How weak and how definite are Weak Definites?

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Abstract

This paper explores the potential for a unified analysis of Weak Definites and regular definites. I first consider and argue against assimilating Weak Definites to co-varying interpretations of regular definites via general mechanisms. Next, I present a new proposal for analyzing Weak Definites, which sees them as regular definites occurring in verb phrases that denote kinds of events. This has the promise of allowing us to maintain a unified analysis of definites in terms of uniqueness while at the same time capturing the special properties of Weak Definites.

1 Introduction

The aim of this paper is to explore the extent to which we can relate the analysis of so-called 'Weak Definites' to that of regular definites. By 'Weak Definites', I primarily mean the class of noun phrases with a definite article that exhibit the properties described by Carlson et al. (2006, see below for a brief review), though it is possible that at least part of what we will say can be extended to other related cases, such as the 'possessive weak definites' of Barker (2005) (see also Poesio,

1994) (for some discussion along these lines, see section 4.4). Crucially, these types of definites do not seem to exhibit any uniqueness effects whatsoever, which could be taken to suggest that they have to be treated as being semantically different from 'regular' definites in an essential way. While that seems like a very reasonable reaction to the obvious differences in their properties, it raises the question of why Weak Definites in fact are expressed using definites acros languages.[1]

At the same time, there are formidable challenges for the alternative view, which takes as its starting point the assumption that the lexical entry for the definite article in Weak Definites is the same as in regular definites. For how can we maintain that the definite article contributes its standard uniqueness requirement in Weak Definites when the overall semantic effect of the relevant sentences does not seem to include such a uniqueness requirement at all? The present paper explores two other possibilities for rescuing a 'unified account', as we might call it. Doing so requires us to find additional semantic operations in the sentence that are outside of the (core of the) definite description, and which somehow conspire to make the uniqueness effect disappear. The first possibility I'll consider is to examine the range of cases where definites can receive co-varying interpretations, since a core property of Weak Definites is that they can very easily be interpreted in ways that don't require uniqueness to hold at the level of the entire sentence. While taking a careful look at the extent of the availability of such interpretations is very much worthwhile, I argue that this alone cannot account for all of the properties of Weak Definites. But exploring this option and understanding why it is not going to work

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[1]And in fact, languages that have more than one definite article consistently use the form tied to uniqueness (see Schwarz, 2009, 2012a, and discussion below).

is nonetheless instructive and leads us to a second attempt that I argue to be more promising. In particular, I spell out a proposal that analyzes Weak Definites as regular definites that occur in verb phrases which are interpreted as kinds of events, which requires both alternative denotations for verbs and (fairly standard) type-shifting of definites to predicate denotations. This is not the first proposal of an analysis of Weak Definites based on kinds, as Aguilar-Guevara and Zwarts (2011) propose that Weak Definites involve kind reference at the level of the definite noun phrase. A brief comparison with their proposal is provided at the end of the paper.

2   The Properties of Weak Definites

I follow Carlson et al. (2006) as far as the defining properties of Weak Definites are concerned, and will just review these very briefly here (SEE ALSO THE INTRODUCTORY CHAPTER TO THIS VOLUME). First there are a number of semantic properties that set them apart from regular definites. First and foremost, they do not seem to come with a uniqueness requirement, as witnessed by the completely general availability of co-varying interpretations under quantification and the fact that ellipsis does not require identity of referents for the overt and elided definites:

(1)   Every accident victim was taken to the hospital.   (John to Mercy Hospital, Bill to Pennsylvania Hospital, and Sue to HUP)

(2)   Bill is in the hospital, and John is, too.   (Bill is at Mercy and John is at HUP)

Compare these to variants where *hospital* is replaced by, say, *building*, and the contrast is apparent. The second property is that typically (though perhaps not necessarily), the interpretation of Weak Definites involves some type of enrichment: 'Being in the hospital' is generally understood as being there for treatment, etc.

Finally, Weak Definites do not seem to support anaphora, or at least not to the same extent to which regular definites do (see Scholten and Aguilar-Guevara, 2010, for more detailed discussions of anaphora to Weak Definites), as (2) does not involve a Weak Definite interpretation:[2]

(2′) Bill is in the hospital, and John is, too. It has an excellent heart surgery department.

In addition to these semantic properties, there are rather strong distributional restrictions on the availability of Weak Definite interpretations. They seem to only be available for objects of certain verbs and/or prepositions, they only arise with specific choices of nouns, and they disappear as soon as any simple restrictive modification is added into the mix (again see INTRO TO THIS VOLUME and Carlson et al., 2006, for details).

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[2]There's the potential for an interesting point here about the interpretation of pronouns: If we assume a) that pronouns are definite descriptions with elided NPs (Elbourne, 2005) and b) that Weak Definites involve the regular (uniqueness) article, then we would expect pronouns to allow for Weak Definite readings, too. But those are clearly not available:

 i. John is in the hospital. Sue is in it, too.

So if we maintain b), it would seem that we have to give up a), at least in its simple form. We might still be able to maintain the claim that pronouns are covert definite descriptions if we assume that they are on par with the anaphoric strong-article definites of Schwarz (2009). But that would still very much change the perspective on the semantics of pronouns from the usual description-theoretic view.

I take it that any successful theoretical account of Weak Definites has to explain all of these properties. This is no small challenge, and I will ultimately argue for an analysis that involves a number of semantic operations which together conspire to give rise to them. But first, I will turn to an attempt to reduce weak definites to special cases of regular definites that, for one reason or another, very easily allow for co-varying interpretations. However, this approach falls short when it comes to explaining the other properties of Weak Definites.

3   Co-Varying Interpretations of Definites

Perhaps the most striking property of Weak Definites is their apparent lack of uniqueness. It is usually illustrated by using either quantificational examples or VP-ellipsis, as in (1) and (2), and the argument is that these sentences as a whole do not require the various individuals mentioned or quantified over to be in the same hospital. I will refer to such cases as 'co-varying interpretations' of the definite, which is intended as a non-technical, purely descriptive label alluding to the fact that the understood value of the definite varies based on the value of another argument (typically the subject) in the sentence. Adopting this perspective, it is of course only responsible to point out that there are plenty of examples where definites receive co-varying interpretations, but which are not generally considered as cases of Weak Definites. The question then arises to what extent we can assimilate co-variation with Weak Definites to such other cases.

