

# The empirical foundation of event kinds and related issues

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# CHAPTER 1

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## Introduction

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In event semantics (Davidson, 1967), events are commonly taken to be concrete particulars, on a par with concrete individuals, such as Mary, John, or the house. For example, Maienborn (2011a), following her previous work on distinctions between states and events (Maienborn, 2005, et seq.), defines Davidsonian events as particular spatiotemporal entities with functionally integrated participants. Based on this definition, she argues that the ontological properties of events consist in being perceptible, located in space and time, and variable in the way they are realised and thus compatible with various types of manner modifiers. These properties and the parallels between the verbal and the nominal domain are illustrated in (1).

- (1) a. John saw [Mary read a book {with a flashlight / in the woods}].  
b. John saw [the house {with a chimney / in the woods}].

Others allow for merely temporally rather than spatially located events, to also include states. This is the common move in the Neo-Davidsonian tradition (e.g. Higginbotham, 1985; Parsons, 1990; Schein, 1993; Landman, 2000), and it is also the position taken by Ramchand (2005) in reply to Maienborn's objections to this move.

In either case, events are treated as concrete objects in the ontology, as opposed to abstract objects such as propositions, facts, states of affairs (cf. Parsons, 1990; Asher, 1993; Zucchi, 1993, among others). While events are spatiotemporally located and can cause other events, propositions have neither property. Facts, in turn, are intermediate, since they do not have a spatiotemporal location, but can be causes. However, as Asher demonstrates, the distinction between events and these abstract objects is less clear-cut than suggested. For example, on standard event-semantic theories, the proposition expressed by a typical sentence is simply that there exists an event with certain properties, establishing a close link between event semantics and propositional semantics. Here, we will not further address the relation of events to such abstract objects, which has been extensively discussed in the literature. Instead, we will focus on a newer development, which introduces a particular kind of abstract object in the domain of events, namely event kinds or event types (I will use these

terms interchangeably).

In the nominal domain, the proposal to add kinds to the ontology goes back to Carlson (1977), in particular to his treatment of bare plurals as names of kinds. Carlson distinguishes between objects (e.g. *Bill*) and kinds (e.g. *dogs*); both can be realised (formally implemented by the realisation relation  $\mathbf{R}$ ), the former by stages (2-a) (on which see Milsark, 1974), superscripted by  $s$ , and the latter by objects or stages (2-b).

- (2) a.  $\llbracket \text{Bill ran.} \rrbracket : \exists y^s [\mathbf{R}(y, \mathbf{b}) \wedge \text{run}'(y)]$   
 b.  $\llbracket \text{Dogs ran.} \rrbracket : \exists y^s [\mathbf{R}(y, \mathbf{d}) \wedge \text{run}'(y)]$

Cross-linguistic ramifications of Carlson's proposal are explored by Chierchia (1998) (see also Dayal, 2004), who views a kind as the totality of its instances; e.g. the kind *dogs*, modelled as the set of dogs, is the fusion of all dogs around. Formally, this is implemented by the down-operator  $\cap$ , which turns a property into an individual (of type  $e$ ), a kind (3-a), and the up-operator  $\cup$ , which turns a kind into a property (3-b) (building on his earlier proposal in Chierchia, 1984).

- (3) a.  $\cap \text{DOG} = \mathbf{d}$   
 b.  $\cup \mathbf{d} = \text{DOG}$

Both approaches take kinds to express regularities that occur in nature, and this does not just include natural kinds (e.g. *lions*, *Indian elephants*) or even conventionally established ones (e.g. *Coke bottles*), but also artefacts and complex things (e.g. *children with striped sweaters and purple skin*), which one might want to call ad hoc kinds (cf. Umbach and Gust, 2014, for recent discussion).

Hence, if we assume that there is a direct parallel between the verbal and the nominal domain, as already illustrated in (1), and we allow for kind reference in the nominal domain (see also the papers in Carlson and Pelletier, 1995; Pelletier, 2009; Mari et al., 2013), such abstract objects should also have a parallel in the domain of events. Furthermore, under Neo-Davidsonian accounts, events can be structurally complex, in the sense that they can be decomposed into states and events and combinations of these. As a result, we can add state kinds and subevent kinds (e.g. consequent state kinds). A fairly early introduction of event kinds, mainly for conceptual reasons, is found in Hinrichs (1985). Event kinds have an analog in the Situation Semantics notion of event type (Barwise and Perry, 1983) (see also Ginzburg, 2005), and event types are also employed in the system of abstract objects proposed by Asher (1993), where it is assumed that event discourse referents are introduced when event types are realised in sets of worlds; they also play a role in Asher's (2011) more fine-grained type system.

Empirical motivation for event kinds comes from various types of modifiers that are analysed in terms of event kind modification, such as manner adverbs (Landman and Morzycki, 2003; Landman, 2006; Anderson and Morzycki, 2015) and frequency adjectives (Schäfer, 2007; Gehrke and McNally, 2011, 2015). Event kinds have further been employed in different treatments of (pseudo-)incorporation (e.g. Carlson, 2003; Carlson et al., 2014; Schwarz, 2014), (one type of) cognate objects (Sailer, 2010), German adjectival passives (Gehrke, 2011, 2012, 2013, 2015; Gese, 2011; Maienborn et al., 2016), and Russian factual imperfectives (Mehlig, 2001, 2013, 2016; Mueller-Reichau, 2013, 2015; Mueller-Reichau and Gehrke, 2015).

This manuscript discusses that part of my post-doctoral (i.e. post 2008) individual and co-authored work which addresses some theoretical and empirical motivation for adding event kinds to the ontology. An underlying (sometimes only implicit) hypothesis that overarches these works is the idea that at least some deverbal adjectives and nominals involve event kinds because they are not embedded under further verbal functional structure needed to instantiate or realise the event kind in question. In particular, in my work on adjectival passives (starting with Gehrke, 2013) I propose that (re-)categorisation of verbal material into a non-verbal category, in that case an adjective, has the general effect that it binds off the event argument as an event kind, and as a result the event does not get instantiated but remains in the kind domain. Similarly, we could assume that some nominalisations necessarily involve event kinds and not tokens, when the verbal structure inside them is not big enough to enable instantiation of the event kind. The ultimate research question that this hypothesis raises is how much verbal structure and/or what part of the event structure lexicalised or made available by a given verb, appears in non-verbal categories that are morphologically related to these verbs. This is a prominent topic of research in the syntactic literature (see, e.g., Alexiadou, 2010, for an overview), but the current research investigates this issue from a semantic point of view.

The manuscript is structured as follows. In chapter 2 I provide the necessary background on nominal kinds and then present work by other authors that have made points about event kinds that I (and my co-authors) directly or indirectly build on in our studies. I then summarise my/our previous work highlighting how the idea about the connection between the smaller size of the verbal structure inside nonverbal categories and the non-instantiation of an event kind plays a role in the adjectival (chapter 3) and the nominal domain (chapter 4). In chapter 5 I return to the verbal domain and present new unpublished work that suggests how the distinction between event kinds and tokens can shed new light on the difference between manner and clausal readings, which some adverbs display. Finally, chapter 6 concludes and gives a general outlook on open issues for future research, also taking into account the overarching research question stated above.



## CHAPTER 2

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### **Kinds in the nominal and verbal domain: The background**

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#### **2.1 Introduction**

In this chapter, we will start out with Carlson's (1977) arguments for adding kinds to the ontology of natural languages semantics. I will spell out his proposal in more detail and then briefly turn to more recent observations made in the literature on nominal kinds and to Chierchia's (1998) account of kinds. However, I will not be able to do justice here to the vast literature on nominal kinds; for useful overviews see Carlson and Pelletier (1995) and Mari et al. (2013). After that I will turn to previous accounts that transpose the idea of kinds to the verbal domain and postulate event kinds.

#### **2.2 Carlson (1977) on nominal kinds**

In his seminal work, Carlson (1977) argues for the necessity to add kinds to the ontology of natural language semantics. In particular, he proposes a uniform account of bare plurals as names of kinds of individuals, despite the fact that they have been ascribed two different readings (in English), the existential (1-a) and the universal one (1-b).

- (1) a. Dogs were everywhere.
- b. Dogs are mammals.

Carlson supports his uniform account by showing that these two readings are contextually conditioned and determined by the predicate of the main sentence. In particular, in episodic sentences we get the existential reading and in habitual sentences we get the universal reading, as we will see in the following.

### 2.2.1 Kinds, objects, stages

Ontologically, Carlson makes a distinction between objects (e.g. *John*) and kinds (e.g. *dogs*). In his words, objects are realised (or exemplified) by stages, which are spatially and temporally bounded manifestations of such individuals (following Quine, 1960). Kinds can equally be realised by stages, but also by objects. Episodic sentences (or what he calls happening readings) are argued to involve predication over stages of objects (2-a) or kinds (2-b) (superscripted by  $s$ ;  $\mathbf{R}$  is the realisation operator).

- (2) a. Bill ran. HAPPENING  
 $\exists y^s[\mathbf{R}(y, \mathbf{b}) \wedge \mathbf{run}'(y)]$   
 b. Dogs ran. EXISTENTIAL/HAPPENING  
 $\exists y^s[\mathbf{R}(y, \mathbf{d}) \wedge \mathbf{run}'(y)]$

This gives rise to the existential reading of bare plurals, which comes about not due to existential quantification over *dogs*, rather it is introduced by the realisation operator, which involves an existential claim about one or more stages of *dogs*. This existential claim, however, remains local since the existential quantifier is part of the predicate and not of the bare plural.

