptive section and in keeping with the overall proposal of the thesis. This analysis captures a broader range of forms and interpretations than normally considered in analyses of middle voice.

The primary intuition I pursue is that middle sentences ascribe properties to ordinary individuals rather than to events. This distinguishes them from unaccusative sentences, which ascribe properties to events. Finally I address some recurring issues in the semantics of middle voice sentences, indicating how they relate to the proposal in this thesis.

2 Variability of Middle Voice Sentences

Middles can appear in all tenses and grammatical aspects. Whatever is said formally about middles must be compatible with the grammaticality of middles across tenses and grammatical aspects.

1. The book reads easily.	(simple present)
2. The book read easily.	(past)
3. The book will read easily.	('future' *will*)
4. The book is reading easily.	(present progressive)
5. The book was reading easily.	(past progressive)
6. The book will be reading easily.	('future' *will* progressive)
7. The book has read easily.	(present perfect)
8. The book had read easily.	(past perfect)
9. The book will have read easily.	('future' *will* perfect)
10. The book has been reading easily.	(present perfect progressive)
11. The book had been reading easily.	(past perfect progressive)
12. The book will have been reading easily.	('future' *will* perfect progressive)

Most previous work on middles treats only simple present tense middles. I think that this has led to the misconception that middles are only grammatical in the simple present. This view, in turn, has led to analyses that seek to predict the properties of simple present tense middle voice sentences alone. For example, Fagan (1988:195-196)

writes: “It is therefore not surprising that middles should appear in the simple present tense, since this is the tense used in English to express timeless propositions. [note omitted] Other generic sentences in English are subject to the same tense and aspect restrictions as middles. [note omitted].”

(Keyser and Roeper, 1984) provide another example of this erroneous claim, stating that the middle is less acceptable in the past tense and that the middle cannot occur in the progressive, neither of which is true. Their examples are below.

13. *Chickens are killing.

14. *Bureaucrats are bribing.

15. *The walls are painting.

It may be that Keyser and Roeper find their examples of the middle in the progressive ungrammatical because they did not include the adverb that is typically present in the middle. Furthermore, two of their three examples have bare plural subjects, which are a bit odd even when the verb is not medialized, as below.

16. Chickens are eating.

17. Bureaucrats are sleeping.

The kind of examples Keyser and Roeper should have provided are below.

18. The chickens are killing nicely.

19. The bureaucrats are bribing easily.

20. The walls are painting poorly.

In Chapter Three I noted that middles can appear with 1st-, 2nd-, or 3rd-person syntactic subjects. That data will not be discussed in this chapter, as it has no bearing (so far as I know) on the semantic analysis of middles. I will, however, return at times in this chapter to the fact that middles can appear in different tenses and aspects.

2.1 Variability of the Aspectual Profile of Middle Voice Sentences

Examples (1) through (12) show that middles are grammatical across tenses and grammatical aspects. Nevertheless, as noted above, most work on middles addresses only simple present tense middles. Part of that work has sought to diagnose the aspectual class of the terms that can appear in middle voice sentences as well as the aspectual class of middle voice sentences themselves. In this section I show that, given the variability of middle voice sentences, they cannot be uniformly identified as corresponding to a single aspectual class. This should not be surprising; we do not expect all active voice sentences, for example, to correspond to a single aspectual class.

I suspect that the reason why middles have been claimed to universally belong to one or another aspectual class is that a) the limited number of middle voice sentences considered do often pattern similarly; and b) what is 'being diagnosed' is typically not the medialization aspect of these sentences, but rather the contribution of the verbal predicate, the contribution of the tense in which the middle appears, and the absence of

any contribution that might be provided by a postnominal argument DP (as none appear in middle voice sentences). It turns out that there is not much that is special about the aspectual properties of middle voice sentences: things fall out as expected given the aspectual properties (to the extent these can be isolated) of the verbal predicate, the contribution of any additional predicates, the compositional nature of VP aspect, and the contribution of the tense and aspect of the particular middle sentence being considered. One difference that I do highlight in this chapter is the interpretation of simple present and present progressive middles as compared with their active voice counterparts.

Although I reject the possibility of classifying all middle voice sentences as belonging to a single aspectual class, I include discussions from other analyses that do seek to identify the single aspectual class of middles. First I provide some terminological background. Vendler (1967:106), noting that it is possibly the case that any given predicate might fit under more than one term, defines and illustrates the following aspectual classifications: activity terms, accomplishment terms, achievement terms, and state terms.[41]

> Activity: "*A was running at time t* means that time instant *t* is on *a* time stretch throughout which *A* was running."
>
> Accomplishment: "*A was drawing a circle at t* means that *t* is on *the* time stretch in which *A* drew that circle."

[41] I note that there is a difference between identifying the aspectual class of a *term* and the aspectual class of a *sentence*. I take the first task to be potentially impossible and the second to be achieveable to the extent there are linguistic diagnostics available (and to the extent that we understand what these diagnostics diagnose).

> Achievement: "*A won a race between* t_1 *and* t_2 means that *the* time instant at which *A* won that race is between t_1 and t_2."
>
> State: "*A loved somebody from* t_1 *to* t_2 means that at *any* instant between t_1 and t_2 *A* loved that person."

Much work has been done on aspect in linguistic theory since (Vendler, 1967), but this terminology should provide a starting point.

Below I provide some examples of middle voice sentences that illustrate their variation with respect to aspectual class. The examples show that there are reasons to classify specific cases of middle voice sentences as belonging to the state, accomplishment, and activity aspectual classes. I do not know of any middles that can be conclusively classified as achievements, but this may be due to the fact that middles are generally incompatible with so-called achievement terms, for independent reasons. Some diagnostics indicate that middles do not pattern like lexical statives, but this is likely due to the fact that middles are generally incompatible with so-called stative terms, for independent reasons, and thus says nothing additional or special about middles and aspect.

As noted above, the middle can combine with progressive morphology.

21. The book is reading easily. Middle

Of the four Vendlerian aspectual classes, only states are not compatible with the progressive.[42]

22. *Fred is knowing Spanish.	State
23. Fred is running.	Activity
24. Fred is sneezing.	Achievement
25. Fred is reading the book.	Accomplishment

The compatibility of the middle with progressive morphology argues against an analysis in which the classification of the middle is comparable to a lexical stative (like *know*, *love*, etc.). However, this should not be surprising, given the general (poorly understood) restriction against lexical stative verbs in middle voice sentences.

Middles are nevertheless often considered stative. The example below, in fact, provides one piece of evidence in favor of such an argument.

26. The book read well.

According to (Enç, 1985) embedded nonstatives require a 'shifted' reading, while embedded statives allow a 'shifted' reading or a 'simultaneous' reading. That is, when a

[42] There are some exceptions, though usually the 'meaning' of the predicate shifts when progressive morphology is present. For example, *love* is a stative verb. Its meaning shifts to something like 'enjoy' when it appears in the progressive, as in *I am loving my translation class*.

sentence with a stative predicate like *know* (as in (27)) is embedded (as in (28)), a 'shifted' or 'simultaneous' reading is available.

27. Mary knew the answer.

28. John said Mary knew the answer.

On the 'shifted' reading the knowing precedes the saying. On the 'simultaneous' reading the knowing and saying overlap. Both readings are allowed with the stative verb *know.* When the middle example (26) is embedded in the same way, it patterns like a stative.

29. John said the book read well.

Both a shifted reading (with the reading well preceding the saying) and a simultaneous reading (with the reading well and saying overlapping) are allowed. Thus, this particular middle voice sentence is best characterized as stative, according to this particular diagnostic.

However, not all middles are stative, as the following discussion shows. Further, the middle (26), which patterned like a stative according to one diagnostic, below patterns like an activity, according to a different diagnostic. The examples below provide support to an analysis of middle voice sentences as activities, according to a different diagnostic—the 'stop' test.

30. The book read well.

31. The book stopped reading well.

The 'stop' test can be used to distinguish activity predicates from accomplishment predicates. If the perfective is entailed, the predicate is an activity predicate; if not, the predicate is an accomplishment predicate, as the contrast below illustrates.