To begin with some simple examples, definites can be used in donkey sentences,

and they can be syntactically bound (or at least appear in the same position as pronouns with co-varying interpretations which would standardly be thought to be syntactically bound):

(3) If a farmer owns a donkey and a goat, he feeds the donkey hay (and the goat grass).

(4) John gave every child a toy that he enjoyed more than the child.

(after Heim, 1991)

These cases differ, of course, from the Weak Definite ones, in that they seem to involve (again, speaking purely descriptively) a dependence of the definite on a preceding expression. But definites can also 'depend' on preceding expressions in more indirect ways - a phenomenon referred to in the literature as associative anaphora (Hawkins, 1978), bridging (Clark, 1975), or inferrables (Prince, 1981) -, and those types of cases, too, allow for co-varying interpretations (Schwarz, 2009):

(5) Every race-car driver tightly gripped the steering wheel.

The steering wheel here most naturally receives a co-varying interpretation, where each driver grips the steering wheel of his own race car. However, there is no expression that the definite could depend on in the same way as a pronoun could. First of all, there is no prior mention of steering wheels, and secondly, the primary candidate for a preceding expression that the definite could relate to in an indirect but straightforward way - *race car* - is part of a compound, which constitutes an anaphoric island (Postal, 1969, cf. *#Every race-car$_i$ driver took good care*

of it$_i$.). What to do with such example then? Presumably, *the steering wheel* has to be interpreted in one way or another relative to the respective race-car drivers. One proposal in the literature is to invoke general mechanisms of domain restriction operating on the definite, in the form of a functional variable whose individual variable can be bound or be anaphoric, just like a pronoun. (e.g., von Fintel, 1994; Chierchia, 1995). Another possibility, similar in spirit but slightly different in execution, is to provide a situation-based analysis of the definite and let the universal quantifier quantify over both individuals and (minimal) situations. That way, we can consider different situations for each race-car driver, which makes it possible to end up with different steering wheels. We also may need to add something like Rothstein's (1995) matching functions into the mix, to capture the contextually supported mapping from drivers to cars in a more precise way (Schwarz, 2009, Chap. 5).

Turning to the viability of such analyses for Weak Definites, the anaphoric character of the first type of proposal is problematic, since anaphorically used definites do not give rise to Weak Definite interpretations. Consider the following example:

(6)   There was a newspaper laying on the couch. John read the newspaper today, and Bill did, too.

An anaphoric interpretation of *the newspaper* is incompatible with a Weak Definite interpretation, as it requires John and Bill to have read the very same newspaper (Bosch, 2010, makes a related point). Furthermore, there are languages that have two paradigms for definite articles, one of which is used anaphorically, and one

that is based on uniqueness. For example, Schwarz (2009) argues that German encodes this distinction in terms of whether or not a definite contracts with a preceding preposition, as in *in das Kino* vs. *ins Kino* ('into the movie theater').[3] Weak Definites always seem to be expressed with the uniqueness-based form. A German example of a Weak Definite expressed by the weak article is given in (7):

(7) *Hans ist im   Kino,   und Maria auch.*
     Hans is in-the movie theater and Maria too
     'Hans is at the movie theater, and Maria is too.'

While an anaphoric analysis of covarying definites as in (5) thus does not seem promising, an analysis in terms of situational domain restriction (and possibly matching functions) seems in principle suitable for being extended to Weak Definites.

   In any case, the main question for present purposes is whether any account of (5) can be extended to account for the co-varying interpretations of Weak Definites. This seems to be what is suggested by Asic and Corblin (2012), who explicitly appeal to Hawkins's (1978) notion of associative anaphora and propose that Weak Definites are 'functional definites' and 'take an argument *in their own sentence*' (Asic and Corblin, 2012, p. 2).[4] Similarly, Bosch and Cieschinger (2010) suggest to see Weak Definites in analogy to other examples of co-varying definites, though they construe this similarity in a slightly different way, which I will comment on briefly below.

   While an assimilation of Weak Definites and other cases of co-varying definites

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[3]For a review of a typologically diverse set of languages that display similar contrasts, see Schwarz (2012a).

[4]They also propose to incorporate Pustejovsky's (1995) notion of 'telic qualia' into an account of the interpretation of Weak Definites, which arguably help to account for semantic enrichment.

has its intuitive appeal, I argue that it does not withstand further scrutiny. To begin with, we should take seriously the fact that co-variation in cases like (5) crucially requires contextual support to get off the ground. In (5), this is built into the sentence itself by the choice of noun inside of the quantifier. If we replace it with another one, the co-varying reading becomes almost completely inaccessible (modulo our willingness to accommodate), unless there is further support in the context ('#' indicates unavailability of covarying interpretation):

(5′)   a. Every student tightly gripped the steering wheel.

        b. The students were participating in a car race. As the race was about to start, every student tightly gripped the steering wheel.

On the other hand, no such contextual dependence is required for co-varying interpretations of Weak Definites:

(1)   Every accident victim was taken to the hospital.

(8)   Every student was taken to the hospital.

Relatedly, co-varying readings of regular definites of this sort generally come with the sense of a clear relation between the individuals in the quantificational domain and the values of the definite (e.g., each race-car driver gripped the steering wheel of his car), but no such relation is involved with Weak Definites. If the accident victims are taken to different hospitals, there's no strong sense in which the respective hospitals are 'their' hospitals.[5]

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[5]A reviewer points out that speaker's usually have their local hospital etc. in mind when using Weak Definites. But my main point is that this is not necessarily so, as can be seen rather clearly from quantified examples like (1), where there may be no one local hospital in that sense.

A second point concerns uniqueness. While cases like (5) on their co-varying interpretation obviously do not involve uniqueness at the level of the sentence, what we might call 'relativized' uniqueness still is clearly present. This can be seen by variations of (5) where such relativized uniqueness does not hold, which leads to the unavailability of the co-varying interpretation (see Kadmon, 1987; Roberts, 2003, for related discussions):

(9)   #(As the race was about to start,) every race-car driver checked the tire.

Again, Weak Definites are different in that they allow mappings from individuals in the quantificational domain to multiple instantiations of the description in the Weak Definite:[6]

(10)   Every accident victim ended up in the hospital for weeks. In fact, most of them ended up having to be treated in several different hospitals because of complications with their various injuries.