Carlson takes verbal predicates to always apply to stages. They are shifted to apply to individuals (objects or kinds) by a VP-operator that he calls  $\mathbf{G}$  (of type  $\langle\langle s, \langle e^s, t \rangle \rangle, \langle e^i, t \rangle \rangle$ );  $\mathbf{G}$  is thus the inverse of  $\mathbf{R}$  and it is suggested to be part of the aspectual system. Generic sentences (or what he calls characteristic readings), then, involve predication over individuals, i.e. objects (3-a) or kinds (3-b) (where  $\wedge$  signals abstraction over possible worlds, as commonly notated in Montague Semantics). This gives rise to the universal reading of bare plurals.<sup>1</sup>

- (3) a. Bill ran. CHARACTERISTIC  
 $\mathbf{G}(\wedge \mathbf{run}')(\mathbf{b})$   
 b. Dogs ran. UNIVERSAL/CHARACTERISTIC  
 $\mathbf{G}(\wedge \mathbf{run}')(\mathbf{d})$

The intuition behind  $\mathbf{G}$  is that when one wants to check whether a generic sentence like (3-a) is true one has to examine various Bill-stages; if it is true on enough occasions (by meaning postulate: at least two, but the precise number is cognitively determined and not regulated by grammar), one can generalise over these stages and use  $\mathbf{G}$ .

The common noun *dog* as well as its plural counterpart *dogs* is taken to denote a function from individuals to truth-values, as in (4), where  $x^k$  and  $z^o$  are variables over kinds and objects, respectively.

- (4)  $\lambda^V P(\iota x^k [\forall z^o \square [\mathbf{dog}'(z) \leftrightarrow \mathbf{R}(z, x)]])$

In words, the noun phrase *dogs* is the property set of the unique entity  $x^k$  such that for all objects, at every time in every possible world, that object is a dog iff it is an (object-level) realisation of  $x^k$ .

<sup>1</sup>Carlson's distinction between stage-level and individual-level predicates builds on Milsark's (1974) distinction between states and properties in his analysis of existential sentences.

### 2.2.2 Kinds vs. quantified nominals

In support of his uniform account of bare plurals in terms of names of kinds, Carlson shows that there are various properties that set bare plurals apart from quantified nominals, arguing against treating them in terms of (existential or universal) quantification. For example, under the universal reading, there can be exceptions and the bare plural can even apply to less than half (5-a), unlike what we find with true universal quantification (5-b).

- (5) a. Lions have manes. TRUE IN THE ACTUAL WORLD  
 b. All lions have manes. FALSE IN THE ACTUAL WORLD

Furthermore, there are predicates that can only apply to kinds but not to particular individuals or any quantified NPs (6).

- (6) a. Birch trees are common / widespread.  
 b. \*John / every birch tree is common / widespread.

Finally, bare plurals do not display the behaviour of quantified NPs. For example, unlike existentially quantified NPs they always have narrow scope with respect to negation and quantifiers (7), can only have an opaque but not a transparent reading with predicates like *want* (8), and display differentiated scope (9).

- (7) a. Dogs are here and dogs are not here. CONTRADICTION  
 b. Some dog is here and some dog is not here. NO CONTRADICTION
- (8) a. Miles wants to meet policemen. ONLY READING: any policemen OPAQUE  
 b. Miles wants to meet a policeman.  
 (i) any policeman OPAQUE  
 (ii) a specific policeman TRANSPARENT
- (9) a. Dogs are everywhere. POSSIBLE IN THE ACTUAL WORLD  
 ~ different instances of the kind dog are in all (relevant) places  
 b. Some dog is everywhere. IMPOSSIBLE IN THE ACTUAL WORLD  
 ~ the same dog is in all (relevant) places (not possible)

The latter contrast is due to the fact that kinds can appear in different places at the same time, since different objects or stages can realise one and the same kind, whereas objects occupy only one place at a time. The former properties of bare plurals, narrowest scope and no transparent reading, is captured by the analysis in (2-b), since the existential operator associated with the realisation operator is introduced by the verbal predicate itself and has to remain local and always within the scope of other quantifiers or opacity-inducing predicates.

### 2.2.3 The hierarchical organisation of kinds and modification

According to Carlson, kinds are organised hierarchically in superordinate and subordinate kinds. Subkinds can be related to superkinds qua their lexical semantics, as with *dogs* and *mammals*. However, subkinds can also be derived by modification (e.g. *old*

*dogs*). Not all modifiers can derive subkinds though. Carlson discusses the following bare plurals that do not refer to kinds:

- (10) NON-KIND-REFERRING BARE PLURALS
- a. parts of that machine
  - b. alligators in the next room
  - c. quarters that Bill gave to Bums yesterday

That kind reference is not banned due to the form of the modifier, e.g. because of a ban on definite NPs in such modifiers, as in (10), can be shown by the bare plurals in (11) which do allow kind reference despite the fact that the modifiers are formally the same.

- (11) KIND-REFERRING BARE PLURALS
- a. keys to this door
  - b. alligators in the New York sewer system
  - c. stamps that Monaco issued during the war

Carlson argues that there are no grammatical but just conceptual reasons that some modifiers allow for kind reference whereas others do not. Those that do not, such as those in (10), are taken to derive NPs that make reference to a “finite set of things at a certain time in a given world”, whereas the PP in (11-b), for instance, “specifies the natural habitat of a race”. Inspired by Cocchiarella (1976) (who only had natural kinds in mind though), Carlson hypothesises that there must be some causal relation between the superkind and the content of the modifier. As he puts it, “there is something about being an elephant from India that CAUSES it to have small ears, and being an elephant from Africa gives it large ears”. In contrast, in, e.g., (10-c), there is “no interesting set of properties” that would follow from the modification. Furthermore, modifiers that do not pick out a subset, such as *alleged*, *future*, *false*, can also not derive subkinds.

We will have a bit more to say about modification in the following section as well as in §2.3. Modification and subkind formation will also be shown to play a crucial role in the discussion of event kinds in later sections, for example when we look at incorporated nominals in §2.5.1 and event-related modifiers of adjectival passives in §3, which are both effectively analysed as VP modifiers, restricting the event kind to an event subkind. In the following subsection we turn to a discussion of *such*, which Carlson proposes to be an anaphor to kinds.

#### 2.2.4 Kind anaphor *such*

As Carlson (1977) notes, the following phrase displays an ambiguity between a quantity reading (12-a) and a quality or characteristic reading (12-b).

- (12) *such* intelligent farmers
- a. extent of the farmers’ intelligence
  - b. intelligent farmers of that kind

Bolinger (1972) calls the latter reading identifier reading, and this is the reading that Carlson is interested in. Carlson assumes that identifier *such* is diachronically derived

from *so-like*, where *so* is an adjectival determiner<sup>2</sup> and *like* an adjective; hence he treats *such* as an adjectival phrase. He proposes to analyse *such* as an anaphoric element that refers to a kind of thing. The antecedent for *such* can be a discontinuous constituent (13-a), a sequence of words that are not modifiers, e.g. whole NPs (13-b), and it does not even have to be linguistically realised (13-c).

- (13) a. Old ladies who mend shoes ... such ladies should be paid more  
 b. Rats, bats, mice and most other such small animals ...  
 c. (Professor to colleague upon encountering a student gnawing on the base of a lamp post:) Do you have many such students in your class, too?

On the other hand, we find the same restrictions on modification of the antecedents of *such* that we observed for kind-referring bare plurals, which lends further support to the idea that *such* is a kind anaphor. Carlson illustrates this with the examples in (14).

- (14) a. False prophets ... ??such prophets are to be avoided.  
 b. People in the room ... ??such people (are obnoxious)  
 c. Elephants that are standing there ... ??such elephants  
 d. Men that Jan fired this morning ... ??such men

Modifiers that derive subkinds, in turn, are possible, as illustrated in (15).

- (15) Alligators in the New York sewer system ... such alligators survive by eating rodents and organic debris.

Furthermore, when *such* refers back to a whole noun phrase, it has to name a subkind to the noun that *such* appears with, as illustrated in (16).

- (16) a. mammals ... such animals  
       \*animals ... such mammals  
 b. (electric) typewriters ... such inventions  
       \*inventions ... such (electric) typewriters  
 c. false prophets ... the world would be better off without such people.  
       false prophets .... ??such prophets are not popular

Carlson furthermore addresses *such-as* relatives, as in (17).

- (17) Such people as John believe those murderers are -----.

He shows that we get the same scope facts with the elided NP that were observed with kind-referring bare plurals, i.e. narrow scope with respect to quantifiers and differentiated scope, cf. §2.2.2 (see op.cit. for examples with *such*). However, *such-nominals* are not possible with kind level predicates (18-a) or with individual level predicates (which involve a generic reading) (18-b).

<sup>2</sup>Other examples he gives for adjectival determiners are *too*, *as*, *how*, *this*, as well as the comparative and superlative markers *-er* and *est*. In degree-semantic approaches to gradability, such elements are commonly assumed to be degree markers (see, e.g., Kennedy, 1999, and literature cited therein) (cf. §2.5.5). One of Carlson's argument for treating *such* as an AP on a par with other APs that contain what he calls adjectival determiners is that they cannot co-occur (i).

- (i) \*They are {quicker such / such quicker} rabbits.

- (18) a. ?Such animals as \_\_\_\_\_ are very common/rare/widespread.  
 b. ?Such people as \_\_\_\_\_ are intelligent.

Based on these facts, he argues that *such-as* relatives exemplify the kind, so that “a specific kind can be picked out and pointed to” (for a recent analysis of elements like *such* and the idea that they involve pointing, see Umbach and Gust, 2014). Such exemplification also plays a role when *such as* combines with a simple NP, as illustrated in (19).