32. Activity predicate: *eat soup*
    John ate soup.
    John stopped eating soup. (entails *John ate soup*)

33. Accomplishment predicate: *eat the bowl of soup*
    John ate the bowl soup.
    John stopped eating the bowl of soup. (does not entail *John ate the bowl of soup*)

(Zwart, 1997c) uses the 'stop' test to argue that in middle voice sentences, the verb is an activity verb. And, according to this diagnostic, the particular middle voice sentence in (30) should be classified as an activity.

34. Predicate: *read well*
    The book read well.
    The book stopped reading well. (entails *The book read well*)

Thus, looking at this particular example and this particular diagnostic, there is support for an analysis of middle voice sentences as activities. However, the middle considered here and diagnosed as belonging to the activity aspectual class was diagnosed above, according to one diagnostic, as belonging to the state aspectual class. The point is that

the aspectual classification of a middle voice sentence will depend in part on the particular sentence being considered. Further, different diagnostics can provide conflicting results. Next I look at some middles that have a secondary predicate in addition to the adverb that is often present in middle voice sentences.

The secondary predicate typically associated with middle voice sentences is a sentence-final adverb. However, there are middles that, setting aside the question of the adverb, have complex predicates. Some of these have been called 'resultative middles'. An example is below.

35. Warm metal hammers flat easily.

This middle voice sentence 'passes' the *in X time* diagnostic associated with accomplishment sentences. Activities, accomplishments, and achievements behave differently when combined with the adjuncts *for X time* (*for an hour*, *for five minutes*) and *in X time* (*in an hour*, *in five minutes*). Activities are generally grammatical with *for X time* temporal adverbials but ungrammatical with *in X time* temporal adverbials.

Activity:
36. George ran/will run for two hours.

37. *George ran/will run in two hours.[43]

[43] OK if 2 hours from now George commences running.

Accomplishments are generally grammatical with *for X* time temporal adverbials though perhaps more natural with *in X time* temporal adverbials.

Accomplishment:
38. George built/will build an engine for two hours.

39. George built/will build an engine in two hours.

Achievements are generally grammatical with *for X time* temporal adverbials (and are interpreted as iterative), and are generally ungrammatical with *in X time* temporal adverbials.[44]

Achievement:
40. George coughed/will cough for two hours.

41. *George coughed/will cough in two hours.[45]

Adding an *in X time* adjunct does not alter the grammaticality of the middle sentence (35), as shown below.

42. Warm metal hammers flat easily in 10 seconds or less.

[44] It might be said that the temporal adjunct *in X time* increases the aspectual hierarchy of the sentence, but not the aspectual hierarchy of the verb.

[45] The 'completion of coughing' interpretation is ruled out; 'commencement of coughing' is OK.

While this middle includes a secondary predicate (*flat*), it remains a middle voice sentence, and it is best characterized as belonging to the accomplishment class. This particular example provides support to an analysis of middle voice sentences as accomplishments. However, given the discussion of the previous cases, it would not make sense to now decide that all middle voice sentences should be classified as accomplishment sentences. In fact, according to this same diagnostic, some middles are in fact best classified as belonging to the activity class. The following middles are compatible with *for an X* temporal adverbials but not *in an X* temporal adverbials.

43. The book read/will read easily for years.

44. *The book read/will read easily in years.[46]

Thus, we see that the same diagnostic can produce different results depending on the particular middle voice sentences.

Now that middles with complex predicates have been considered, it can be shown more clearly that even the same diagnostic can produce different results depending on the particular middle voice sentence being considered. The middle that was tested with the 'stop' test above was characterized as an activity. But the middle below, with a complex predicate, does not seem to pass the 'stop' test.

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[46] The 'commencement of reading well' interpretation is OK.

45. The warm metal stopped hammering flat (easily).

The result is not as clear as in the cases above, but I do not think that *The metal has hammered flat (easily)* is entailed here. Thus, the 'stop' test is another case of a diagnostic that can produce different results depending on the particular middle voice example being considered.

2.1.1 Flawed Diagnostics

The few examples discussed in Section 2.1 illustrate the variability of middle voice sentences with respect to aspectual classification. Below I briefly review two diagnostics that have been used to indicate that middles are stative, and show why these diagnostics are flawed.

2.1.1.1 Imperatives

(Keyser and Roeper, 1984) note that middles cannot appear as imperatives, and thus diagnose middles as parallel to lexical statives—essentially stative constructions derived from non-stative lexical predicates.[47]

46. Said to a book: #Read well or you're getting taken out of the display case!

This diagnostic is actually sensitive to the availability of agentive control. Thus, the nature of the predicate and the nature of the addressee will, in combination, determine

[47] I use a # to indicate that an example is pragmatically flawed though not in violation of any principles of formal grammar.

the acceptability of any given imperative. This diagnostic makes an imperfect cut across predicate types. For example, the same adjectival Stage-Level Predicate can sometimes be part of an acceptable imperative and sometimes not:

47. #Be hungry right now! I made a lot of food!

48. Be hungry when you come over. I'm going to make a lot of food.

Similarly, the same adjectival Individual-Level Predicate can sometimes be part of an acceptable imperative and sometimes not:

49. #Be Norwegian when I open up your passport or you're deported!

50. Be Norwegian when we next meet or you're deported!

In (49) and (50) there is the question of whether the predicate *be Norwegian* has been 'coerced' and functions as an SLP. What remains, regardless of the answer to that question, is the intuition that imperatives are acceptable in cases in which agentive control is available, otherwise not.

As shown above, a given predicate can 'pass' or 'fail' this diagnostic depending on the nature of the context. Thus, there is no expectation that all sentences in a particular voice—here middle voice—would, irrespective of context, behave uniformly with respect to this diagnostic. In most cases, the syntactic subject of middle voice sentences denotes an inanimate entity (one which is thus unlikely to be able to exert

agentive control). Thus, most middles form poor imperatives. However, the following imperative would normally be issued to an animate entity with control over her behavior, and it provides a case of an acceptable middle voice imperative.

51. Don't bribe too easily when you meet with the thieves from Salamanca. Otherwise they'll be suspicious.

In sum, the imperative test diagnoses the extent to which agentive control is available. Some middles fail and some pass, in accordance with the nature of the predicate and the degree of agentivity ascribed to the entity denoted by the syntactic subject. Nothing can be said about the aspectual classification of middle voice sentences from this diagnostic alone.

2.1.1.2 Complement of Perception Verbs

Middles generally cannot appear in the complement of verbs of perception. The following examples are based on contrasts noted in (Keyser and Roeper, 1984), where the contrasts are taken to indicate that middles are stative.

52. I saw Mary dressed in green.

53. *I saw Mary 5'2''.

54. *I saw Mary bribe easily.

This diagnostic is sensitive to whether the embedded clause denotes a perceptible action. It places middles in the class of predicates that do not denote an action or some other

visible 'condition'. This class includes lexical statives, ILPs, some SLPs, and mental predicates.

55. *I saw Mary know where the keys are.	Lexical stative
56. *I saw Mary (be) Spanish.	ILP
57. *I saw Mary hungry.	SLP
58. I saw Mary fat.	SLP
59. *I saw Mary misunderstand what she was told.	Mental predicate
60. *I saw Mary learn French.	Mental predicate

This test shows that when the embedded clause denotes a perceptible action, the sentence is good, otherwise not. This indicates that to the extent middle voice sentences fail to introduce a perceivable action they will be ungrammatical in the complement of a perception verb. In fact, although *I saw Mary bribe easily* was notated as ungrammatical in (54), I suspect that if there are perceptible properties that allow someone to make this claim, that the sentence might in fact be perfectly usable. This diagnostic alone does not provide any insight into the aspectual classification of middles. This is compatible with the intuitive I pursue here—namely that middles ascribe properties to ordinary individuals (rather than to events).

2.2 Summary of Variability

Above I showed that middles can appear in different tenses and aspects. Considering a wider range of data shows that aspectual diagnostics do not provide

conclusive results with respect to a single aspectual classification to which all middle voice sentences might belong. This is not surprising; as I noted earlier, there is no reason to expect that all sentences in a particular voice will fit a particular aspectual profile.