Finally, we should not forget about the other properties of Weak Definites that we reviewed above. First, if Weak Definites are, essentially, just the same as regular definites, then where do their enriched meanings come from? Secondly, what limits the availability of anaphora to Weak Definites? Regular definites with co-varying interpretations allow for pronouns whose interpretations co-vary in parallel in various configurations where such readings are available:

(11)   The race-car drivers each got to test-drive a Porsche of the latest model. . .

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[6]Carlson et al. (2006) make this point for examples like *John took the train*, which can involve rides on several different trains.

a. After breakfast, every driver got into his car, checked out <u>the steering wheel</u> and discovered that despite the humid weather <u>it</u> felt nice and cool and allowed for a firm grip.

b. Upon getting into the car, every driver was impressed by <u>the steering wheel</u>. <u>It</u> felt nice and cool and allowed for a firm grip, despite the humid weather.

In contrast with these contextually supported cases of regular definites with a co-varying interpretation, introduction of a pronoun in comparable configurations with Weak Definites makes the Weak Definite interpretation disappear (and with it, the co-varying interpretation).

(12) Every accident victim was taken to the hospital and discovered that it had a beautiful roof-top garden.

(13) Every accident victim was taken to the hospital. It had a beautiful roof-top garden.

Turning to the distributional properties of Weak Definites, it is hard to see how an account that assimilates Weak Definites to regular definites in the way sketched here can explain the fact that the Weak Definite readings are very much tied to specific lexical items. Presumably, the ease of availability of co-varying readings for Weak Definite cases would have to be attributed to the general availability of matching functions (or equivalent mechanisms supplying the relevant mappings), so that no specific contextual support is needed. But these types of functions would operate on the level of denotations, not lexical entries, and it therefore would be

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highly surprising that substitutions with near synonyms (say *clinic* for *hospital*) or modified versions (say *old hospital*), would have the drastic effect on interpretation that we in fact observe.

In light of these considerations, I don't think that an approach that sees Weak Definites as just another instantiation of a case where regular definites receive a co-varying interpretation is viable (see also Carlson et al., 2006, remarks on 'functional readings'). Before leaving this line of thought, let me briefly consider yet another approach along these lines, as it provides a nice segway to the next section. As already mentioned above, Bosch (2010) and Bosch and Cieschinger (2010) argue for an assimilation of Weak Definites and other co-varying definites in a slightly different way. Rather than seeing co-varying Weak Definites as a special case of other co-varying definites (e.g, by appealing to domain restriction, matching functions, etc.), they argue that other, contextually supported cases of co-varying definites are special cases of Weak Definites. They argue the latter to involve 'abstract situation types' and explain their distributional restrictions to be reflections of conceptual restrictions. Other co-varying definites that require contextual support are cases where the concept of the relevant abstract situation type is not one that exists in general, but is made available ad hoc by the context.

While this approach can deal with some of the problems noted above (in particular the distributional restrictions), it cannot account for all the differences between co-varying interpretations of regular definites and Weak Definites: in particular, why do regular definites under quantification still display uniqueness effects, as witnessed by (9) above, but Weak Definites do not? Furthermore, why are Weak

Definites incompatible with anaphoric interpretations, as shown by (6), again in contrast to regular definites? However, although I would not follow them in extending an account based on something like abstract situation types to co-varying cases of regular definites, a view of Weak Definites along these lines seems rather promising. In fact, as also noted by Bosch and Cieschinger, it fits rather neatly with Carlson et al.'s (2006) and Carlson's (2006) suggestion of seeing Weak Definites as being parallel to bare singulars and incorporation phenomena more generally. In the next section, I will briefly review some of the background on this broader perspective, and then move on to spell out a proposal for deriving Weak Definite interpretations based on the idea that the verb phrases they appear in denote kinds of events. In the course of this, we will discover some novel properties of Weak Definites and see that on this approach, we can use a basic uniqueness meaning for the definite article after all and still account for the apparent lack of uniqueness while at the same time capturing some of the somewhat hidden reflexes of the original definite meaning.

4   Reference to Kinds of Events

The notion of situation types and similar concepts have a broad presence both in the literature on incorporation and the more recent work on Weak Definites. In this section, I try to take the basic idea at face value and propose that Weak Definites are definites appearing in verb phrases that - at least at one stage of the compositional semantic derivation - denote kinds of events. By way of introduction, I point to

some of the existing proposals for bare singulars and incorporation in this regard, and also introduce the basic framework for analyzing kind reference that I will utilize. I then spell out the details of the derivation of Weak Definites and discuss how this accounts for their properties.

4.1 Bare Singulars, Incorporation, and Established Activities

Right from the start of recent work on Weak Definites, Carlson and colleagues have pointed to the similarities between Weak Definites and bare singulars, as in (14):

(14)   a.   John goes to school.

       b.   Bill is in prison.

Based on their parallel semantic properties, Carlson et al. (2006) and Carlson (2006) in fact propose that bare singulars and Weak Definites function in exactly the same way. Furthermore, Carlson (2006) argues that both are instances of semantic incorporation, in that they mirror the core semantic properties of incorporation structures in other languages, even though no incorporation seems to be involved at the structural level.[7]

One of the striking commonalities between these various phenomena is the nature of the restrictions on their distribution. As Carlson (2006) notes, verb phrases involving incorporation generally are seen as expressing a 'typical activity' (Axelrod, 1990), an 'activity [that] is recognized sufficiently often to be considered

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[7]Whether or not bare singulars and Weak Definites have exactly the same semantic properties remains a question open to discussion. See section 4.4 below.

nameworthy' ([Mithun, 1984](#)), or 'habitual, permanent, chronic, specialized, *char-acteristic or unintentional activities* or states, or localized events' ([Reuse, 1994](#)). Building on [Borthen](#) ([2003](#)), Carlson himself (in earlier, unpublished notes and talk handouts) has characterized bare singulars and Weak Definites in 'situational' terms, i.e., as involving time-spaces that are associated with typical activities (e.g., sleeping in bed, getting treatment in the hospital, etc.).

My analysis is based on the idea that Weak Definites are definites appearing in verb phrases that denote kinds of events.