- (19) a. such men as Bill/those men/my friends  
 b. \*such men as several of my friends/some people/lots of Africans/everybody

In §2.5.5, we will see that kind anaphora can also be found in the event domain.

## 2.3 Bare plural, definite and indefinite singular kinds

Taking bare plurals as names of kinds shows that Carlson (1977) has a very broad notion of kinds, which does not only include natural or conventionally and/or well-established kinds (e.g. *lions*, *Indian elephants*) but also what one might want to call ad hoc kinds (cf. Umbach and Gust, 2014, for recent discussion), since most bare plurals can name such kinds (though we saw in §2.2.3 that there are limitations due to restrictions on kind modification, i.e. on subkind formation). My example in (20) illustrates this general possibility.

- (20) Children with striped sweaters and purple skin are not common.

For Carlson, nouns like *dog* apply to objects but via a lexical process it is possible to derive a kind; with bare plurals there is in principle an unlimited number of kinds (in the real world or in other possible worlds). Not only bare plurals enable reference to kinds though, and already Carlson discussed other cases. In particular, there are also definite and indefinite singular generics, which are, however, more restricted than bare plural generics. Let me discuss these one by one in the following.

### 2.3.1 Indefinite singular generics

According to Carlson (1977), indefinite singular generics are restricted to the subject position and involve generalisation from a stage level or object level predicate to a kind level predicate; in particular, they make an assertion about a kind by taking an arbitrary representative of that kind which therefore has to combine with a stage or object level predicate (21-a) and is unacceptable with a kind level predicate (21-b).

- (21) a. A dog is a mammal.  
 b. \*A dog is widespread.

Other indefinite kind nominals discussed in the literature are those in (22) (cf. e.g. Dayal, 2004; Mueller-Reichau, 2011, for additional discussion and examples).

- (22) a. A giant tortoise has recently become extinct.  
 b. Fred invented a pumpkin crusher.

In the spirit of Carlson's original proposal, it is commonly assumed that the source of genericity with indefinite singular generics is external to the subject DP so that the indefinite is treated as nonquantificational (see Farkas and Sugioka, 1983; Cohen, 2001; Greenberg, 2002; Krifka, 2013, among others, for different proposals). We will come back to indefinite singular generics in §4.3.2.

### 2.3.2 Definite singular generics

Definite singular generics, in turn, generally have to refer to somewhat established kinds or also come with a kind of noteworthiness requirement (cf. Carlson, 1977; Krifka et al., 1995). This is illustrated by the contrast between (23-a) and (23-b), as well as the contrast in (24); no such restrictions hold for bare plural kinds (23-c) (examples from Carlson, 2009).

- (23) a. The Coke bottle has a narrow neck.  
 b. ??The green bottle has a narrow neck.  
 c. Green bottles / Coke bottles have narrow necks.
- (24) a. The Indian elephant has smallish ears and is easily trained.  
 b. ??The friendly elephant is easily trained.

As Carlson (2009) states it, the kind of elephant that the definite singular generic 'the Indian elephant' picks out, belongs to the recognised varieties of elephants, thus naming a subkind (cf. §2.2.3). Its properties go beyond those of being an elephant and from India to include elements like disposition, size of ears, etc., whereas a friendly elephant is just an elephant that is friendly.

According to Vendler (1971) (as discussed in Carlson, 1977), a definite singular generic is also not possible if it names a kind that is too general, that is if there is no superkind to that kind. This, for instance, accounts for the contrast in (25) (where # signals the unavailability of a kind reading).

- (25) a. the (*kind of curve that is a*) parabola  
 b. #the curve

Conversely, Carlson (1977) proposes that for a common noun (not a bare plural) to be able to refer to a kind there has to be some noun in the lexicon that corresponds to a subkind related to that noun. This explains the contrast in (26).

- (26) a. This animal is extremely common.  
 b. ?This mallard is extremely common.

As examples for lexical entries for subkinds of *animal* and *whale*, he provides, respectively, *dog*, *bear*, *elephant* and *blue whale*, *sperm whale*. Nouns that cannot refer to kinds (again, unless they are used as bare plurals) because they are not subkinds (lexically) are, for instance, *mallard*, *right whale*, *airport*.

Furthermore, he points out that definite generics are not possible in contexts that make reference to stages (27-a), though they become possible again, if they involve something like a first time (27-b).

- (27) a. #The owl is in that cage. (vs. Owls are in that cage.)

- b. The horse came to America with Columbus.

According to Carlson, this is only possible if the context makes it clear that there is “something momentous or significant about the species as a whole”, whereas “trivial sorts of events do not count”; cf. (28).

- (28) a. #The horse arrived on my doorstep yesterday.  
b. The zoologists are trying to find the blue-nosed ground-squirrel / #the cow.

Dayal (2004) shows that kinds referred to by definite singulars can also be contextually established, discussing the contrast between (23-b) and (29).

- (29) The factory produces two kinds of bottles, a green one for medicinal purposes and a clear one for cosmetics. The green bottle has a long neck. The clear bottle ...

In this context, Dayal states the following:

The perceived restriction may have to do with the conditions under which a noun phrase can denote a (unique) sub-kind. Kay (1971) argues that an entity qualifies as a sub-kind iff it belongs in a contrast set. That is, for  $x$  to be a taxonomic entity, there must be a  $y \neq x$  and a  $z \neq x$  and  $y$ , such that  $x$  and  $y$  can be considered sub-kinds of  $z$ . Any common noun can thus denote a singular kind, given an appropriate context.

Like Carlson, she views these restrictions to be determined not by grammar per se but by convention and context (see also Chierchia, 1998).

We will see in the discussion of incorporation in §2.5.1 and of adjectival passives in §3 that an establishedness restriction can also be found in the event domain. Let us then turn to the so-called Neo-Carlsonian treatment of kinds proposed by Chierchia (1998).

## 2.4 Chierchia (1998) on nominal kinds

A common alternative to Carlson’s (1977) uniform treatment of (English) bare plurals as kind-denoting is to treat them as being ambiguous and referring either to kinds or to weak indefinites (e.g. Kamp, 1981; Heim, 1982). Chierchia (1998) takes issue with this and defends what he calls a Neo-Carlsonian uniform approach to English bare plurals as kind-denoting. At the same time, however, he argues that there is cross-linguistic semantic variation when it comes to kind reference, and in particular to whether or not bare (i.e. determinerless) nominals can denote kinds and can thus be used in argument position.

While most Germanic languages, including English, can use bare plurals in argument position, as we have already seen in the previous discussion, Romance languages, e.g. Italian, usually cannot (30-a), unless (as is argued for Italian) a null determiner is licensed, e.g. by a lexical head (the verb) (30-b)<sup>3</sup> or by the head of a

<sup>3</sup>Apparently, this is not possible in French. In the discussion of pseudo-incorporation in §2.5.2, we will see some such examples from Spanish and Catalan.

functional projection, such as Focus (30-c).

- (30) a. \*Bambini sono venuti da noi.  
 children are come of us  
 Intended: ‘Kids came to our place.’  
 b. Ho preso biscotti con il mio latte.  
 Have.1SG taken cookies with the my milk  
 ‘(I) had cookies with my milk.’  
 c. POLLO io voglio, non pesce.  
 chicken I want, not fish  
 ‘I want CHICKEN, not fish.’

In contexts where English uses bare plurals under an existential reading, Romance languages use an indefinite article (Spanish) or a partitive construction (French, Italian), as illustrated with the Italian example in (31-a). In case of the universal reading, the definite article is used, as shown by Italian (31-b), an option which is not available with, e.g., English kind level predication (31-c).<sup>4</sup>

- (31) a. Dei cani stanno giocando fuori.  
 of-the dogs are playing outside  
 ‘Dogs are playing outside.’  
 b. I cani sono rari / amano giocare.  
 the dogs are rare love.3PLPRES play.INF  
 ‘Dogs are rare/love to play.’  
 c. \*The dogs are rare.

To account for this contrast, Chierchia proposes the Nominal Mapping Parameter. Starting from the observation that cross-linguistically NPs (i.e. determinerless bare nominals) can be either arguments (of type  $e$ ), when they are names of kinds, or predicates (or restrictors of quantifiers) (of type  $\langle e, t \rangle$  or  $\langle s, \langle e, t \rangle \rangle$  when relativised to situations), he proposes two features that can be set differently,  $[\pm \text{arg}]$  and  $[\pm \text{pred}]$ . In no language can NPs have the setting  $[-\text{arg}, -\text{pred}]$ , but the three other possibilities are argued to exist. In languages like Chinese and Japanese, NPs are assumed to be specified for  $[\text{+arg}, -\text{pred}]$  and thus to uniformly denote kinds. Under the assumption that the extension of the property corresponding to a kind derives a mass, these languages do not have plural marking; furthermore, numerals cannot directly combine with nouns, but classifiers need to apply to the nouns first. Romance NPs, in turn, are set as  $[-\text{arg}, \text{+pred}]$ , and D has to project in order for NPs to fill argument positions. Thus, an overt D has to appear with almost all nouns in argument position, unless the language in question has a null determiner that is licensed in specific contexts, such as the Italian contexts in (30). Finally, English is argued to have NPs with  $[\text{+arg}, \text{+pred}]$  specification, so that D does not necessarily have to project with argumental nouns.