That many middles do in fact pattern with activity rather than accomplishment predicates is expected, given that the characterization of a VP as denoting an accomplishment typically hinges on the presence of a definite DP as the post-verbal complement. This complement does not appear in middle voice sentences, and so the expectation is that many middles will pattern with the activity class.[48] However, this does not tell us anything about any special aspectual properties of middle voice sentences.

Still, there are some differences between active voice sentences and middle voice sentences. The next section is devoted to two of these differences.

3 Differences in Interpretation

In this section I show that despite the absence of anything special in the preceding with respect to the aspectual profile of middles, there are areas of interpretive difference between middle and active voice sentences even when the same predicate is being compared.

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[48] Zwart suggests that middles are activities because of the nature of the predication involved in middle formation. He operates on the assumption that adverbs are *required* in middles and adopts the assumption in (Tenny, 1987) that the direct object of a verb serves as a delimiter (though this is not always the case, as seen with examples like *drive the car*, *push the cart*, etc.). Zwart takes the complement of V position to be occupied by the adverb. This accounts for the non-accomplishment-ness of middle readings, and helps to explain the activity reading of the middles he considers. In fact, the requirement (as Zwart sees it) that the adverb be in the complement of V position rules out the possibility that the verb being input to middle formation takes a direct object (NP/DP) at any stage in the derivation.

3.1 Absence of Futurate Interpretation of Present Tense Middles

One peculiarity of middles, one that so far as I know has not been discussed in analyses of middles, is the restriction on their interpretation in the simple present and present progressive. Many verbs allow for the 'futurate' interpretation of the simple present and present progressive. But the 'futurate' interpretation of the simple present and present progressive is not available with middle voice sentences. Future-oriented adverbs lead to ungrammaticality.[49]

61. *The book reads smoothly tomorrow.

62. *The material washes poorly next week.

63. *The fence paints easily later today.

64. *The book is reading smoothly tomorrow.

65. *The material is washing poorly next week.

66. *The fence is painting easily later today.

This is not because the middle is incompatible with future interpretations in general. Present tense *will* interacts with middles the same way it does with standard active voice sentences.

67. Chapter Seven will read perfectly next week (when John revises it).

[49] The 'imperative' futurate, illustrated in (i) and (ii) is set aside here.

(i) You know who placed those calls by tomorrow or you're fired!
(ii) This article reads flawlessly by tomorrow or you're off the project!

68. The material will wash well tomorrow (after it has been chemically treated).

69. The fence will paint easily this afternoon (once it has been primed).

The conditional allows a futurate interpretation even with past tense verbs, as seen in (70). This applies to the middle as well, as in (71).

70. If Aeneas left, it would be appreciated. Fiengo (1974:15)

71. If the book read well, it would be appreciated.

The absence of a 'futurate' interpretation with simple present and present progressive middles is also not due to a general incompatibility with temporal adverbials.

72. The Toyotas were selling well on Wednesday.

73. The book will be reading easily tomorrow.

74. The coffee was refrigerating nicely just this morning.

States are the only lexical class that do not allow a futurate interpretation of the simple present and present progressive

75. George knows/is knowing Romansch (*tomorrow)	state
76. George runs/is running (tomorrow)	activity
77. George sneezes/is sneezing (tomorrow)	achievement

78. George builds/is building a house (tomorrow) accomplishment

But the diagnostics earlier in the chapter showed that middles cannot be treated across the board as lexical statives.

3.2 Stage Directions

Middles also behave differently from active voice sentences in that they do not appear to allow a 'stage direction' interpretation in the simple present, while their active voice counterparts do.

79. John reads the book. OK as stage direction

80. The book reads nicely. Bad as stage direction

This difference between active voice sentences and middle voice sentences has also not been discussed in previous analyses of middles.

3.3 Summary and Adjectives

The unavailability of the futurate interpretation of present and present progressive middles shows middles patterning more like adjectival than verbal predicates. Some examples of adjectives in the simple present together with a temporal adverb are below. The categorization of these adjectives (ILP or SLP) is also indicated.

81. *John is fat tomorrow. *fat* = ILP

82. *John is intelligent tomorrow *intelligent* = ILP

83. *John is male tomorrow	*male* = ILP
84. *John is hungry tomorrow.	*hungry* = SLP
85. John is available tomorrow	*available* = SLP
86. John is busy tomorrow	*busy* = SLP

(Vetter, 1973) and (Goodman, 1973) are among those who claim that the futurate use of the simple present and the present progressive semantically conveys a notion of planning or predetermination. The progressive in English has often been taken (Landman, 1992) to include some notion of a planning stage. Although it has been shown above that middles should not be treated like lexical statives, they pattern like those predicates, as well as SLPs and ILPs in that for the most part, these predicates denote properties that are neither plannable nor predetermined.

Middles seem to pattern like a natural group of typically one-place predicates, namely adjectival predicates. Further, their incompatibility with futurate interpretations of simple present and present progressive seems to indicate that middles express properties of the ordinary individuals denoted by the single argument expression occurrence that appears in the syntactic frame of middle voice sentence. Given this, a natural question is whether middles fall naturally together with Stage-Level Predicates or Individual-Level Predicates.

4 Stage-Level and Individual-Level Predicates

Here I review some diagnostics that are intended to distinguish Stage-Level Predicates (SLPs) from Individual-Level Predicates (ILPs). Ultimately I come to the

conclusion that, as was the case with the question of aspect, middles do not uniformly fit into one category in a neat and complete way. In some cases it is difficult or impossible to apply diagnostics typically taken to distinguish SLPs from ILPs to middle voice sentences. This is because the predicates often discussed are adjectives. When verbs are considered, the diagnostics typically require the presence of multiple DP argument expressions. These diagnostics cannot be applied to middles, as middles are characterized in part by the presence of a single DP argument expression occurrence. Three standard diagnostics, reviewed in (Kratzer, 1995), are shown below.

4.1 *There*-Insertion (Milsark, 1974)

Here the SLP-ILP distinction results in a contrast in grammaticality.

87. There are firemen available.	SLP
88. *There are firemen altruistic.	ILP

The SLP *available* is grammatical in *there*-insertion contexts; the ILP *altruistic* is not. It is not clear whether this diagnostic can be applied to verbal predicates at all. The postverbal predicate can take the form of a progressive or of a relative clause. The middle does fine in both contexts, as does the SLP *run*.

89. There are books reading well.	Middle
90. There are books that read well.	Middle

91. There are women running down the street. SLP

92. There are women who run down the street. SLP

The ILP *know* only does well with the relative clause.

93. *There are women knowing French. ILP

94. There are women who know French. ILP

The ungrammaticality of (93) might be attributed to the general incompatibility of *know* with the progressive. However, the existential construction contributes to the ungrammaticality, given that there are contexts in which *know* + *ing* is grammatical. Stative verbs like *know* (also *understand*, *want*) are acceptable in *wh- is* deletion contexts, like those below:

95. Anyone knowing and not telling who the murderer is will be locked up.

96. Anybody wanting to get invited better be on their best behavior.

In sum, the *there*-insertion diagnostic does not provide reliable clues regarding whether middles should be classified as SLPs or ILPs, though it is slightly in favor of treating them as SLPs.

4.2 Bare Plurals (Carlson, 1977)

Here the SLP-ILP distinction results in contrasts in interpretation.

97. Firemen are available. SLP

98. Firemen are altruistic. ILP

With the SLP *available*, the interpretation is that at speech time some relevant set of firemen is available. With the ILP *altruistic*, the interpretation is that regardless of speech time, all firemen (with allowances for exceptions) can be characterized as altruistic. The best attempt at using this diagnostic with middles requires testing only middles in the simple present tense.

99. Books read easily.

100. Silk shirts wash poorly.

101. Aluminum bicycles handle nicely.

These examples seem to indicate that middles are to be classified as ILPs rather than SLPs, as the interpretation is that these facts hold regardless of speech time. However, this is due at least in part to the simple present tense. Putting all of the examples in the past tense does provide some further evidence in favor of treating the middles as ILPs.