4.2 The Semantics of Kind Terms

Since my analysis will make use of the notion that linguistic expressions can have kinds as their denotation, let me introduce some basic ingredients for a semantics of kind reference. I follow the proposal of [Chierchia](#) ([1998](#)) (who builds on [Carlson](#), [1977](#)) in assuming that predicates can be shifted to kinds via the '$\cap$' operator, and that the reverse process exists as well, represented by the '$\cup$' operator.[8]

(15) $\cap:\ \lambda P_{\langle e,st\rangle}.\lambda s.\iota[P(s)]$

(16) $\cup:\ \lambda k_{\langle s,e\rangle}.\lambda x.\lambda s.[x \leq k(s)]$

'$\cap$' maps predicates onto kinds, seen as functions from situations to the largest plurality of individuals falling under the predicate (assuming this function is in the

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[8]I deviate slightly from Chierchia's formulation in that I explicitly represent the λ-abstraction over situations. I follow him, however, in writing 'ι' as being paired with a predicate (either represented as a set or the characteristic function of a set), with the whole expression standing for the maximal element in the relevant set.

set of kinds). '$^\cup$' maps kinds onto a property that holds true for all those (singular or plural) individuals that are part of the kind in s. These operators thus can be utilized by languages to shift predicates to kinds and vice versa. Just what types of expressions can take on kind-level meanings varies across languages and arguably interacts with the language-specific system of determiners.

The final central ingredient is a rule that allows predicates that take 'regular' individuals as their arguments to combine semantically with kind-denoting terms, which is called Derived Kind Predication (DKP):

(17) If P applies to objects and k denotes a kind, then

$P(k) = \exists x[^\cup k(x) \ \& \ P(x)]$

In the next section, I will extend these notions to the level of predicates of events.

4.3 Verb Phrases as Expressing Kinds of Events

My starting point for the analysis of verb phrases containing Weak Definites is Dayal's (2011) proposal that incorporating verbs are type variants of regular transitive verbs, as in the following example:

(18) a. $[\![\text{catch}_{TV}]\!] = \lambda x.\lambda y.\lambda e. \ [\text{catch}(e) \ \& \ Ag(e) = y \ \& \ Th(e) = x]$

b. $[\![\text{catch}_{INC-V}]\!] = \lambda P.\lambda y.\lambda e. \ [\text{P-catch}(e) \ \& \ Ag(e) = y]$

where $\exists e \ [P - catch(e)] = 1$ iff

$\exists e' \ [catch(e') \ \& \ \exists x \ [P(x) \ \& \ Th(e') = x]]$

(Dayal, 2011)

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However, I will modify this proposal in a number of ways. First of all, I follow Marantz (1984), Kratzer (1996), and much subsequent work in assuming that the subject argument is introduced externally by an additional syntactic head, and is thus not part of the denotation of the verb itself. Secondly, I propose that the result of applying the incorporating version of the verb to a property is not another property, but rather a kind, in particular a kind of event (or state), essentially building '∩' into its meaning. Switching to the example we will use to illustrate this analysis as applied to Weak Definites, *read the newspaper*, here is an entry for *read* that implements these changes:

(19)   a. $[\![read_{TV}]\!] = \lambda x.\lambda e.\,[read(e)\ \&\ Th(e) = x]$

      b. $[\![read_{INC-V}]\!] =$

          $\lambda P_{e,st}.\lambda s.\iota^{*}\{e|\ read(e)\ \&\ \exists x[P(x)(e)\ \&\ Th(e) = x]\ \&\ e \le s\}^{9}$

The result of combining the second version with a predicate now yields a kind of event, i.e., a function from situations to the largest plurality of reading events which have as their theme an individual with the relevant property. This is of course very much parallel to what Chierchia (1984) argued to be the meaning of nominalized predicates, as derived via '∩'. The only difference is that in the present case, there is no overt reflex of the nominalization (unlike, e.g., in the *to*-infinitivals and gerunds that Chierchia is concerned with). While we ultimately will need to evaluate the repercussions of this for the broader picture, I will here focus on exploring the consequences of the assumption that such an interpretation is in principle possible,

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[9]The '*' operator here plays the familiar role of pluralizing the predicate, that is, it turns the set of 'singular' events into a set of pluralities of those events (Landman, 1996, 2000).

even in what look to be simple verb phrase configurations.

The next question is how this kind-denoting verb phrase can combine with a subject to yield an interpretable sentence. Intuitively, the task is clear. We have to turn this back into a predicate that holds of the sort of things that subjects can be agents of - events. Assuming that agents of regular transitive verbs are introduced by an *Ag* head with the denotation in (20) (which does the same job as Kratzer's (1996) rule of Event Identification), we can achieve this by positing the rule in (21), which we could dub 'Derived Agent Saturation':

(20) $[\![Ag]\!] = \lambda p_{\langle s,t \rangle}.\lambda x.\lambda e. \; [p(e) \; \& Ag(e) = x]$

(21) If P is a function from predicates of events ($\langle s, t \rangle$) to properties ($\langle e, st \rangle$) and k denotes a kind of event, then

$P(k) = \lambda x.\lambda e. \; [P(^{\cup}k)(x)(e)]$

Now we just need to define '$^{\cup}$' for kinds of events. In order to have a full verb phrase denotation to work with, let us use *book-read* as a toy example (pretending that it's on par with, say, Hindi *girl-choose* Dayal, 2011). Applying the incorporating version of *read* to the property denoted by book, we get the event kind in (22). I propose to define '$^{\cup}$' for event kinds as illustrated in (23), using existential quantification over parts of parts of the kind:

(22) $k_{\textit{book-read}} =$
       $\lambda s. \; \iota^* \{e| \; read(e) \; \& \; \exists x[\text{book}(x)(e) \; \& \; Th(e) = x] \; \& \; e \leq s\}$

(23) $^{\cup}k_{\textit{book-read}} = \lambda e \, \exists e' \; [e' \leq k_{\textit{book-read}}(s_e) \; \& \; e \leq e']$[10]

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[10]I use 's_e' here to specify the maximal (contextually salient) situation that e is part of.