Chierchia takes singular and plural common count nouns to denote characteristic functions true of individuals and of pluralities (sets) of individuals, respectively. In a similar vein as Carlson (1977), he takes kinds to express regularities that occur in nature and argues that to any natural property there corresponds a kind. Again, this

<sup>4</sup>Both types of languages have definite singular generics with the restrictions outlined in the previous section.

does not just include biological kinds but also artefacts and complex things, “to the extent that we can impute to them a sufficiently regular behavior”. Each property thus has an individual counterpart, which are kinds for common nouns, and, he suggests, action types for verbs (though he is only concerned with nominal kinds). A kind, then, is seen as the totality of its instances, e.g. *dogs* is the fusion of all dogs around; this is modelled by the set of dogs. Formally, he proposes a function from properties to kinds and vice versa. In particular, the down-operator  $\cap$  turns a property (of type  $\langle s, \langle e, t, \rangle \rangle$ ) into an individual (of type  $e$ ), a kind (32-a), and the up-operator  $\cup$  turns a kind into a property (32-b) (building on his earlier proposal in Chierchia, 1984).

- (32) a.  $\cap \text{DOG} = d$   
 b.  $\cup d = \text{DOG}$

These operators are defined as in (33).<sup>5</sup>

- (33) a. Let  $d$  be a kind. Then for any world/situation  $s$ ,  
 $\cup d = \lambda x[x \leq d_s]$ , if  $d_s$  is defined;  $= \lambda x[\text{FALSE}]$ , otherwise.  
 where  $d_s$  is the plural individual that comprises all of the atomic members of the kind.  
 b. For any property  $P$  and world/situation  $s$ ,  
 $\cap P = \lambda stP_s$ , if  $\lambda stP_s$  is in  $K$ ; undefined, otherwise.  
 where  $P_s$  is the extension of  $P$  in  $s$ .

These are the type shifting operations available to languages like English, where bare nominals can function as predicates and, when they refer to kinds, as arguments. Other type shifting operations familiar from the literature (in particular Partee, 1987), are not available for English bare nominals, because, it is argued, type shifting is a last resort mechanism, and type shifts such as  $t$  and  $\exists$  are overtly expressed by the definite and indefinite article, respectively. Russian, on the other hand, which is argued to have the same setting as English but which lacks determiners, has these covert type shifting mechanisms freely at its disposal.

Whenever an object level argument slot of a predicate is filled by a kind in an episodic frame, Chierchia proposes that the predicate’s type gets shifted by the Derived Kind Predication in (35), which locally introduces existential quantification over instances of the kind.

- (34) Derived Kind Predication (DKP):  
 If  $P$  applies to objects and  $k$  denotes a kind, then  $P(k) = \exists x[\cup k(x) \wedge P(x)]$

DKP effectively derives the existential reading of bare plurals (35), similar to Carlson’s (1977) mechanism, but without resorting to the concept of stages.

- (35) a. Lions are ruining my garden.  
 b. ruining my garden( $\cap$ lions)  
 $\leftrightarrow$  (via DKP)  $\exists x[\cup \cap \text{lions}(x) \wedge \text{ruining my garden}(x)]$

<sup>5</sup>Following the Frege-Russellian tradition and Sharvy (1980), Chierchia takes the iota operator  $t$  associated with the definite determiner to pick out the unique entity from the set denoted by the nominal (in case of singular definites) and the maximality in the set (in case of plural definites), respectively; see op.cit. for formal definitions.

Also in the same vein as Carlson, the universal reading is derived via a generic operator Gn (36), which is taken to be a modalised universal quantifier as part of the verbal aspectual system (where  $C$  is a contextual variable constraining Gn to appropriate individuals and situations).

- (36) a. Dogs bark.  
 b.  $\text{Gn } x, s [\cup \text{dog}(x) \wedge C(x, s)] [\text{bark}(x, s)]$

This account also derives the properties of bare plurals that Carlson has already described and can answer some challenges that have arisen since Carlson's uniform account of bare plurals as names of kinds (see Chierchia for the details).

With this background information about nominal kinds in hand, we can now turn to kinds in the verbal domain, and in particular to what the previous literature has said about event kinds. The following sections will then be the background to understand my (own and joint) work to be discussed in the chapters to come.

## 2.5 Event kinds in the previous literature

In this section, I briefly outline previous approaches that employ event kinds (or types) in their analyses of various empirical phenomena. This is not an exhaustive documentation of such approaches (for more discussion see Gehrke, to appear), since I will merely be concerned with empirical domains that are directly relevant for the summary of my own work that employs event kinds. In particular, I will discuss incorporation phenomena and weak referentiality in §2.5.1-2.5.4 and then turn to the treatment of event kind anaphora and the analysis of manner modification as event kind modification in §2.5.5.

### 2.5.1 Incorporation and weak referentiality

Carlson (2003) proposes to treat the level of the verb phrase (VP) as the domain of event types [ $\sim$  event kinds]. As he puts it:

[T]he VP is the domain of a context-free interpretive mechanism specifying an event-type, which is then the input to the usual context-sensitive propositional semantics generally assumed for all levels of the sentence. That is, something fundamentally different goes on within the VP that does not go on “above” the VP – it is only information about types/properties that appears there and not information about (contingent) particulars.

He assumes that incorporation(-like) structures involve property-denoting nominals (weak indefinites, bare singulars and plurals) that necessarily stay within the VP to form a structure that is of the same type as the verb; we will come back to the characterisation of (two types of) incorporation(-like) structures in sections 2.5.2 and 2.5.3. In particular, he proposes that verbs denote non-functional eventualities, as they lack argument positions. The set of eventualities (construed as event-types) consists of verbs (and sets of verbs), and each member is related to other elements by the part-of

relation (i.e. the set of eventualities is a complete join semilattice), as illustrated in (37).

- (37) a.  $\llbracket \text{run} \rrbracket \leq \llbracket \text{move} \rrbracket$   
 b.  $\llbracket \text{sing} \rrbracket \leq \llbracket \text{sing} \vee \text{swim} \rrbracket$   
 c. BUT:  $\llbracket \text{laugh} \rrbracket \not\leq \llbracket \text{eat} \rrbracket$

When arguments are added at the VP level, as is the case in incorporation(-like) structures, Carlson assumes that they denote properties (following McNally, 1998), which modify the verb’s denotation and derive a subtype of event (“a more specific event-type”), as in (38).

- (38)  $\llbracket \text{eat cake} \rrbracket \leq \llbracket \text{eat} \rrbracket$

Such arguments include bare singulars and number neutral forms, and these property-denotations themselves form a complete join semilattice; examples are given in (39).

- (39) a.  $\llbracket \text{cat} \rrbracket \leq \llbracket \text{mammal} \rrbracket$   
 b.  $\llbracket \text{fat dentist} \rrbracket \leq \llbracket \text{dentist} \rrbracket$   
 c. BUT:  $\llbracket \text{table} \rrbracket \not\leq \llbracket \text{dog} \rrbracket$

A further domain introduces pluralities (for both verbal and nominal properties), so that bare plurals are subsumed under this system; Carlson treats these as property-denoting as well (thus departing from Carlson, 1977).

In accordance with Diesing’s (1992) Mapping Hypothesis, Carlson argues that noun phrases that depend on times, worlds, truth, and thus on context to get evaluated (i.e. proper names, definite descriptions, specific indefinites, indexicals, (strongly) quantified NPs) are not able to combine with verbs at the VP level but can only be interpreted in the IP domain. At the IP level, then, event types are mapped to event tokens, which are members of the set of possible worlds. As he puts it, “ephemeral, token events ‘get to’ make but one ‘appearance’ in the structure of possible worlds, and then they’re done for” (Carlson, 2003, 204f.).

In the following, I will briefly outline the phenomena of pseudo-incorporation and weak definites, which have both been analysed employing event kinds. A broader overview of incorporation and weak referentiality is given in Borik and Gehrke (2015), where pseudo-incorporation is compared to morpho-syntactic and semantic incorporation, as well as to constructions involving bare nominals more generally and weak definites.

### 2.5.2 Pseudo-incorporation

The term pseudo-incorporation (PI), first introduced by Massam (2001), is used for a family of phenomena that display semantic but not syntactic properties of incorporation (see, e.g., Massam, 2001; Dayal, 2003, 2011; Farkas and de Swart, 2003; Dobrovie-Sorin et al., 2006; Espinal and McNally, 2011, for Niuean, Hindi, Hungarian, Romance). The examples discussed in the literature, such as (40), commonly involve nouns in internal argument position (or more generally VP-internal position; cf. Gehrke and Lekakou, 2013; Barrie and Li, 2015) that are morpho-syntactically more reduced or restricted than regular noun phrases in argument position; however,

they involve structural material larger than heads, unlike what is commonly assumed for incorporated nominals (see, e.g., Baker, 1988).

- (40) Mari bélyeget gyűjt.  
 Mari stamp.ACC collect  
 ‘Mari collects stamps.’ (Hungarian; Farkas and de Swart, 2003, 13)

Unlike regular arguments, PI-ed nominals lack determiners, and in some languages, they appear in a fixed position, such as the preverbal position in Hungarian (40). Evidence for their phrasal status comes from the fact that in some languages they can appear with accusative case marking, as in (40) (see also Gehrke and Lekakou, 2013, on Greek), or with some adjectival modifiers, as we will see in (43-b). Thus, whereas morpho-syntactic incorporation is commonly assumed to target heads, PI involves phrases, which in addition can be syntactically somewhat freer than incorporated heads but probably less free than regular arguments. Nevertheless, PI-ed nominals semantically display hallmark properties of incorporation (cf. Mithun, 1984; Baker, 1988; van Geenhoven, 1998; Chung and Ladusaw, 2003; Farkas and de Swart, 2003; Dayal, 2011, among others).