102. Firemen were available.

103. Firemen were altruistic.

With the SLP *available*, the interpretation is that at some time prior to speech time some relevant set of firemen were available. Perhaps firemen were available when the house was on fire but nobody called them. With the ILP *altruistic*, the interpretation is that at some time prior to speech time, but still regardless of the exact time, all firemen (with allowances for exceptions) could have been characterized as altruistic. For example, maybe firemen were altruistic in the '60s and '70s, but no longer are.

104. Books read easily.

105. Silk shirts washed poorly.

106. Aluminum bicycles handled nicely.

With the past tense middles, the interpretation is that at some time prior to speech time, the properties indicated by the middle predicates held of the items denoted by the syntactic subjects, regardless of the exact time. My sense is also that with the middle examples, they are expressing that books, silk shirts, and aluminum bicycles no longer exist. That is, a natural continuation of all of the sentences above is *Too bad/Thank heavens they don't make them anymore*. They are comparable to *According to recent evidence, dinosaurs were actually warm-blooded*, and contrast with *Whales are warm-blooded*.

This test is not conclusive, but it favors treating middles as ILPs rather than SLPs.

4.3 Absolute Constructions (Stump, 1985)

Here also the SLP-ILP distinction results in contrasts in interpretation.

107. Standing on a chair, John can touch the ceiling. SLP

108. Having unusually long arms, John can touch the ceiling. ILP

With the SLP *standing on a chair*, the interpretation is that during those times in which John stands on a chair, he can touch the ceiling. This is not the case for the ILP *having unusually long arms*. This diagnostic is easier to apply to middles, as this diagnostic already uses verbal predicates rather than adjectival predicates.

109. Reading well, the book can be published.

110. Selling poorly, the fragrance can legitimately be discontinued.

111. Refrigerating well, the dough now advances to the next consumer test.

Applying this absolute construction diagnostic to (109) – (111) shows that they behave like ILPs rather than SLPs. The absolute clause expresses an inherent property rather than a contingent property. The example below further shows that the middle form of the absolute clause does not express a contingent property.

112. Handling well, my car is a pleasure.

This expresses that my car is a pleasure, at least in part because it handles well. It does not express that when certain weather conditions hold, or on certain days, my car handles well, and that on those days my car is a pleasure.

The classification of the following middles as SLPs or ILPs is less clear:

113. Serving poorly, the tennis balls were discarded from the supply locker.

114. Slicing poorly, the bread was good for only bread crumbs or bird food.

It is true the tennis balls may have previously served well or that the bread may have days before sliced nicely. Perhaps their properties have changed due to aging or use (just as John probably may not have had unusually long arms at birth, but apparently he does now, if (108) is true). However, the properties expressed in (113) and (114) are possibly much more transient than the properties denoted by ILPs in this section.

4.4 Summary of SLP and ILP Diagnostics

The diagnostics above do not provide hard and fast evidence that all middles are to be classified as Stage- or Individual-Level Predicates. In some cases it seemed that middles are more like ILPs, or are more often like ILPs, but no universal conclusion was reached. Further, the following examples (some from previous sections) do not seem to fit with such a classification.

115. Although Mary usually doesn't bribe very well, last night she bribed so easily that within 5 minutes she walked away with a cool million.

116. Up until yesterday this book was reading well, but now it's reading really poorly.

117. Don't bribe too easily when you meet with the thieves from Salamanca. Otherwise they'll be suspicious.

4.5 Aspectual Diagnostic Applied to SLPs and ILPs

In Section 2.1 I noted that, according to (Enç, 1985) embedded nonstatives require a 'shifted reading' while embedded statives allow a 'shifted reading' or a 'simultaneous' reading. Of all the diagnostics reviewed above, this one provides the most convincing argument that middle voice sentences should be treated like sentences with (lexical) stative predicates. However, it is also consistent with an analysis in which middle voice predicates denote properties that are predicated of ordinary individuals, as is the case with the SLP and ILP examples below.

118. John said the book read well. Middle
    Stative: Shifted (the reading well precedes saying)
    Simultaneous (reading well and saying overlap)

119. John said Mary was angry. SLP
    Stative: Shifted (being angry precedes saying)
    Simultaneous (being angry and saying overlap)

120. John said Mary was French. ILP
    Stative: Shifted (being French precedes saying)
    Simultaneous (being French and saying overlap)

I include this diagnostic and apply it to adjectival predicates to show that while the task of classifying all middles as belonging to a particular aspectual class or predicate type may be impossible, they do seem to pattern like 1-place adjectival predicates.

5 Interim Interpretive Summary

The middle verb behaves like a normal verb with respect to its ability to combine with tenses and grammatical aspects. The diagnostics above show that there is not much

in the way of a special interaction between middle voice and aspect. Most of the verbs that appeared in the middle examples above contribute to 'activity' VPs in the absence of a DP complement. These middles, which do not have DP complements to the verb, patterned most like activities, as would be expected. With respect to whether the middle is best classified as an SLP or ILP, the diagnostics are not clear. What is clear is that middles behave similarly to adjectival predicates in terms of interpretation and behavior with respect to standard diagnostics.

6 Genericity

Thus far I have shown that the variety of grammatical middles is much broader than typically recognized. Middles are grammatical in the different tenses and aspects, just like active voice sentences. I have also shown that middles should not be treated as a unified and uniform class with respect to aspect. The aspectual class that a middle voice sentence best belongs to will depend on the nature of the predicate (including its complexity) and the tense and aspect of the sentence. Nevertheless, a general sense that middles are stative has led to analyses of middles that attempt to capture this 'feel'. The primary formal mechanism by which this felt stativity is captured is generic quantification ((Condoravdi, 1989), (Fagan, 1988), and (Zwart 1997a)).

It is essential to ask whether there are ways in which genericity is special as regards the middle, or in which the middle is special as regards genericity. While generic analyses of middles abound, these analyses do not explain why genericity should arise as a *necessary* result of middle formation. That is, it does not follow from anything in the many generic analyses of middles that middle formation necessarily

produces generic sentences. My view is that middles can optionally interact or combine with a generic operator, as can active voice sentences. On the analysis of middles I propose in this thesis, it is in fact expected that there be nothing special regarding genericity with respect to middles.

Among those who propose a generic analysis there is a divide with respect to the nature of the genericity. Some propose that the middle is characterized by generic quantification over events (Zwart, 1997a); (Condoravdi, 1989), (Lekakou, 2005). Others argue in favor of generic quantification over agents (Levin, 1982:624); (Fagan, 1992, Fagan, 1988) (Fellbaum, 1985, Fellbaum, 1986).[50] In earlier chapters I have argued that there is no syntactic or semantic contribution corresponding to the external argument or logical subject of middles. Thus, in this section on genericity I concentrate on the generic quantification over events approach.

(Condoravdi, 1989) analyzes middle voice sentences as sentences in which a generic operator takes sentential scope and produces a tripartite semantic structure (operator, restrictive clause, nuclear scope). Condoravdi's is the most influential analysis of middles as inherently generic. Its core is adopted by (Zwart, 2005), (Zwart, 1997a), among others. (Lekakou, 2005) modifies the approach, treating GEN as a VP-operator quantifying over event arguments. For Lekakou, sentence-level generic operators induce habitual interpretations while VP-level generic operators induce dispositional

[50] See (Franks, 1985:108-109) for discussion of a lexical process of 'genericization' focusing on 'object deletion' cases.

interpretations.[51] The semantics for the sentence below is given as in (Condoravdi, 1989). The paraphrase is mine.

121. This bread cuts smoothly.

GEN	[e: bread(z), cut(e), patient(e,z)]	[smooth(e)]
Operator	Restrictive Clause	Nuclear Scope

'Cutting events in which this bread is the 'patient' are, generically, smooth events'

A major result of (Condoravdi, 1989) is that an adverbial expression (or other secondary predicate) is required if the semantic representation is to be well-formed. The nuclear scope must not be empty because the event argument, introduced in the nuclear scope, requires a predicate just as any other argument would. That is, a middle without an adverb would fail for the same reason that (122) fails as a sentence—there is an argument, but no predicate.