Next, let's see how the kind-denoting verb phrase *book-read* combines with *Ag*:

(24) $[\![Ag\ book\text{-}read_{kind}]\!] = \lambda x.\lambda e.\ [[\![Ag]\!](^{\cup}k_{book\text{-}read})(x)(e)]$

$= \lambda x.\lambda e.\ [[\![Ag]\!]\big(\lambda e''\exists e'\ [e' \leq k_{book\text{-}read}(s_{e''})\ \&\ e'' \leq e']\big)(x)(e)]$

$= \lambda x.\lambda e\ \exists e'\ [e' \leq k_{book\text{-}read}(s_e)\ \&\ e \leq e'\ \&\ Ag(e) = x]$

What we end up with is a function from individuals to functions from events to truth values which yield truth iff the individual is the agent of an event that is part of an event that is part of the kind of event introduced by the verb phrase. At first glance, this may seem like nothing has been gained from our detour via kinds. However, one interesting point worth mentioning right away is that we already would seem to capture one of the crucial properties of incorporation in a novel way, namely the fact that incorporated arguments do not license pronominal anaphora. In (24), the existential quantification over books is introduced deep down inside of the semantic representation, not in a place where it could support anaphora.

While it will be worth exploring the value of this approach for analyzing incorporation, we need to keep our focus here on the phenomenon of Weak Definites. How does the proposal I just sketched help us in that regard? It is standardly assumed that definites can be type-shifted to the type of predicates (Partee, 1986). While this option is usually spelled out in an extensional framework, we can formulate the relevant type-shifter, *ident* in an intensional format suitable for our purposes as well, of course:[11]

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[11]If we assume that the definite article takes a situation pronoun argument and a property to yield an entity of type e, as I argue in Schwarz (2009), we need to make the additional assumption that we can λ-abstract over that situation pronoun to yield an individual concept ($\langle s, e\rangle$), since an intensional version of *ident* requires access to the situation argument inside of the nominal predicate.

(25) a. $[\![\textit{the newspaper}]\!] = \lambda s.\iota[P(s)]$

b. $\textit{ident} = \lambda I_{\langle s,e \rangle}.\lambda y.\lambda s.[y = I(s)]$

c. $\textit{ident}([\![\textit{the newspaper}]\!]) = \lambda y.\lambda s.[y = \iota[\text{newspaper}(s)]]$

Once we have shifted the definite to a property, it becomes possible to apply the incorporating version of the verb *read* to it, and we are now ready to explore the details of the hypothesis that this is exactly the sort of configuration that gives rise to Weak Definite interpretations. Here's how the various ingredients we have developed so far fit together:

(26) a. $[\![\textit{read}_{\text{kind}}]\!] =$

$\lambda P.\lambda s.\iota^*\{e|\ \text{read}(e)\ \&\ \exists x[P(x)(e)\ \&\ Th(e) = x]\ \&\ e \le s\}$

b. $[\![\textit{read}_{\text{kind}}\ \textit{ident}(\textit{the newspaper})]\!] = \text{k}_{\textit{read-the-newspaper}}$

$= \lambda s.\iota^*\{e|\ \text{read}(e)\ \&\ \exists x[\ x = \iota[\text{newspaper}(e)]$

$\&\ Th(e) = x]\ \&\ e \le s\}$

Combining this with *Ag* in the way proposed above will utilize '$\cup$', and yields the following denotation:

(27) $\lambda x.\lambda e.[Ag(^{\cup}\text{k}_{\textit{read-the-newspaper}})(x)(e)]$

$= \lambda x.\lambda e.[Ag\big(\lambda e''\exists e'[e' \le \text{k}_{\textit{read-the-newspaper}}(s_{e''})]\ \&e'' \le e'\big)$

$(x)(e)]$

$= \lambda x.\lambda e\ \exists e'\ [e' \le \text{k}_{\textit{read-the-newspaper}}(s_e)\ \&\ e \le e'\ \&\ Ag(e) = x]$

$= \lambda x.\lambda e\ \exists e'\ [e' \le \iota^*\{e''|\ \text{read}(e'')\ \&\ \exists x[\ x = \iota[\text{newspaper}(e'')]$

$\&\ Th(e'') = x]\ \&\ e'' \le s_e\}$

$\&\ e \le e'\ \&\ Ag(e) = x]$

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What is crucially happening in the process here is that the definite is evaluated relative to the event variable that forms the basis of characterizing the kind of event. More specifically, the kind consists of the plurality including every event which is an event in which the unique newspaper that is part of that event is being read.

With these details of the analysis in place, we can now consider how it relates to the properties of Weak Definites. As we just saw, uniqueness is still at play in Weak Definites, but because the definite ends up being evaluated relative to the event argument of the verb, uniqueness is trivially satisfied (but see below for additional reflexes of uniqueness). Assuming a more comprehensive situation semantic framework of the appropriate kind, where quantificational determiners quantify over situations as well as individuals, this will also ensure that Weak Definites receive co-varying interpretations[12].

Secondly, the point about the failure to support anaphora made above for bare noun incorporation will hold for definites as well: both the 'ι'-operator and the existential quantifier introduced by the kind-based denotation of the verb occur inside of the predicate on which the kind is based, and thus there is no referent introduced at a level appropriate for discourse reference that could support pronominal anaphora.

Finally, to the extent that (at least certain types of) kind reference require the existence of a corresponding established kind (cf. singular definites in English Carlson, 1977; Krifka et al., 1995), the account at least has promising potential for capturing the semantic enrichment typically found with Weak Definites. It is presum-

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[12]See Schwarz (2009, 2012b) for implementations closest to the proposal here. But much earlier situation semantic work crucially analyzes determiner quantifiers as quantifying over situations (e.g. Kratzer, 1989, 2007b; Elbourne, 2005, among many others), which is all that is needed for the covariation effects

ably part and parcel of being an activity that qualifies as counting as an established kind of event or activity that there is a very specific set of properties that the relevant events would have (a similar line of reasoning is often invoked for incorporation; see, for example, Carlson, 2006).

As far as the distributional restrictions are concerned, we again can appeal to the role of kind reference and the restrictions to established kinds. *Reading the book*, *sleeping in the hospital*, *being in the old hospital*, and *being behind the hospital* simply don't make the cut for counting as an established kind, much like *the green bottle* (generally) doesn't make the cut for counting as an established kind in the nominal domain (Carlson, 1977; Krifka et al., 1995; Dayal, 2004).[13]

4.4 Further Properties of Weak Definites in Light of the Present Analysis

We have so far more or less taken for granted the notion that Weak Definites do not display any uniqueness effects. In fact, I have tried to further strengthen that case by pointing out that unlike with regular definites, no relativized uniqueness effects are present under quantification with Weak Definites. And the analysis just proposed aimed to capture this lack of uniqueness. However, I would now like to refine the perspective on the role of uniqueness in Weak Definites, and argue that there are some hidden reflexes of uniqueness even with Weak Definites, and that these are indeed expected based on the present analysis.