To illustrate these properties, I will use the Catalan examples discussed in Espinal and McNally (2011), but similar examples could be given from other languages discussed in the literature. First, PI-ed nouns obligatorily take narrow scope with respect to quantificational elements in the clause, such as negation. (41), for example, can only mean that the speaker is not looking for any apartment and not that there is a particular apartment that she is not looking for.

- (41) No busco pis.  
 not look.for.1SG apartment  
 ‘I am not looking for an(y) apartment.’

Second, PI-ed nouns are discourse opaque, i.e. they do not introduce discourse referents and thus cannot support pronominal anaphora (42).

- (42) Avui porta faldilla. #La hi vam regalar l’any  
 today wear.3SG skirt it.ACC her.DAT AUX.PAST.1PL give.INF the year  
 passat.’  
 last  
 Intended: ‘Today she is wearing a skirt. We gave it to her as a present last year.’

Third, a PI-ed noun cannot be modified by token modifiers, including restricted relative clauses (43-a). Kind or type modification, in turn, is possible (43-b) (under the assumption that relational adjectives like *municipal* are kind level modifiers; cf. McNally and Boleda, 2004, and §4.2).

- (43) a. \*Per fi hem trobat pis, que començarem a reformar  
 for final have.1SG found apartment that begin.FUT.1PL to renovate  
 molt aviat.  
 very soon  
 Intended: ‘At last we have found an apartment, which we’ll begin to

- renovate soon.’
- b. Este proyecto posee licencia municipal.  
 this project possesses permit municipal  
 ‘This project has a permit from the city.’

Finally, the verb and the noun together name an institutionalised activity, which is typical for morpho-syntactic incorporation as well (Mithun, 1984; Dayal, 2011). For example, in (41) the speaker negates that she is involved in the typical activity of apartment-hunting in order to find a place to live, whereas this sentence cannot be used in a context where, e.g., she refuses to fulfil the task of finding the depiction of an apartment in a picture with all kinds of other elements in it.<sup>6</sup>

By analogy to van Geenhoven’s (1998) analysis of (semantically) incorporated nouns it is common to analyse PI-ed nouns as property-denoting (cf. the discussion of Carlson, 2003, in §2.5.1). For example, Dayal (2011) proposes the semantics in (44-b) for a verb-noun combination that involves PI, such as the Hindi one in (44-a).

- (44) a. anu puure din cuuhaa pakaRtii rahii  
 Anu whole day mouse catch-IMP PROG  
 ‘Anu kept catching mice (different ones) the whole day.’
- b.  $\text{catch}_{\text{INC-V}} = \lambda P \lambda y \lambda e [\text{P-catch}(e) \wedge \text{Agent}(e) = y]$ , where  $\exists e [\text{P-catch}(e)] = 1$  iff  $\exists e' [\text{catch}(e') \wedge \exists x [\text{P}(x) \wedge \text{Theme}(e') = x]]$   
 ((39-b) in Dayal, 2011, 146)

Under this account, an incorporating verb, which gets a different lexical entry than the non-incorporating one, combines with a noun denoting a property. This noun acts like a modifier of the basic denotation of the verb, giving rise to a subtype of the event denoted by the verb. The whole PI construction is instantiated if there is an entity corresponding to the description provided by the PI-ed nominal which acts as a theme of the event denoted by the verb.

This analysis, just like other PI analyses that treat PI-ed nominals as property-denoting (e.g. Espinal and McNally, 2011), directly accounts for their obligatory narrow scope, discourse opacity, and the ban on token modification. If we furthermore follow Carlson’s (2003) suggestion in treating the level of VP as the domain of event kinds and incorporated nominals, which effectively modify the verbal predicate, as deriving subkinds of events, this analysis might also capture the prototypicality requirement mentioned above in that the resulting incorporated construction denotes a subtype of an event denoted by the verb. The noun itself, on the other hand, does not denote independently, but, together with the verb, names a ‘unitary action’ or ‘an institutionalised activity’, i.e. an activity that is recognisable as a well-established one.<sup>7</sup> We will come back to this in §2.5.4.

<sup>6</sup> PI-ed nouns are also often characterised as number-neutral. For instance in (40), a collective predicate like *collect*, which normally requires a plural internal argument, is combined with a noun that is morphologically singular (unmarked for number), but the interpretation is commonly that more than one stamp is collected. Dayal (2011) derives the apparent number neutrality of the noun from the interaction with grammatical aspect, rather than ascribing this property to the noun itself. Since number neutrality is thus a debated property, we will leave it aside.

<sup>7</sup> Dayal suggests that the incorporating variants of transitive verbs come with a presupposition, informally characterised as [*the incorporated noun phrases*] is a type of V; P is/are often Vd.

Schwarz (2014) modifies Dayal’s (2011) PI analysis so that the event involved is necessarily an event kind.<sup>8</sup> Building on Chierchia’s (1998) account of nominal kinds, Schwarz takes an event kind to be a function from a situation to the largest plurality of events of a given type, which, in the case of incorporation, have as their theme an individual with the property denoted by the incorporated noun. He extends Chierchia’s  $\cap$  operator, which maps predicates onto kinds, to situations, represented by the variable  $s$  (45).

$$(45) \quad \cap : \lambda P_{(e,st)} . \lambda s . \iota [P(s)]$$

Following Chierchia, the iota operator  $\iota$  is paired with a predicate (here:  $P(s)$ ), representing the maximal element in the relevant set. His representation of the incorporating version of *read* is given in (46-a) (where  $*$  is a pluralisation operation over events or situations). For comparison, the regular transitive verb denotation for a verb like *read* is given in (46-b).

$$(46) \quad \begin{array}{l} \text{a. } \llbracket \text{read}_{INC-V} \rrbracket = \lambda P_{e,st} \lambda s . \iota^* \{ e | \mathbf{read}(e) \wedge \exists x [P(x)(e) \wedge Th(e)=x] \wedge e \leq s \} \\ \text{b. } \llbracket \text{read}_{TV} \rrbracket = \lambda x \lambda e [ \mathbf{read}(e) \wedge Th(e)=x ] \end{array}$$

Thus, his formalisation directly builds in the effect of the  $\cap$  operator into the lexical entry of the incorporating verb. A VP involving incorporation, like the toy-example ‘book-read’, is analysed as in (47).<sup>9</sup>

$$(47) \quad \llbracket \text{book-read} \rrbracket = \lambda s . \iota^* \{ e | \mathbf{read}(e) \wedge \exists x [ \mathbf{book}(x)(e) \wedge Th(e)=x ] \wedge e \leq s \}$$

The modifications of Dayal’s PI analysis are just a first step for Schwarz to analyse weak definites, to which we turn now.

### 2.5.3 Weak definites

The semantic peculiarities of nouns that have been analysed in terms of PI-ed properties are also found with (at least one type of) weak definites (a term coined by Poesio, 1994).<sup>10</sup> These definites are called weak because, at least at first sight, they do not meet the uniqueness condition normally associated with singular definite noun phrases. In the following, I illustrate the characteristics of weak definites, as they have been described for English (cf. Carlson and Sussman, 2005; Carlson et al., 2006, 2014; Klein, 2011; Aguilar-Guevara and Zwarts, 2011; Aguilar-Guevara, 2014; Schwarz, 2014).<sup>11</sup> The examples are taken from Aguilar-Guevara and Zwarts (2011), unless indicated otherwise.

<sup>8</sup> Another point in which he modifies Dayal’s account is that he follows Kratzer (1996) in taking external arguments not to be arguments of the verb but to be introduced by a separate syntactic head (Voice for Kratzer, Ag for Schwarz). See op.cit. for the formal details.

<sup>9</sup>(47) is slightly modified from the formulation in Schwarz (2014), for consistency with the notation used elsewhere in this chapter.

<sup>10</sup>Poesio (1994) discusses examples like *the friend of a friend*, and similar instances of definites are found in possessive weak definites, e.g. *the corner of a building*, as discussed in Barker (2005). It is not clear that these share the same properties as the weak definites outlined in this section (but see Schwarz, 2009, for a unified account).

<sup>11</sup>Similar observations have been made for weak definites in German (e.g. Puig Waldmüller, 2008; Schwarz, 2009; Cieschinger and Bosch, 2011), French (Corblin, 2011), and Brazilian Portuguese (Pires de Oliveira, 2013) (see also the papers in Beyssade and Pires de Oliveira, 2014).

First, weak definites allow for sloppy identity under VP-ellipsis and for distributive readings in interaction with quantified expressions, thus failing to meet the uniqueness requirement of regular definites. This is demonstrated in (48-a), where Lola could have gone to a different hospital than Alice, and in (48-b), where each boxer could have been sent to a different hospital.

- (48) a. Lola went to the hospital and Alice did too.  
 b. Every boxer was sent to the hospital.

Second, the weak reading disappears (signalled by #) when the noun is modified (49-a,b), unless kind modification is used (49-c).<sup>12</sup>

- (49) a. You should see the doctor (#who works in the medical center).  
 b. #Lola is in the new hospital.  
 c. Lola is in the medical hospital.

Third, the capacity of weak definites to establish discourse referents is rather limited (50) (from Scholten and Aguilar-Guevara, 2010).

- (50) ?Sheila took the shuttle-bus<sub>i</sub> to the airport. It<sub>i</sub> was a huge gaudy Hummer.

Fourth, the verb-weak definite combination names an institutionalised or stereotypical activity. Aguilar-Guevara and Zwarts (2011) and Aguilar-Guevara (2014) discuss in detail that weak definites come with a particular meaning enrichment: e.g. *the store* under a weak definite reading is not just any store that is moved to for some random reason (51-a), but the store that one goes to for shopping (51-b).