122. All blue poison dart frogs.

123. All blue poison dart frogs live in South America.

On Condoravdi's analysis, the 'adverbial requirement' of middles follows from the requirements on sentential quantification and the requirement that the GEN operator is part of the semantics of middles.

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[51] Rimell (2005) argues that simple habitual sentences like *Mary smokes* do not have a tripartite structure, but that a (phonologically empty) habitual operator has the VP in its scope, and in this way the generic interpretation is obtained.

Condoravdi's result would be a major benefit if there were no middles without secondary predicates. But it is too restrictive, as it predicts that cases like the ones below are ungrammatical. These middles contain no secondary predicate, which should lead to an ill-formed semantic representation.

124. This bicycle steers.

125. Nobody thought that rap was going to sell. Darryl McDaniels (NPR, 1997)

126. This dress buttons. (Fagan, 1988)

127. Newsprint binds. (Fiengo, 1974)

128. Dresses button.[52]

Condoravdi does note that a negated middle is well-formed without an adverb. Her assumption is that negation is capable of introducing material into the nuclear scope.

129. This rock does not cut. (Condoravdi, 1989)

In addition to the empirical problem, there is no identifiable source for the Generic Operator, nor is it clear why other sentences with sentential quantification over events can appear without an adverb. That is, the prediction should hold for all

[52] This example is similar to the indefinite generics like *A whale swims* in that they are most felicitous for me in contexts in which it has been asked "How can I tell a whale from a boat?" or "How can I tell a dress from an overcoat?" See for example the bare plural examples of Keyser and Roeper (1984).

'constructions' in which an event argument is bound by a sentential operator, whether the operator is Generic, Existential, or Universal.

Fellbaum (1986:4) offers the following examples to counter the claim that middles should not be characterized in terms of generic quantification over events. I note that these are all either past or progressive examples, middles rarely discussed in analyses of middles.

130. Her latest novel is selling like hotcakes.

131. The truck is handling smoothly.

132. The steaks you bought yesterday cut like butter.

133. Red wine spots used to wash out easily (before synthetics came into wide use).

Others include:

134. These chickens are killing easily. Iwata (1999:532)

135. Bureaucrats are bribing more than ever in Reagan's second term.

Roberts (1987:257 fn.2)

The above shows some empirical and theoretical problems with treating middles as inherently generic.

6.1 Genericity in Other Contexts

In English, many sentences in the simple present tense are generic/habitual sentences. These sentences express properties of some object. It may be that a habit is expressed (*John smokes Cohibas*) or that a non-habitual but nevertheless continuous property is expressed (*The building shields the occupants from extreme temperatures*). There is no reason not to expect the same from middles. *These tennis balls serve poorly*, if true, expresses a property of the tennis balls.

The sentence *John is running* is not a middle, but allows a generic interpretation as in *John is running these days*. Here, the 'generic' version of the active voice sentence interestingly includes an adverbial, which is expected given the analysis of middles in (Condoravdi, 1989) discussed above. However, a temporal adverb is needed to get the 'generic' interpretation (not just any adverb that can modify an event argument, which is expected under Condoravdi's analysis).

There are some sentences that can be interpreted in two ways, one of which might be called the state/property interpretation and the other of which might be called the generic/habitual interpretation. For example, the sentence *John sells shoes* can be used to convey that John is a shoe salesman. It can also be used to convey that John has sold some shoes (and probably habitually sells shoes).

136. John sells shoes

a. True in virtue of John's having a jobs as a shoe-seller, regardless of actual sales.

b. True in virtue of some number of shoe-sellings by John.

Another often-cited case is the handling of mail ambiguity, as in Dahl (1975).

137. John handles the mail from Antarctica.

a. True in virtue of John's having the job of handling this mail, regardless of actual mail.

b. True in virtue of some number of mail-handlings by John.

It is necessary to ask whether the (a) and (b) possibilities above are tied to a single semantic representation, with the meaning of one arrived at while taking the other as basic, or whether the differences are conventional and thus each tied to a distinct semantic (and possibly syntactic) representation.

On the interpretation in which John is a shoe salesman, for the sentence to be true, John must have the title, job, or stated responsibility of shoe salesman. Whether John has ever sold, will ever sell, or currently is selling shoes will not affect the truth or falsity of the sentence. On the interpretation in which John has sold some shoes, some sufficient number of shoe-sellings by John must have obtained (possibly just one). In this case, whether John has a title, job, or stated responsibility as a shoe salesman will not affect the truth or falsity of the sentence.

The *sell* and *handle* examples contrast with the *eat* examples below in a way worth noting. See (Dahl, 1975).

138. Mark eats chestnuts.

139. Mark is willing to eat chestnuts.

140. Mark habitually eats chestnuts.

The sentence *Mark eats chestnuts* can be used to convey that Mark is willing to eat chestnuts and also to convey that Mark has eaten or habitually eats chestnuts. While the first interpretation of *eat* is similar to the first interpretation above for *sell* in that no eating or selling events need obtain for the sentence to be true, there is a way in which the interpretations differ. With *eat* we get a 'willing to x' interpretation, while with *sell* we get a 'has the job of x-ing' interpretation.

The examples just described contrast with examples with verbs like *know* in a way that illustrates that lexical semantics has a role to play in determining the proper treatment of genericity (and perhaps quantification more generally). With sentences like *John knows French* the interpretation is not perfectly assimilable to either the non-instantiation of event interpretation or the 'has x-ed'/'habitually x-es' interpretation.

The truth conditions as described thus far are quite different—in fact addressing complementary criteria. Thus, we cannot take the truth conditions of one and, perhaps following the procedures established in (Grice, 1975) for calculating an implicature, arrive at the 'meaning' of the second. The (b) members of the above examples can be represented with GEN (or HAB) taking sentential scope. [53]

[53] The semantic representation for the examples described above that includes an event variable is often rendered as a tripartite structure with a quantifier (GEN, perhaps), a restrictor (that defines the event), and a nuclear scope (that supplies a predicate for the type <e> event variable). This is not entirely right since regular (active voice) generic/habitual sentences do not require an extra predicate. For example, *Mary smokes* is presented as: GEN [x,s;] (x = Mary & s contains x; x smokes in s) in Carlson & Pelletier (1995:62). But if it is not right, then why should the semantic

141. GEN e: e = event: [Agent (j, e), sell/handle (e), patient (shoes/mail, e)]

The (a) members of the above can be taken to ascribe a state or property to John. Below 'sells.shoes' will be taken to indicate semantic incorporation of the logical object by the verb yielding the 'shoe-selling' property.

142. sells.shoes (john)

This means that the sells-shoes property applies to John, irrespective of the existence of any shoe-selling events. There is a question regarding the compatibility of derived properties and GEN. Applying GEN to the semantic representation above yields the following.

143. GEN John sells.shoes

It is not obvious what GEN will quantify over, but (143) means that John is habitually associated with the 'shoe-selling' property, possibly meaning that John habitually has or takes jobs as a shoe salesman. Although this semantic representation might be expected to be associated with this interpretation, in natural language an overt adverbial

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representation of a middle, with GEN, have a nuclear scope that is special and why should it result in a tripartite structure?

expression is required to convey this meaning, which may indicate that in cases like (142) and (143) generic quantification cannot operate in the standard way. An example is below.

144. John usually sells shoes (but sometimes he works at canneries in Alaska).
(meaning that John is usually a shoe salesman, but sometimes a cannery worker)

Perhaps this too is evidence that the 'property' interpretation and the 'generic' interpretation are indeed distinct interpretations.

Looking back at the set of pairs that started this section, it seems that there are different truth conditions associated with the 'property' interpretation and the 'generic' interpretation. With many middles any ambiguity between a representation that involves generic quantification and one that does not is going to be very subtle. The clearest cases are those that present conflicting truth conditions. The *exit* and *solve* examples below are such cases. Just the *exit* case will be discussed here.