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[13]This still leaves very much open what it takes to count as an established kind, but that seems to be a general problem that anyone dealing with kind reference will have to face.

Consider again the kind denotation of the verb phrase *read the newspaper* containing a Weak Definite on the present account:

(28) $= \lambda s. \iota^* \{e | \text{read}(e) \ \& \ \exists x [\, x = \iota y [\text{newspaper}(y)(e)]$

$\& \ Th(e) = x] \ \& \ e \leq s \}$

This is a kind of event that has as its atomic parts events in which the unique newspaper in the respective event is being read. In other words, at the level of the basic ingredients for constructing the kind, uniqueness in fact is present as usual. Note, however, that the predicate of events characterized within the set brackets here is not a cumulative event, i.e., the plurality consisting of any two (or more) atomic events that have the property does not itself have it, since there will typically be multiple newspapers in such pluralities of events. So as we form the maximal plurality of the events in this set in constructing the kind, uniqueness essentially seems to be lost. Furthermore, in deriving the denotation for an entire sentence we will have to utilize '$\cup$' to turn the kind into a predicate again. And once we do this, uniqueness seems to disappear completely, since we have defined '$\cup$' for event kinds so as to introduce existential quantification over parts of parts of the kind:

(29) $^\cup k_{\textit{read-the-newspaper}} =$

$\lambda e \ \exists e' \ [e' \leq \iota^* \{e | \text{read}(e) \ \& \ \exists x [\, x = \iota y [\text{newspaper}(y)(e)]$

$\& \ Th(e) = x] \ \& \ e \leq s_e \}$

$\& \ e \leq e']$

This predicate of events now holds of an event e if it is part of an event that is part of $k_{\textit{read-the-newspaper}}$. But this event kind of course has all kinds of pluralities as

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its parts, so many of the events of which the resulting predicate holds will contain more than one newspaper. In this way, the analysis is consistent with Carlson et al.'s (2006) observation about sentences like *John took the train*, which are compatible with John having switched trains, and thus having been on more than one train while getting from one place to another (see also (10) above).

Note, however, that despite this possibility of having taken multiple trains throughout the course of the entire journey, it still holds that at any given point in time, John only was on one train. In our analysis, this point can be related to the fact that while uniqueness seems to disappear along the way, it is still an integral part of the denotation from which the kind is constructed. This predicts, then, that (singular) Weak Definites only appear in verb phrases that can denote kinds of activities whose atomic instantiations involve precisely one individual matching the description of the nominal predicate. This seems right on the mark to me intuitively, though it is not that straightforward to support it empirically. Ideally speaking, we would have to show that all Weak Definites meet this criterion. While this seems plausible in light of the inventory of cases considered in the literature, I cannot explore this in any depth here.[14] However, one further way of exploring the empirical adequacy of this aspect of the proposal is to consider cases of what might be plural Weak Definites, the idea being that if the plural marking has a real effect that contrasts with singular Weak Definites, this would lend support to the general notion that

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[14]Note that the proposal does not predict that any activity that generally involves precisely one object of the right kind can be expressed with a verb phrase with a Weak Definite as the object. This is because we assume that the availability of kind denotations for verb phrases is limited in familiar ways by requiring that the activity is established in the right kind of way.

uniqueness in fact does play a hidden role in Weak Definites.[15] I can only scratch the surface in this regard within the limits of the present paper. But consider the following two examples of what would seem to be plural Weak Definites:

(30)   John cleaned the windows.

(31)   Mary watered the plants.

Stereotypical instantiations of these activities would seem to involve multiple windows or plants, in a way that seems different from *taking the train* and *reading the newspaper*. Based on the analysis proposed here, the difference would lie in the properties of the atomic events that make up the kind.[16] But since the formation of the kind is followed by existential quantification over parts of parts of the kinds, the contrast becomes rather subtle. Perhaps a clearer illustration becomes available to us if we extend the notion of Weak Definites to possessives.[17] Consider the contrast in (32), for example:

(32)   a. I washed my hands.

        b. I broke my arm.

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[15]See also Aguilar-Guevara and Zwarts (2011) for a brief discussion of plural Weak Definites.

[16]Note that this does not mean that the atomic instantiations of the *cleaning the windows kind* involve cleaning multiple windows in parallel at once; the idea is that the atomic chunks of instantiations of this event kind are not limited to including one window.

[17]The cases discussed here may constitute an extension of the domain to be looked at, in particular in the direction of the possessive weak definites discussed by Barker (2005) and earlier by Poesio (1994). Space constraints force me to leave a more in-depth discussion of such possible extensions for future work. Note that the classification of possessives as Weak Definites will be slightly more difficult, since we can't use co-variation as an indicator, given that the possessor can be bound by a higher quantifier. But issues relating to uniqueness still would seem to provide a clear enough sense of something special going on.

Both of these seem to express activities that intuitively would seem to count as established kinds. But the first almost necessarily involves both of my hands, whereas the kind of event of breaking an arm is conceptualized in terms of breaking one arm at a time. Such possessives referring to body parts of course often have been considered problematic for uniqueness accounts, so accounting for the exceptions as Weak Definites would constitute a promising line of defense from such a perspective. While more needs to be said with respect to the role of uniqueness in forming kinds of events based on verb phrases involving Weak Definites, the line of argument hinted at here seems promising to me.[18]

A second point relating to the issue of whether the semantic ingredients of regular definites are in any way present with Weak Definites concerns the existence presupposition of definites. Analyses that essentially see Weak Definites as being on par with indefinites in truth conditional terms (while perhaps differentiating their discourse properties) would lead us to expect that there is no trace of such a presupposition. However, it seems to me that the general notion of the relevant activity having to be in some sense established also involves a notion of having an individual of the relevant type at ones disposal. Imagine, for example, that we are on a cruise ship right in the middle of the Atlantic, and that you have an accident of some sort. Now consider the following utterances in this context:

(33)   a.   We have to get you to the hospital somehow!

       b.   We have to get you to a hospital somehow!

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[18]It'll be interesting to compare this to Dayal's (2011) recent argument that Hindi incorporated nouns are not number-neutral, as is often assumed, since similar issues arise there.