- (51) a. #Lola went to the store (to pick up a friend).  
 b. Lola went to the store (to do shopping).

Connected to this point is the fact that the availability of a weak definite reading is lexically restricted to particular nouns, verbs, and/or prepositions (52).

- (52) a. Sally checked / #read the calendar.  
 b. You should see the doctor / #surgeon.  
 c. Lola went to / #around the store.

In all these respects (narrowest scope, discourse opacity, unavailability of token modification, meaning enrichment, and lexical restrictions), weak definites pattern with PI-ed nominals (cf. §2.5.2).

Aguilar-Guevara and Zwarts (2011) analyse weak definites as referring to kinds that are instantiated when they combine with object level predicates; in this case a lexical rule is argued to lift object level relations to kind level relations and at the same time to incorporate the stereotypical usage of the kinds into the meaning of the resulting constructions (see also Aguilar-Guevara, 2014). Carlson et al. (2014), in turn, assume that the noun and the verb form a unit associated with an event subkind (as in PI) and that the definite determiner marks the familiarity of the activity denoted by the VP (the verb-noun unit). Hence, while the syntax has the definite determiner

<sup>12</sup>See also Schulpen (2011) for extensive discussion of such data from Dutch, as well as McNally and Boleda (2004) and §4 for the treatment of relational adjectives as kind-related.

combine with the NP (cf. (53-a), (54-a)), with regular definites its semantic import is also at that level (53-b), but with weak definites it is at the level of the VP (54-b).

- (53) Regular definite, e.g. *read the book*  
 a.  $[_{VP} \text{read} [_{NP}[_{Art} \text{the}][_N \text{book}]]]$   
 b.  $\text{read}'(\text{DEF}(\text{book}'))$
- (54) Weak definite, e.g. *read the newspaper*  
 a.  $[_{VP} \text{read} [_{NP}[_{Art} \text{the}][_N \text{newspaper}]]]$   
 b.  $\text{DEF}(\text{read}'((\text{newspaper}')))$

However, this is not further formalised in the paper, and in general this is a fairly unorthodox proposal which I will not discuss further in this paper.<sup>13</sup>

Also Schwarz (2014) analyses the events that weak definites are part of as event kinds. In contrast to Carlson and Aguilar-Guevara (& Zwarts), Schwarz treats weak definites as regular definites (55-a). To undergo (pseudo-)incorporation into the verb, the definite is argued to undergo the type shifting operation *ident*, as defined in (55-b), to be shifted into a property (55-c), the type of predicates (following Partee, 1987).

- (55) a.  $[[\text{the newspaper}]] = \lambda s. \iota [P(s)]$   
 b.  $\text{ident} = \lambda I_{(s,e)}. \lambda y. \lambda s. [y=I(s)]$   
 c.  $\text{ident}([\text{the newspaper}]) = \lambda y. \lambda s. [y=\iota[\text{newspaper}(s)]]$

The combination of the weak definite (type-shifted to denote a property as in (55-c)) with an incorporating verb and then with the severed external argument, the Agent (Ag; see fn. 8), leads to (56).

- (56)  $\lambda x. \lambda e \exists e' [e' \leq \iota * \{e'' | \text{read}(e'') \wedge \exists x [x=\iota[\text{newspaper}(e'')]] \wedge \text{Th}(e'')=x] \wedge e'' \leq s_e] \wedge e \leq e' \wedge \text{Ag}(e)=x]$

This incorporation creates an event subkind under his account, as we have already seen in the modifications he applied to Dayal's (2011) PI account in (46). Given that this account shares all the properties of PI accounts, it equally captures the semantic properties of weak definites, which are essentially the same as those of (pseudo-)incorporated nominals. The main difference here is that we still have existential quantification over an individual before it is shifted into a property-type. However, this existential claim is argued to be too deeply embedded in the structure to actually make available a discourse referent (an individual token) that could be picked up by pronominal anaphora or modified by token modification.

#### 2.5.4 Interim summary

In sum, (pseudo-)incorporated nouns and weak definites share essential semantic properties, such as the inability to introduce discourse referents and to combine with (to-

<sup>13</sup>As pointed out by Rob Truswell (p.c.), however, similar proposals are found in Williams (2003) and Sportiche (2005), who assume that verbs and nouns can merge first (e.g. for Williams for the assignment of thematic relations) before determiners are added. In Gehrke and McNally (submitted), we discuss different approaches that separate the composition of V and N (at the lower conceptual level) from the import of determiners and other functional elements in the nominal and verbal domain, which contribute information about instantiated individuals and events, and we sketch our own proposal for idioms.

ken) modification. They also share the fact that together with the event denoted by the verb they have to name an institutionalised activity. A general question that so far has remained unanswered concerns the source of this requirement. Furthermore it is not clear whether the terms used in the literature to describe this property, such as well-establishedness, stereotypicality, and institutionalisation, are identical or whether there are still essential differences. For now, we take them to be identical.

The event kind approach might be able to shed new light on this open issue. In particular, we could assume that the event kind in these structures is the analogue to singular definite generics in the nominal domain, for which a similar well-establishedness or noteworthiness requirement holds (cf. Carlson, 1977; Krifka et al., 1995; Chierchia, 1998; Dayal, 2004), as we have already discussed in §2.3.2. Thus, the source of the well-establishedness and noteworthiness requirement on the event kinds involved in incorporation-like structures could be the same in both cases, as I also suggested in Gehrke (2015) (cf. §3).

Kind modification in the verbal domain in turn, by analogy to the nominal domain, as it is found in the examples in (55) and (56), is at the heart of the empirical domain to which we turn next, namely event kind anaphora and manner modification.

### 2.5.5 Kind anaphora and manner modification

Since Carlson's (1977) seminal work, it has become common practice in the literature on nominal kinds to treat elements like English *such*, German *solch- / so ein-*, or Polish *tak-* (henceforth *SO*) as kind anaphora in the nominal domain.<sup>14</sup> Marcin Morzycki and colleagues explore the idea that also in the verbal and adjectival domain we find kind anaphora, observing that in many languages the elements in question are etymologically related to nominal kind anaphora (Landman and Morzycki, 2003; Landman, 2006; Anderson and Morzycki, 2015). I will focus on German here, for which Anderson and Morzycki (2015) (A&M) observe the parallels in (57).

- (57)
- |    |   |                     |
|----|---|---------------------|
| a. | <b>so</b> ein Hund <b>wie</b> dieser        |                     |
|    | so a dog how this                           |                     |
|    | 'a dog such as this'                        | KIND                |
| b. | Jan hat <b>so</b> getanzt <b>wie</b> Maria. |                     |
|    | John has so danced how Mary                 |                     |
|    | 'John danced the way Mary did.'             | MANNER (EVENT KIND) |
| c. | Ich bin <b>so</b> groß <b>wie</b> Peter.    |                     |
|    | I am so tall how Peter                      |                     |
|    | 'I am as tall as Peter.'                    | DEGREE (STATE KIND) |

As these examples illustrate, in all three domains we find the same anaphoric element *so* and a comparison clause introduced by *wie* 'how'<sup>15</sup>; a similar situation is found

<sup>14</sup>Though alternative analyses exist; for a recent analysis of German *so* based on similarity, for instance, see Umbach and Gust (2014).

<sup>15</sup>Landman and Morzycki (2003) treat *as*-clauses as optional arguments of elements like *such* (following Carlson, 1977), whereas Anderson and Morzycki (2015) generalise Caponigro's (2003) account of adverbial *as*-clauses as free relatives to all three types (adverbial, adnominal, ad-adjectival); see op.cit. for further details. A further parallel, which I will not discuss here, is that across various languages kinds, manners, and degrees can be questioned by the same *wh*-item that appears in these examples in the *as*-clauses. In English and German, for instance, *how* and *wie* question degrees and manners, whereas in Polish we find

in various other languages reported in the paper. A&M propose that in the adjectival domain, *SO* refers back to a degree (see also Bolinger, 1972; Landman, 2006; Constantinescu, 2011), which they treat as a state kind, by analogy to the nominal domain. In the verbal domain, in turn, they take it to refer back to the manner of an event, which they treat as an event kind (following Landman and Morzycki, 2003). Kind anaphor more generally, then, is treated as denoting a property of the respective entity (individual, event, state) that realises a kind.

In the remainder of this section, I will only be concerned with the parallels between the nominal and the verbal domain. For more details on the adjectival domain, the interested reader is referred to A&M. Further empirical support for the idea that adverbial *SO* is an event kind anaphor is already provided by Landman and Morzycki (2003) (L&M), who show that spatial and temporal modifiers, which have to access a spatiotemporally located event token, are not possible antecedents of *SO*, as illustrated by the German examples in (58).

- (58) a. \*Maria hat am Dienstag getanzt, und Jan hat auch so getanzt.  
Mary has on Tuesday danced and John has also so danced  
Intended: 'Mary danced on Tuesday, and John danced like that too.'
- b. \*Maria hat in Minnesota gegessen, und Jan hat auch so gegessen.  
Mary has in Minnesota eaten and John has also so eaten  
Intended: 'Mary ate in Minnesota, and John ate like that too.'

Some spatial modifiers, however, are acceptable, but only if they can be interpreted as deriving a subkind of event (59).

- (59) Maria schläft in einem Schlafsack, und Jan schläft auch so.  
Mary sleeps in a sleeping bag and John sleeps also so  
'Mary sleeps in a sleeping bag and John sleeps like that too.'