145. The room exits easily.

146. The problem solves easily.

a. exit easily (this room)

b. GENe λx [the room (x), exit (e), patient(e,x)][easy (e)]

The truth conditions of the semantic representation in (a) would be met if a room had just been built that has many doors, or perhaps very wide doorways cut out with no

actual doors installed. Other features might be that paths to the exits are well marked and that there are no mazes of cubicles inside of the room. The truth conditions of (a) would not be met if a room had just been built that has a maze of cubicles inside of it, a quickly rotating floating floor, and crushed glass embedded into all of the walls.

The truth conditions of the semantic representation (b) would be met if most exitings of the room can be characterized as easy. This would probably not happen in the case of the terrifying room just described, but it could. If, despite best efforts in designing this terrible room, people exited it with ease, (a) would not be true but (b) would. This case shows us then, that generic and nongeneric semantic representations should be allowed for middles. This discussion shows that allowing for only (a) or (b) as the semantic representation for the middle *This room exits easily* does not account for the possible interpretations of that sentence. As discussed above, middles without adverbs also provide evidence that we shouldn't adopt an analysis of middles in which they all involve generic quantification over events.

A similar example, one suggested by Chris Wilder, is found in (Ackema and Schoorlemmer, 1994):

147. This park doesn't enter easily—there's only one gate that is hidden behind some bushes.

Wilder also provides the following middles, along with the contexts.

148. Prison architect:
This wall looks as if it would climb too easily. Better put some barbed wire on top.

149. Co-driver to driver:
That next truck won't pass easily—it's pretty long and travelling very fast.

Generic quantification is thus a possible but not necessary aspect of the semantics of middles. Approaches in which genericity plays an essential role in the semantics of middles are largely motivated as an attempt to capture the (incorrect) intuition that middles are stative-like.

The only other formal attempt at capturing the stative 'feel' many people ascribe to middles is found in (Roberts, 1987). He argues that middle formation is a stativization process, with stativity being temporal obviativity. In middles, the verb and tense are not in a temporal dependency relationship (for him, they are not co-indexed) and stativity results. Roberts (1987:198) suggests that V optionally coindexes with Infl. A verb that is temporally dependent on Tense has an event reading; a verb that is not temporally dependent on Tense has a state reading. In cases of temporal dependence, thematic relations between V and its arguments must be understood to hold with respect to the time or interval specified by Infl. Roberts notes that this follows Enç's requirement that the temporal arguments of V must be anaphors bound by Tense (with nonstative verbs). In cases of temporal obviativity, thematic relations hold independent of the time specified by Infl: stative predicates are free of potential binders. Theta roles are relevant to the analysis in that structural theta role assignment is connected to indices, which are relevant for the determination of dependency or obviativity. See also (Higginbotham,

1983) among others for the tense dependency between perception verbs and infinitival complements. In (Higginbotham, 1985), e is satisfied by argument binding to I/T. I/T binds e as D binds the "referential argument of a noun."

With the foregoing diagnostics and this section on genericity, there is little that is special or surprising about the middle.

7 Middles as Properties of Ordinary Individuals

I have argued above that while some middles can be characterized as generic, just as active voice sentences can be so characterized, this is not a defining or necessary characteristic of middles. Rather, middles have active, eventive verbs as main predicates and ascribe properties to the ordinary individuals denoted by the sentential subject rather than ascribing properties to an event. The semantic analysis of middles should capture this.

To do so, I will follow (Lekakou, 2005) in taking the event argument to be satisfied at the vP/VP level (low, in any event) rather than at the sentential level. If the event argument of middles is necessarily interpreted in narrow scope, the semantic representation will be one that ascribes properties to an individual other than the event, while it will still be allowed that the event argument is satisfied by being bound by a Generic, Existential, or Universal operator, largely depending on the tense and aspect of the particular sentence; it will simply be bound lower than is normally required. The verb will retain its grammatical and morphological eventivity, allowing it to combine with all grammatical tense and aspectual morphology. However, the order in which

arguments are satisfied in middles will be different from unaccusatives, with the event argument being satisfied first, as noted below.

150. $\lambda x\ \lambda e$ [Pred(e) & Pred(x) & θ(e,x)]

151. This book reads easily.
$\lambda x\ \lambda e$ [Read-easily (e) & Book(x) & θ(e,x)]

152. This bicycle handles.
$\lambda x\ \lambda e$ [Handle (e) & Bicycle(x) & θ(e,x)]

With 'alternating' predicates, the unaccusative form will be 'about' an event while the middle will be 'about' an ordinary individual. The version of *The door opens slowly* that can be used as a stage direction or in radio theater is an unaccusative (there is an 'opening' event with the door being the theme/patient of that event), while the version of *The door opens slowly* that can be used as a complaint to a carpenter or as part of a prison guard's orientation is a middle (there is a door with the open-slowly property).

Previous analyses of the middle as stative or generic have not provided any explanation for why middles should be different in this way from other predicate types. I have shown that to a large extent the generic or stative view of middles is not correct. However, they do express properties, similar to the way in which ordinary adjectives express properties. The analysis proposed here captures this aspect of middles without introducing a mysterious alteration of lexical semantics or a requirement that a questionable operator be at the core of middle semantics. The analysis also differs from that proposed in (Chierchia, 1989/2004) in which the semantics of middles is the sum of

the semantics of unaccusatives plus the contribution of a DP in subject position that denotes an inanimate object.

8 Additional Semantic Aspects of Middles and Interaction with Present Proposal

8.1 External Argument

In Chapter Three I used Control and *wh*-question data to show that there is only one argument expression in the syntactic structure of middle voice sentences. This is predicted on the analysis of middles I advance in this thesis, and it is thus entailed that no linguistic expression in middles corresponds to the 'external argument' of the verb.

(Roberts, 1987) suggests that Control into a rationale clause is not possible with middles because statives cannot do this. That is, the unavailability of Control is not tied to the absence of the external argument. The examples below show that middles do in this way pattern like statives.

153. *John knew Irish to impress his aunt.

154. *The book read well to please the publisher.

The lexical stative example is not good, which suggests that occurrence of an event is partly responsible for the success of Control sentences. This emerges even with 'eventive' verbs. Eventive verbs typically allow an 'obtainment of the event' reading and a 'non-obtainment of the event' reading. For example, *John eats kale* can mean that he has eaten and habitually eats kale or that he is willing to eat kale. In a Control environment, such as *John eats kale to impress his aunt*, there is a restriction that John has eaten kale to

impress his aunt. It can't be only that he is willing to eat kale to impress his aunt. If there must be some event or series of events that obtains in order for control to succeed, then the failure of control in middles may have to do with the fact that middles allow but do not require that an event has obtained.

Even when the middle strongly implicates an eventive interpretation, Control fails. *John was killing chickens to give the poultry industry an advantage* contrasts with **The chickens were killing easily to give the poultry industry an advantage*. Control facts show that middles pattern like non-eventive adjectives.

The proposal in this thesis entails that the external argument of the verb is neither syntactically nor semantically present. I disagree with (Fagan, 1992) and (Levin, 1982) who argue in favor of generic quantification over the logical subject in middles. As I noted in the introduction, on a modular theory of grammar, purely lexical operations cannot operate (quantify over, for example) syntactic argument expressions. Instead I side with (Rapoport, 1999), noting that the basic lexical semantics of the two-place predicates that form middles implicates a possible agent even in the absence of any syntactic or semantic realization of the external argument.

8.2 A Brief Note on Predicate Restrictions

Previous research is divided regarding the question of the lexical aspectual properties of the verbs that form grammatical middles and regarding the question of the aspectual properties of middle voice sentences. Middles here have been characterized as a 'solution' to a particular kind of mismatch, one in which a two-place predicate appears in a syntactic structure with only one argument expression occurrence. Such a mismatch

will never arise in the case of predicates with an adicity of one, and thus a number of predicates (achievements such as *cough* and *die*, for example) are excluded from middle formation on this view. This leads to the question of whether predicates with an adicity of one might resolve a similar 'mismatch' in cases in which there are zero argument expressions available to do the job of one argument expression. The only suggestion I can offer on the basis of the proposal advanced in this thesis is that expletivization might, in some languages, be a syntactic solution to this particular kind of mismatch.