Despite the fact that *get someone to the hospital* is a perfectly fine Weak Definite verb phrase, the definite version here seems out of place. And quite literally so, because there simply is no sense whatsoever in which there is a locally available hospital to take you to (I'm assuming, of course, that there is no hospital on the cruise ship itself). That doesn't keep us from being able to express that the situation requires us to take you to a hospital, but we would express that with the indefinite version of the sentence. While space constraints again prevent me from spelling out an analysis of this effect more fully, I think a reasonable story can be told where the kind of event is evaluated relative to the maximal situation that is contextually relevant, and in the cruise ship example, that situation would seem to not be large enough to include any hospitals.[19] The oddness of the definite version can then be attributed to the underlying presence of an existence presupposition, just as expected if we assume the definite article itself introduces its standard meaning here.

A very interesting related question is whether there is any contrast here with bare singulars and bare noun incorporation in languages like Hindi. While a more detailed comparison is needed, I'd like to offer the following pair of examples as a starting point for further explorations.[20] Imagine we're in a similar situation as above, but now have a doctor and a law enforcement official uttering the following sentences (in response to appropriate circumstances, e.g., some injury or wrong-

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[19]Tony Kroch (p.c.) notes that a negated version of the sentence (e.g., *Oh no, we can't even take you to the hospital!*) might be slightly better. Depending on our analysis of negation in a situation semantics, this could perhaps be analyzed as a case involving the negation of the existence of an instantiation of the event kind.

[20]Thanks to an anonymous reviewer for pointing out that we do not have to turn to incorporation structures in other languages, but can also ask the same question about English bare singulars.

doing occurring):

(34) a. I will have to send you to the hospital for this.

  b. I will have to send you to jail for this.

It seems to me that the Weak Definite is on par with (33a) above and is odd, whereas the bare singular is fine, simply conveying that the speaker will make sure to see to it that the addressee will end up incarcerated. If there indeed is a contrast between the two forms, we will need to refine our notion of how they relate to one another.

A final property of Weak Definites that I'd like to draw attention to is that they seem to come with certain aspectual effects.[21] Take the basic case of reading the newspaper again:

(35) John read the newspaper for hours and hours.

(36) John did nothing but read the newspaper for days and days.

Based on the compatibility with *for*-adverbials, these Weak Definite verb phrases clearly are atelic. This is surprising, of course, given that *read* with regular definite objects generally yields telic verb phrases (cf. *John read the book in 2 days*). Relatedly, while in the examples above John quite plausibly would read many newspapers over time, *read the newspaper* on the Weak Definite interpretation also is perfectly compatible with only reading some small part of the newspaper - again, a property associated with atelic predicates. Note also that Weak Definites contrast

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[21]On aspectual effects with incorporation in Hindi, see Dayal (2011), which partly inspired the consideration of aspect here.

in both of these respects with indefinites, which is yet another reason to distinguish those two from one another very clearly.[22]

What would an analysis in terms of kinds of events along the lines spelled out here predict for these aspectual facts? Looking once more at the result of applying '$\cup$' to the kind of event denotation of *read the newspaper*, we can see that these aspectual properties actually fall out from the analysis.

(37) $\quad \cup k_{read\text{-}the\text{-}newspaper} =$

$$\lambda e \, \exists e' \, [e' \leq \iota^*\{e| \, \text{read}(e) \, \& \, \exists x[\, x = \iota y[\text{newspaper}(y)(e)]$$

$$\& \, Th(e) = x] \, \& \, e \leq s_e\}$$

$$\& \, e \leq e']$$

Given that we are dealing with a predicate that is true of parts of events that are part of $k_{read\text{-}the\text{-}newspaper}$, the atelic nature of the verb phrase is exactly what we expect. No finishing of the newspaper is required, and any size event that is part of the maximum plurality of the event kind will qualify, thus there is no set end point. Note that for this to fall out, talking about parts of parts of the event kind in the definition of '$\cup$' is crucial. If we were merely forming a predicate that held of parts of the event kind, we would lose the capacity to deal with partial newspaper

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[22]Yet another difference between indefinites and Weak Definites arises with *for-adverbials*. Compare:

1. John was in a hospital for three weeks.
2. John was in the hospital for three weeks.

As Kratzer (2007a) observes for similar cases, the indefinite has to be interpreted (at least effectively) as having wide scope over the *for-adverbial*, so that John had to be in the same hospital throughout. The Weak Definite version, on the other hand, is compatible with him having switched hospitals multiple times during the relevant period.

readings. In this way, the definitions of '$^\cup$' for event kinds and individual kinds utilized here differ from one another. But it may well be that both types are needed in the individual domain as well. Consider, for example, Lewis's Universal Grinder, which also can break the atomic elements in a countable domain down to a non-atomic mass. In a system like Chierchia's, we might very well appeal to a notion of '$^\cup$' that is parallel to the definition used for events to capture this. And it may be that we find use for a more standard version of '$^\cup$' in the event domain as well, but this will have to be left for future research. In any case, if the aspectual phenomena are indeed as deeply interrelated with Weak Definite interpretations as suggested here, it is a real virtue of the present analysis that it can account for them without any further ado.

Last but not least, the present account allows us to understand why languages that have both uniqueness and anaphoric articles express Weak Definites with the uniqueness article. Uniqueness plays a crucial role in forming the relevant kinds of events. On the flip-side, a definite that is interpreted anaphorically would seem to be ill-suited for mapping a verb phrase onto a well-established kind of event, since it would either take on some specific value or co-vary based on an anaphoric index being bound from outside of the verb phrase.

4.5   Loose Ends

4.5.1   Open Issues

Undoubtedly, there are many open questions remaining for the present proposal. While I have focused on a simple transitive verb phrase (*read the newspaper*) in spelling out the formal analysis, many Weak Definites appear as arguments of prepositions, and the details of the analysis will have to be spelled out for those cases. In line with the above mentioned notion suggested by Greg Carlson, it seems promising to see those cases as involving kinds of states of being in a certain type of location. Given that I proposed an extension of the use of the '$\cap$' and '$\cup$' operators, it will also be interesting to see how the present analysis can be made to fit into a broader picture, e.g., one including nominalizations of verbs (and verb phrases) more generally. As noted by an anonymous reviewer, one question in this regard is whether any languages might express the shift to kinds of events overtly, in parallel to what the definite article can do in some languages in the domain of nominal kind reference (Chierchia, 1998). Overt means to nominalize predicates, e.g., as found in gerunds, are an obvious candidate (following Chierchia, 1984), but at the same time, the existence of overt morphology doing the same job (and within the same language) raises the question why this job also can be done by a covert operator, as I have to assume here. A related question, raised by another reviewer, is what the constraints on the application of the various type shifts are. As is generally the case with the type of perspective on kind reference that I'm adopting, one central conceptual constraint relates to the notion of what counts as an established kind. Of

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course, a major challenge for this view is that this notion is not very well understood or defined in any precise terms to date. I have nothing substantive to add to this issue at the moment, but can only stress that this is not a problem unique to my proposal for analyzing Weak Definites.