In (59), the locative modifier does not serve to specify the location of a particular sleeping event, but rather specifies a subkind of sleeping event, namely the kind of sleeping in sleeping bags. Hence, this spatial modifier does not locate an event particular, rather it is used to further specify the manner of the event. L&M conclude that it is viable to generally treat manner modification as event kind modification.

These restrictions on possible antecedents of the event kind anaphor *SO*, i.e. the fact that they have to refer to a subkind of the kind instantiated by *SO*, directly parallel the restrictions in the nominal domain, as we have already discussed in §2.2.3. Additional examples that Carlson (1977) mentions to illustrate this point are given in (60).

- (60) a. mammals ... such animals  
\*animals ... such mammals
- b. (electric) typewriters ... such inventions  
\*inventions ... such (electric) typewriters

In these examples, the expressions are lexically related as superordinate and subordinate kinds, but subkinds can also be derived by adnominal kind modification (e.g. *electric typewriters* is a subkind of *typewriters*). In addition, not all types of adnomi-

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*jak* in all three domains.

nal modification can derive a subkind and are thus acceptable in the antecedent of SO, cf. (61) (also from Carlson, 1977).

- (61) a. Alligators in the New York sewer system ... such alligators survive by eating rodents and organic debris.  
b. Elephants that are standing there ... ??such elephants

While *alligators in the New York sewer system* can be interpreted as a subkind of alligators that have some dispositional property related to living in this sewer system, this is not the case for elephants that happen to be standing there, as it is not possible to ascribe a distinguishing kind property to this subkind (see also Carlson, 2009). Similarly, only some adverbial modification derives an event subkind, in particular any kind of modification that can be interpreted as manner modification, as the one in (59), but crucially not the one in (58-b) which can only ascribe an accidental property to an event token.

Building on Carlson's (1977) account of adnominal *such*, L&M formalise the idea that adverbial SO denotes a property of events that realise a (particular contextually supplied) kind in terms of Carlson's realisation relation. A&M, in turn, employ Chierchia's (1998) formalisation of kinds, where  $\cup k$  is the property counterpart for kind  $k$ . This leads to the semantics of kind anaphoric SO in (62), where  $o$  is a variable for objects in general (individuals, events, or states).

$$(62) \quad \llbracket \text{so/tak} \rrbracket = \lambda k \lambda o. \cup k(o)$$

A Chierchia-style approach to kinds derives the relevant kind from all possible instantiations or realisations of the kind, so that, for instance, all possible events that are performed 'softly' make up the event kind SOFTLY, and a given soft event will be the instantiation or realisation of this event kind. Within such an approach, however, it is impossible to exclude SO or *as*-clauses relating to elements other than manner for events and degree for states, contra the facts. For example, in (63) we have adverbial and ad-adjectival modification that could be seen as deriving a subkind of the event or state in question. In (63-a), we have an event predicate *run* modified by something like a degree expression, *six miles*; however, the continuations with the *as*-clause can only mean that Clyde ran in a similar manner as Floyd did and not that he also ran six miles. The reverse pattern is found in the adjectival example in (63-b).

- (63) a. Floyd ran six miles, and Clyde ran as Floyd did.  
      ≠ Clyde also ran six miles.  
b. Floyd was contemptuously rude, and Clyde was as rude as Floyd.  
      ≠ The way Clyde was rude was also contemptuous.

A&M therefore propose that SO comes with the additional presupposition that it has to apply to distinguished properties (64), which in the case of events and states are, by stipulation, manner and degree, respectively.

$$(64) \quad \mathbf{dist}(o, P) \text{ is true iff } P \text{ is among the distinguished properties of } o.$$

This leads to the revised semantic representation of SO in (65).

$$(65) \quad \llbracket \text{so/tak} \rrbracket = \lambda k \lambda o : \mathbf{dist}(o, \cup k) . \cup k(o)$$

The analysis of a Polish example is given in (66).

$$(66) \quad \llbracket [_{VP} \text{Floyd m\u00f3wi\u0142} / \text{'spoke'} ] [tak\ k] \rrbracket = \lambda e : \mathbf{dist}(e, \cup k). \mathbf{spoke}(e, \mathbf{Floyd} \wedge \cup k(e))$$

Under the analysis in (66) there is an event (token)  $e$  of Floyd speaking, which is the property counterpart (the instantiation) of a contextually supplied event kind (a subkind of speaking).

## 2.6 Conclusion

In this chapter, I outlined the basic assumptions underlying the proposal to introduce nominal kinds into the ontology and in particular the two most influential accounts that formally spell this out (Carlson, 1977; Chierchia, 1998). I then turned to previous proposals to apply the distinction between kinds and tokens to the domain of events as well. In particular, I discussed two broader empirical domains, for which event kinds have been argued to be useful, and which will play a role for the coming chapters, in which I will outline my (own and joint) work on event kinds. These were, on the one hand, the treatment of incorporation(-like) structures as involving event kinds and weakly or non-referential incorporated nominals as event kind modifiers, and, on the other hand, the idea that manner modification is always event kind modification.

Treating manner modification as event kind modification which derives an event subkind is deeply similar to what we have seen in Carlson's (2003) reflections on incorporation-like structures in the beginning of §2.5.1. Given that at this point we do not have a clear understanding of what exactly manner modification is (e.g. which modifiers should be considered manner; see, for instance, Geuder, 2006; Schäfer, 2008), or why manner is the distinguishing property of event kinds, as proposed by Anderson and Morzycki (2015), we cannot go beyond an intuitive characterisation (see also chapters 5 and 6). On the other hand, taking manner (and degree respectively) to be the distinguished properties of events denoted by verbal predicates and states denoted by adjectival predicates, might not be that surprising under the standard assumption that only verbs have an event argument and only adjectives have a degree argument. Furthermore, given that non-instantiated events lack spatiotemporal location, as we have seen in the last section, such modifiers cannot be a (distinguishing or any) property for event kinds either, but only for event tokens.

Nevertheless, we can extend the overall proposal that manner modification involves event kinds to any kind of VP modifier, not just manner adverbs and incorporated nominals but also PPs that give us event kinds like WITH A HAMMER or BY A CHILD. This extended notion of manner plays a role for my event kind approach to event-related modification with adjectival passives, to which we turn in the following chapter.



### Event kinds in the adjectival domain: Adjectival passives

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#### 3.1 Introduction

Unlike English, German formally distinguishes between adjectival and verbal participles, in the sense that adjectival passives combine a past participle with the copula *sein* ‘be’ (e.g. (1-a)), whereas verbal passives employ the auxiliary *werden* ‘become’ (e.g. (1-b)). This makes German a good testing ground for detecting differences between adjectival and verbal participles, which can get obscured in languages like English which do not make a formal distinction.

At least for German, the received view is that adjectival passives are copular constructions that involve an adjectivised past participle (e.g. Rapp, 1997; Kratzer, 2000; Maienborn, 2007; Gehrke, 2011). Evidence for the adjectival nature of the participle, for example, comes from the fact that it can combine with adjectival morphology, such as *un-*prefixation and comparative morphology (1-a) (from Rapp, 1996); this kind of morphology is ungrammatical with verbal forms, such as the verbal passive (1-b) (see also Maienborn, 2007).

- (1) a. Die Aufgabe ist ungelöst.  
the task is unsolved  
‘The task is unsolved.’  
b. \*Die Aufgabe wird ungelöst.  
the task becomes unsolved  
Intended: ‘The task is being unsolved.’

Nevertheless, it is commonly acknowledged that we find event-related modification with adjectival passives, such as instruments, *by*-phrases and manner adverbials, modifiers that do not appear with genuine adjectives. This is illustrated by the contrasts in (2) (from Rapp, 1996).

- (2) a. Die Zeichnung ist von einem Kind {angefertigt / \*schön}.  
 the drawing is by a child produced beautiful  
 ‘The drawing is {produced / \*beautiful} by a child.’  
 b. Der Brief war mit einem Bleistift {geschrieben / \*schön}.  
 the letter was with a pencil written beautiful  
 ‘The letter was {written / \*beautiful} with a pencil.’  
 c. Das Haar war ziemlich schlampig {gekämmt / \*fettig}.  
 the hair was rather slopp(ily) combed greasy  
 ‘The hair was {combed / \*greasy} in a rather sloppy way.’

Yet, event-related modification with adjectival passives is rather restricted. For example, (3) shows that there are a number of such modifiers that are ungrammatical with adjectival passives (from Rapp, 1996).

- (3) Der Mülleimer ist {\*von meiner Nichte / \*langsam / \*genüßlich / \*mit  
 the rubbish bin is by my niece slow(ly) pleasurabl(e/y) with  
 der Heugabel} geleert.  
 the pitchfork emptied  
 Intended: ‘The rubbish bin is emptied {by my niece / slowly / with pleasure /  
 with the pitchfork}.’

These facts raise several questions. First, if adjectival participles are true adjectives, how can they license event-related modification that commonly only combine with verbal predicates, as illustrated by (2). This is a problem for the lexicalist approach to participle formation (for a recent proposal, see, e.g., Meltzer-Asscher, 2011), but not so much for syntactic approaches (for recent proposals, see, e.g., McIntyre, 2013; Bruening, 2014). The latter approaches, however, which assume verbal syntactic structure inside adjectival participles, cannot explain why event-related modification is restricted, as in (3).