The restriction on 'effected objects' in the middle follows from the fact that the aspectual profile of the middle predicate is not for the most part special. For example, the most natural interpretation of *paint a portrait* involves creation of a portrait, not painting on top of a portrait. As the interpretation of *paint* in both middles will be the activity not accomplishment 'variety' given that there is no DP delimiter in the complement position of the verb, (156) is more acceptable than (155).

155. *This portrait paints easily.

156. This wall paints easily.

Event decomposition is among the approaches to the aspectual restrictions on middle formation follow. (Doron and Rappaport-Hovav, 1991) argue for an event decomposition approach to middles and passive nominals. They define Affectedness in terms of event structure. Affectedness (for them, the 'separation property') is as follows: "y is an affected argument of V (x, y) iff: the event-structure of V contains a sub-

eventuality e such that y, but not x, is an argument in e." The argument structure and event structure of the sentence *John distributed the exams* is as below.

157. Argument structure: distribute (John, the exams)

158. Event structure: CAUSE (DO (John), BECOME (distributed (the exams)))

One problem for this approach is that the event structure for *John made a cake* also seems to fulfill the 'separation property' requirements, yet this sentence does not form a good middle (**The cake makes easily*).

While on the approach taken in this thesis the aspectual properties of middles are expected, I have nothing new to add to the question of why certain predicates form good middles and others do not.

8.3 Adverbial 'Requirement'

On the approach taken in this thesis, the adverbial 'requirement' of middles is not in fact any formal requirement. In fact, it cannot be, given the grammaticality of middles that do not have adverbs. Some examples are above, but here is another case: If Fred asks his baker friend John what John can tell him about the different breads in the bakery, keeping in mind that Fred often has to make quick, simple meals, John might tell Fred that rye with coriander cuts easily. It could also be the case that Fred, who has never seen or eaten bread prior to walking into John's bakery might ask John how he can tell a loaf of bread from a rock, since to Fred loaves of bread and rocks look very much

alike. John could help Fred out by telling him that bread cuts. This is just one context in which a middle voice sentence does not require a secondary predicate.

In *On Interpretation* Aristotle addresses the question of why it is odd to speak of a two-legged man. The sentence *I saw a two-legged man* does not violate rules of grammar, but it is nevertheless odd. I suggest that middles without adverbs will be odd when the expectation is that the middle predicate holds of the item denoted by the syntactic subject.

8.4 Motivating Joint Analysis of Plain and Reflexive English Middles

There are a number of diagnostics that place English plain middles and English reflexive middles in the same class, a class that I take to be characterized by a syntactic analysis in which these sentences contain one DP occurrence. In Chapter Three I provided some syntactic arguments that English reflexive middles, a variety rarely considered in analyses of middles, should in fact be analyzed as middle voice sentences. On that analysis, the sentences below are syntactically ambiguous, and the reflexive middles will have the interpretations indicated in parentheses.

159. This book reads itself. (*This book reads easily*)

160. These shirts wash themselves. (*These shirts wash easily*)

In Chapter Three I argued that the reflexive DP of these sentences is a nonreferential, phonologically overt anaphor. Here I provide some interpretive motivation for the joint analysis of English plain and reflexive middles.[54]

8.4.1 Theta Role

In the plain and reflexive middles below *the book* is interpreted as the item being read (patient or theme) rather than the agent or some other theta role (goal, experiencer).

161. This book reads easily.

162. This book reads ITSELF.

This is but one piece of interpretive evidence in favor of the joint analysis of English plain and reflexive middles.

8.4.2 Restriction on Lexical Stative Verbs

Although the predicate restrictions are not identical for the two constructions, English plain middles and English reflexive middles cannot be formed from lexical stative verbs.

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[54] The reflexive in the English reflexive middle is different from the reflexive in languages that mark all middles with a reflexive. The English reflexive middle uses a full form of the reflexive rather than the short form (clitic *se*/*si* in Romance, *sich* in German) used in languages that obligatorily mark middle voice with a reflexive. There is a reflexive form not allowed in the English reflexive middle, as illustrated below.

(i) The book's reading easily was appreciated by the students.
(ii) The book's reading itself was appreciated by the students.
(iii) *The book's reading its own self was appreciated by the students. (on the 'easy to read' interpretation)

163. *French knows well/ITSELF.

164. *Ice cream hates easily/ITSELF.

165. *Potatoes like easily/THEMSELVES.

166. *Mary resembles easily/HERSELF.

167. *100 bhat owe easily/ITSELF.

168. *Berserkers fear easily/THEMSELVES.

8.4.3 Interpretations of the Simple Present and Present Progressive

Earlier in the chapter I noted an interpretive difference between simple present and present progressive middles as compared with their active voice counterparts. The restriction against futurate interpretations of these constructions holds for the English reflexive middle.

169. *Silk from France washes poorly next week.

170. *Silk from France washes itself next week. (* given the relevant reading)

171. *Your novel is reading well tomorrow. (* given the relevant reading)

172. *Your novel is reading itself tomorrow. (* given the relevant reading)

The interpretation of the plain middle and reflexive middle in English is also similar in that a habitual interpretation is not available in the simple present tense, in contrast with active voice sentences.

173. Mary reads novels by Raymond Chandler. (habitual reading OK)

174. Novels by Raymond Chandler read well. (no habitual reading)

175. Novels by Raymond Chandler read THEMSELVES. (no habitual reading)

The present tense does not allow a 'stage direction' interpretation in plain or reflexive English middles.

176. John washes the potatoes. (stage direction OK)

177. The potatoes wash well. (not OK as stage direction)

178. The potatoes wash themselves. (not OK as stage direction)

8.4.4 Agent-Oriented Adverbs

Both varieties of middle are incompatible with agent-oriented adverbs.

179. *The book reads well reluctantly. (* given the relevant reading)

180. *The book reads ITSELF reluctantly. (* given the relevant reading)

8.4.5 Complementary Distribution of Reflexive and Adverb

Finally, in English middles, either the reflexive DP or an adverb is present, not both. The reflexive and adverb are in complementary distribution.

181. *The book reads itself well/poorly. (* on the middle reading)

182. *The book reads well itself.[55] (* given the relevant reading)

As noted earlier, adverbless middles, middles without negation, and middles without a reflexive are grammatical. The presence of an adverb or negation ameliorates the strangeness of a middle in a way that is different from the way in which a nonreferential reflexive does. Because of the interpretation associated with the English reflexive middle, they are incompatible with middle adverbs, though this is likely not a structural constraint.

9 Conclusion

In this chapter I have discussed the semantic implications of the analysis of middles argued for in this thesis. Taking seriously the idea that middles are a 'solution' to a particular variety of 'mismatch' leads to the absence of an external argument in the semantics of middles. Taking seriously the idea that no special operations should be introduced to account for middles leads to the expectation that middles will not have special properties with respect to aspect and genericity. This was shown to be the case here, with middles patterning most like another family of typically one-place predicates, namely adjectival predicates. I have also, in this chapter, provided some semantic justification for treating a set of reflexive sentences in English as middles; this complements the syntactic justification provided in Chapter Three.

[55] This particular sentence is likely ungrammatical simply due to the placement of the adverb between the verb and the V-complement position.

Chapter Five: Conclusion

1 Overview

In this thesis I have explored the consequences of viewing a mismatch with respect to predicate adicity and the number of available argument expressions as the core characterizing feature of middle voice sentences. While the grammar of different languages may permit different 'solutions' to this problem, the primary solution I considered here is the one that yields what are commonly called argument middles.

Throughout the thesis I relied on the distinction between types and tokens. In particular, I assumed that a single expression occurrence might be phonetically realized in multiple syntactic positions. Thus, although it might rightly be said, when considering orthography or phonology, that in the sentence *Lolita si legge facilemente*, there are two items: *si* and *Lolita*, we can also rightly say, when considering syntax or semantics, that together *si* and *Lolita* constitute a single abstract object.