Yet another important question concerns the extent to which the present analysis succeeds at capturing the properties of incorporation cross-linguistically, as well as those of bare singulars in English, since I followed suggestions in the previous literature that both these and Weak Definites are essentially on par semantically in that they are instances of semantic incorporation. Assuming that bare singulars and Weak Definites should receive an equivalent analysis raises several interesting questions, as noted by several reviewers. For one, what determines which of the two forms is used in a given case, i.e., why does English use *be in jail* and *be in the hospital*, but not *be in the jail* and *be in hospital*? A cursory inspection of the cases discussed in the literature suggests that the two forms are in complementary distribution. If they are semantically equivalent, one might try to explain this using some type of blocking mechanism (though that of course still leaves the choice of form in any given case unexplained). However, we also began to uncover some potential subtle differences between Weak Definites and bare noun incorporation, based on hidden effects of the existence and uniqueness requirements of the definite article (see discussion of (33a) and (34a) above). If there are such differences, a blocking account would be less straightforward, but if the differences are subtle enough, perhaps it could be maintained. Yet another potential difference relates to

number marking, and potential corresponding semantic effects:[23] we have seen that Weak Definites come in both plural and singular varieties, and I have argued that they differ with respect to the number of entities of the relevant type in the atomic instantiations of the event kind. With bare singulars, there doesn't seem to be a comparable contrast. But further work is needed to establish whether there indeed are any differences relating to number between Weak Definites and bare singulars.

4.5.2   Comparison to Aguilar-Guevara and Zwarts (2011)

As mentioned in the introduction, there is another account relating Weak Definites to kind reference in the literature, namely that by Aguilar-Guevara and Zwarts (2011). They, too, assume variants of verbal denotations to be at play in Weak Definite constructions, but the shift in verb meanings they propose is to let the verb take a kind argument, and have the built-in thematic relation be about a realization of that kind. The definite functions as a standard definite generic (just like in *The dodo is extinct* Carlson, 1977), which the variant of the verb meaning just discussed can take as an argument. The verb phrase *read the newspaper* then has the following denotation on their proposal.[24]

(38) $\lambda e.[\text{read}(e) \ \& \ R(Th(e), N) \ \& \ U(e, N)]$

The general spirit of this 'nominal-kind' account, as I will call it, is thus quite close to that of the proposal spelled out here (call that the 'event-kind' account).

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[23]Thanks to Greg Carlson (p.c.) for some helpful discussion of this issue.

[24]U involves a notion of stereotypical instantiations of an activity involving the kind, which serves to explain restrictions on Weak Definites.

But since I cannot go into a detailed comparison for reasons of space, let me just highlight a few (in some cases, potential) differences. First, while both accounts have uniqueness play a role in an indirect way, they differ in the details: the nominal kind account sees uniqueness satisfied at the abstract level of the kind (following the proposal in Dayal, 2004, for definite generics), whereas the event-kind account has uniqueness come in at the level of the atomic instantiations of the event kind in question.

There's at least two places where this could amount to a difference in predictions. First, it is unclear that the nominal-kind account can capture the oddity of (33a), where the existence presupposition of the definite seems to come out of hiding, since the nominal-kind account essentially just ends up with (narrow-scope) existential quantification over instantiations of the kind (but note that the jury is still out on both the details of the data and the mere sketch of an account based on event-kinds offered above). Secondly, any potential contrasts between singular and plural Weak Definites would seem to fall through the cracks on the nominal-kind account, for the same reason. In fact, Aguilar-Guevara and Zwarts (2011) argue that plural Weak Definites such as *do the dishes* involve reference to 'a sort of *pluralia tantum*,' and shouldn't be distinguished from singular ones. The event-kind account, on the other hand, would assume that they differ in terms of the atomic instantiations of the event kind. Again, the jury is still out on whether we can detect any reliable differences that might favor the latter view.

Yet another potential difference concerns the aspectual properties of Weak Definites discussed above. Again, since the nominal-kind account is based on existential

quantification over instantiations of the nominal kind, it's unclear that it could capture the atelicity of *read the newspaper* (note that indefinite objects don't generally change the telicity properties of a verb phrase as compared to, say, a definite object, i.e., *read a book* is just as telic as *read the book*). Similarly, it would seem that the denotation above will not be true of partial newspaper readings under this characterization. The event-kind account, on the other hand, ends up with a predicate that is true of parts of events that part of the event-kind in question, which does seem to account for these aspect-related facts.

While these comparisons stressed the potential advantages of an event-kind account, there quite likely are potential advantages of the nominal-kind account. For example, it is tied in more closely with definite generics, and thus can rely on accounts in that domain, e.g., with respect to the need for well-established kinds, more directly. The same property also allows for a closer assimilation of Weak Definites, which typically are found in object position, and related uses of definites in subject position (e.g., in *The newspaper brings people their daily news.* Aguilar-Guevara and Zwarts, 2011). Many more detailed issues will have to be looked at if we want to end up with a careful evaluation of the pros and cons of the two accounts, but this has to be left to future work.

5 Conclusion

In this paper, I have considered two possibilities for analyzing Weak Definites as involving the regular definite article. In particular, I argued against accounting for

Weak Definites in terms of standard means for generating co-varying interpretations of regular definites. Instead, I have proposed an analysis of Weak Definites as definites that occur inside of verb phrases that denote kinds of events. In view of this analysis, Weak Definites are severely, but not completely, weakened by semantic operations in the context of the verb phrase they appear in. Crucially, however, they are fully definite at their core, since we derived the Weak Definite interpretations using a regular definite meaning based on uniqueness.

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