The approach in which the subject DP and the weak reflexive in a middle voice sentence constitute a single argument expression occurrence predicts that the two will agree syntactically. It also predicts that the weak reflexive of middle voice sentences is different in its indexical properties from reflexives that serve as independent argument expression occurrences. Here I make a brief comment on each of these predictions. With respect to syntactic agreement I allowed that an absence of a mismatch or absence of disagreement will suffice to constitute agreement. That is, underspecification does not block a matching or agreement relationship. With respect to the indexical properties of the weak reflexive in middle voice sentences, I showed that they will bear the same

indexical value as the DP in syntactic subject position. I also showed that their indexical properties are different from those of reflexives that serve as independent argument expression occurrences. In the cases I considered, the weak reflexive of middles bears an alpha-occurrence of an index, while the weak reflexive that serves as an independent argument bears a beta-occurrence of an index. The ungrammaticality of the following conjoined middle sentence **The book reads itself and the magazine does so poorly* (compare with *The book reads itself and the magazine does too*) indicates that, at least in English, the indexical properties of the nonreferential reflexive and of trace may be different with respect to indexical type. This will not require abandoning the assumption that indexical values and types cannot be modified over the course of a syntactic derivation. I noted in Chapter Three that I had not considered the option that an argument expression occurrence bear no index, and hence have no indexical value. The explanation for the ungrammaticality of the conjoined sentence above may lie in treating trace (which does not on its own constitute an argument expression) as a syntactic element that bears an indexical value but no indexical type. This may require allowing, as in the case of syntactic agreement, that an absence of a mismatch can constitute a match. That is, underspecification with respect to indexical properties may be allowed.

As I noted in Chapter Two, my primary reason for developing an approach to middles in terms of adicity (and not argument structure or theta grids) is that I take predicate adicity to be a purely grammatical phenomenon. This is likely not the case for the additional thematic, aspectual, and action information that is included in any approach to argument structure, theta grids and the like. As the section on the semantics

of middles shows, there are many extra-grammatical considerations that come into play when middles are considered. What I have hoped to do, especially in Chapter Three, is to develop an account that is framed entirely in syntactic terms.

With respect to the interpretation of middles, I hoped to capture as many of the properties of middles as I could without appeal to further operations or mechanisms. In the semantic domain, this required abandoning the standard view that middles are always generic sentences. This had the positive result that a broader range of grammatical middles could be included in the analysis. Diagnostics showed that middles vary with respect to their aspectual class, but pattern similarly to adjectival predicates. Choosing an allowable scope shift, in which the individual introduced by the sole DP argument takes wider scope than the event argument provided an analysis of middles in which no surprising change is made to the semantics of the verbal predicate, but which also guarantees that middles are 'about' the items denoted by their syntactic subject expressions. In this way I also provided an analysis of middles in which the event argument can be bound by any quantifier (Generic, Existential, or Universal) so long as this is warranted, given the particular tense or aspect of the middle sentence in question.

2 Argument Spreading and Trace

In this thesis I sketched an approach to the way in which an argument expression might be distributed in a syntactic structure, an approach that I termed *argument spreading*. I used this term given my view that the syntactically relevant aspects of an argument expression might be spread out over the positions the expression is in. I

considered the relationship between trace and the weak reflexive of middles briefly, but here I finally suggest that traditional movement (DP…trace) can be considered but a variety of argument spreading. I noted above some adjustments that might be made with respect to determining the full indexical properties of trace.

3 Unaccusative Predicates

In the thesis I pursued an analysis of middles that is largely separate from an analysis of passives or unaccusatives. The mismatch that I pursued as central to middles is not relevant to passive. I assume that in passive constructions both argument expressions are present in the syntactic structure. They are simply realized in a way that is different from active voice sentences due to allowable syntactic operations. Whether the analysis of middles I propose here can be extended to any of the classes of unaccusative verbs I address briefly here. Earlier I noted that I am operating in reverse by asking whether an analysis of middles could be extended to unaccusatives, rather than asking whether an analysis of unaccusatives could be extended to middles.

Given the mismatch I have pursued, it is unlikely that this analysis would extend to unaccusative predicates that do not alternate, that is, predicates that only ever appear with a single DP argument. For example, *die* and *arrive* are unlikely candidates for this analysis since (to my knowledge) they cannot ever appear in a frame with two argument expressions. If there were a language in which *arrive*, for example, could appear with an argument DP or with an expletive, then it is possible that my analysis of middles would be relevant to those contexts. There would be a predicate with an adicity of one appearing in a syntactic frame with zero argument expression occurrences available to

do the work normally allotted to one argument expression occurrence. I noted that there are expletive middles in some languages, and thus these 'constructions' might be united in an expletivization solution to a mismatch of the type studied here.

Some unaccusative predicates, like the psych-predicates discussed in Belletti and Rizzi (1988) ordinarily take two internal complements. These in principle could be 'eligible' for the mismatch considered in this thesis. That is, there may be a syntactic solution that can resolve a mismatch, should predicates of this type have only one argument expression available in the syntactic structure in which they appear. Two natural questions are a) whether a single argument expression could fulfill the positional implications of two ordinarily internal arguments, and b) whether there would be a contrast with respect to which of the two internal arguments is the best candidate for fulfilling all of the positional implications. I addressed this second question briefly in Chapter Two, where I noted the asymmetry with respect to logical subjects and logical objects in the discussion of predicates like *devour*.

So-called alternating predicates—predicates that can appear in a transitive and in an intransitive frame—are the most likely class of unaccusative predicates to be successfully included in an analysis like the one proposed in this thesis for middles. These are predicates like *break*, *melt*, *open*. I leave open the possibility that the analysis of middles proposed here could extend to such predicates. I note the following complications and considerations as relevant to the evaluation of whether that extension is successful or not: Languages are generally uniform, within the particular language being considered, with respect to whether middle voice sentences include a weak

reflexive. Languages are generally less uniform, within the particular language being considered, with respect to whether unaccusative sentences include a weak reflexive. There are efforts at making sense of this apparent optionality, as in (Labelle, 1992). Perhaps I have chosen an easier task here, in that middles do not pose this additional complication. Middles and unaccusatives are often noted as being different in that with middles there is an implication of an agent (though no truth-conditional effect of an agent) while with unaccusatives there is not. I have provided a means by which the middle can be contrasted with the unaccusative in that the middle ascribes a property to an ordinary individual rather than to an event. With respect to the implicit agent, we might expect that the predicate *break*, with an adicity of two, might carry the implication of an agent even when no argument corresponding to the agent is present in the syntax or semantics of the sentence in which it appears (as in the middle). In Chapter Two I noted that I assume that some predicates may be listed twice, and that some will be listed once as a predicate with an adicity of one and a second time as a predicate with an adicity of two. Whether these differences between middles and unaccusatives can be resolved, while retaining the proposal advanced here, I leave open. In the thesis I noted that I reject approaches in which syntactic or semantic operations (like binding or saturation) are operative in the lexicon. However, I cannot preclude the possibility that lexical operations yet to be understood might ultimately play a role in a successful understanding of the connection between middles and unaccusatives.

In some analyses of predicates that alternate, the weak reflexive is analyzed as an aspectual marker. See, for example, (Zagona, 1994) and (Cornips and Hulk, 1996). In the

introduction I noted that the approach to the weak reflexive of middles is connected to previous analyses of clitic doubling. Whether the argument spreading solution proposed here for middles can be extended to other cases in which a weak pronominal appears connected to a DP in the syntactic structure, yet cannot be shown to independently introduce an argument expression, is also something I leave open.

4 Conclusion

The analysis of middles provided here is one that I hope will serve to de-mystify middles. Although they are in some senses peculiar, there is really very little that is strange about them from the perspective of grammatical analysis. My hope is that even if the foregoing does not provide a perfect analysis of middles, or even aspects of the perfect analysis of middles, that some of it will contribute, through data, approach, or inspiration, the perfect analysis of middles that is yet to come.

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