In a series of papers I argue that this puzzle can be solved by assuming that adjectival passives make reference to an event that is not instantiated but remains in the kind domain.<sup>1</sup> In Gehrke (2011, 2012, 2013), I argue that most of the restrictions on event-related modification with adjectival passives derive from general restrictions on kind modification. In Gehrke (2015), I furthermore propose that event-related modifiers have to pseudo-incorporate into the participle, in order for adjectivisation to take place, and that additional restrictions follow from general restrictions on pseudo-incorporation.<sup>2</sup>

In the following, I will summarise the main points made in these papers. In §3.2, I will specify the restrictions on event-related modification with adjectival participles and show how these restrictions follow from general restrictions on event kind modification and pseudo-incorporation. §3.3 spells out the account proposed in Gehrke

<sup>1</sup>The kind approach to adjectival passives is taken up by Gese (2011), who provides additional experimental support that we are dealing with event kinds, as well as by Maienborn and Geldermann (2013) and Maienborn et al. (2016), with the latter connecting this approach to the theory of tropes (Moltmann, 2004, et seq.). Other semantic accounts of German adjectival passives that do not employ kinds are, e.g., Rapp (1997); Kratzer (2000); Maienborn (2007, 2009).

<sup>2</sup>Alternative accounts of these restrictions that do not employ event kinds are, e.g., Rapp (1996); Anagnostopoulou (2003); Meltzer-Asscher (2011); for discussion and critical evaluation of these, see op.cit. For a commentary on Gehrke (2015), see McIntyre (2015).

(2015) to capture the restrictions. In §3.4, I will zoom in on one kind of event-related modifier, *by*-phrases, to show that there is a difference between state- and event-related *by*-phrases (Gehrke, 2013), and I will then briefly discuss a corpus study on Spanish *by*-phrases with adjectival participles (Gehrke and Marco, 2014), which provides also quantitative evidence for the proposal and for the distinction between these two *by*-phrases (§3.5). §3.6 concludes.

## 3.2 Restrictions on event-related modification

In this section I summarise the arguments in favour of deriving the restrictions on event-related modification with adjectival participles from general restrictions on event kind modification and pseudo-incorporation. Let me first address the arguments in favour of assuming that the event in adjectival passives is an event kind.

### 3.2.1 Restrictions on event kind modification

A first indication that the event is not instantiated but remains in the kind domain is that the underlying event in adjectival passives cannot be modified by temporal (4-a) (from von Stechow, 1998) or spatial modifiers (4-b).

- (4) a. \*Der Computer ist vor drei Tagen repariert.  
       the computer is before three days repaired  
       Intended: ‘The computer is repaired three days ago.’  
       b. \*Das Kind war im Badezimmer gekämmt.  
       the child was in the bathroom combed  
       Intended: ‘The child was combed in the bathroom.’

The ban on spatial and temporal modifiers of the event in adjectival passives follows automatically if the event is a kind, which lacks spatio-temporal location. As we have seen in the discussion of possible antecedents of the kind anaphor *so* in §2.5.5, these are exactly the kinds of phrases that cannot antecede *so*, as observed by Landman and Morzycki (2003). The only acceptable event-related modifiers with adjectival passives are those that can be construed as manner modifiers, which then derive an event subkind, and this is also in line with the proposal by these authors discussed in §2.5.5 that manner modification is event kind modification. Relevant examples have already been mentioned in (2), which involved a *by*-phrase, a *with*-phrase and a manner adverb, which I argue all derive an event subkind and can be treated as manner modifier in a broader sense, deriving, e.g., the event kind BY CHILD and WITH PENCIL. (5) provides further examples (from the Frankfurter Rundschau corpus).

- (5) a. Ihr weißgetünchter Körper ist mit Binden geschnürt.  
       her whitewashed body is with bandages strapped  
       ‘Her whitewashed body is strapped with bandages.’  
       b. Mund und Nase waren mit Klebeband verschlossen.  
       mouth and nose were with tape closed  
       ‘Mouth and nose were closed with tape.’

In the same vein as in the papers discussed in §2.5.5, the ban on spatial PPs illustrated in (4-b) has to be understood as a ban on spatial PPs that locate the (entire) event token; PPs that form part of the event kind description (e.g. specifying a particular manner) are acceptable, such as the one in (6).

- (6) Die Pizza ist in einem Steinofen gebacken.  
 the pizza is in a stone oven baked  
 ‘The pizza is baked in a stone oven.’

Obviously, (6) does not involve an event taking place inside a stone oven, but rather the PP specifies the manner of preparation.<sup>3</sup>

While we have seen in §2.5.5 that manner modification can be treated as event kind modification which derives an event subkind, it is less straightforward why we should assume the same for *by*- and *with*-phrases which usually name agents and instruments in an event and thus combine with nominal phrases that possibly introduce event participant of an actual event token. This is where we turn to arguments that event-related modification is pseudo-incorporated (PI-ed) into the verbal predicate, along the lines outlined in §2.5.2.

### 3.2.2 Restrictions on pseudo-incorporation

When we take a closer look at NPs naming participants in the event, such as those in the *by*-, *with*-, and other prepositional phrases in (2-a), (2-b), (5), and (6), we observe that they do not name actual event participants of an event particular (an event token), unlike the ungrammatical ones in (3), for instance. This contrast can also be seen to follow if we assume that in adjectival passives there is no event token to begin with, but the event remains in the kind domain. In Gehrke (2015), I show that the nominals in such PPs behave like weakly or non-referential nominals and display semantic properties of (pseudo-)incorporated nominals (cf. §2.5.2). In particular, such nominals obligatorily take narrow scope with respect to quantificational elements in the clause (7-a), do not introduce discourse referents (7-b), and cannot be modified by (ordinary restrictive token) modifiers (7-c).

- (7) a. Alle Briefe sind mit einem Bleistift geschrieben.  
 all letters are with a pencil written  
 ‘All letters are written with a pencil or other.’  
 ≠ ‘There is a particular pencil that all letters are written with.’  
 b. Die Zeichnung ist von [einem Kind]<sub>i</sub> angefertigt. \*Es<sub>i</sub> hat rote Haare.  
 the drawing is by a child produced it has red hairs  
 Intended: ‘The drawing is produced by [a child]<sub>i</sub>. (S)he<sub>i</sub> has red hair.’  
 c. \*Die Zeichnung ist von einem blonden Kind angefertigt.  
 the drawing is by a blond child produced  
 Intended: ‘The drawing is produced by a blond child.’

Kind modification (subtyping modification), on the other hand (e.g. (8)), is possible.

<sup>3</sup>See also Maienborn (2003) for the distinction between event-internal spatial modifiers of this type and event-external ones, as the one in (4-b); other terms used for this distinction are verb- vs. event-related (Schäfer, 2005, 2013) or process-related (e.g. manner) vs. event-internal (e.g. locatives, instruments) vs. event-external (e.g. causative) (Frey, 2003).

- (8) Der Brief ist mit roter Tinte geschrieben.  
 the letter is with red ink written  
 ‘The letter is written with red ink.’

Again this also holds for PI-ed nominals more generally, as illustrated in §2.5.2, and the accounts discussed there that view PI to involve event kinds are in line with the account proposed here.

The proposal that event-related modifiers are pseudo-incorporated into the participle is further supported by the higher propensity for weakly or non-referential noun phrases in these PPs, such as indefinite and bare nominals (see also Schlücker, 2005), as opposed to fully referential ones. For example, changing the determiner in (2-b) to a (strong) definite one, like the demonstrative in (9), leads to ungrammaticality.

- (9) \*Der Brief ist mit diesem Bleistift geschrieben.  
 the letter is with this pencil written  
 Intended: ‘The letter is written with this pencil.’

None of these restrictions are found with event-related modifiers of the respective verbal participles (see *op.cit.* for examples).

In sum, event-related prepositional phrases with adjectival participles in German differ from those with verbal participles mainly in the referential status of their complements: they are non-referential (or at most weakly referential). This was only illustrated with the occurrence of indefinite NPs and the ban on demonstrative NPs in such phrases, but this seems to hold more generally for other kinds of nominals as well: With adjectival passives, bare (singular and plural) nominals and (in)definite noun phrases with a generic or weak interpretation are acceptable, but strongly referential noun phrases, such as regular definites, demonstratives, pronouns, and proper names, are (usually) not. With verbal passives, on the other hand, strongly referential noun phrases in event-related modifiers are not a problem. This impressionistic view is corroborated by a corpus investigation into event-related *by*-phrases with (Spanish) adjectival passives (Gehrke and Marco, 2014), to which I will return in §3.5.

Nevertheless, it has been noted that sometimes proper names (PNs) are acceptable, as in, e.g., (10-a) (from Rapp, 1996) and (10-b) (from Maienborn, 2011b).

- (10) a. Das Bild ist von Picasso gemalt.  
 the painting is by Picasso painted  
 b. Das Manuskript ist von {Chomsky / ?Sandberger} zitiert.  
 the manuscript is by Chomsky Sandberger cited

There are again restrictions, however, and (10-b) shows that the bearer of the PN has to be somewhat famous (see also Mueller-Reichau and Gehrke, 2015). In Gehrke (2016) I propose to analyse such PNs as the non-instantiated counterpart of indefinite PNs under the manifestation reading, in the sense of von Heusinger (2010) and illustrated with his example in (11).

- (11) Ein Wolfgang Amadeus Mozart wäre nie bekannt geworden, wenn  
 a Wolfgang Amadeus Mozart would have not famous become if  
 er der Sohn von Bauern gewesen wäre.  
 he the son of farmers been had

‘A Wolfgang Amadeus Mozart would never have become famous had he been the son of farmers.’

According to von Heusinger, this reading of indefinite PNs requires salience of a very prominent bearer of the PN and involves the manifestation of substantial aspects of the individual, which are generally known to hearer and speaker. Manifestation, then, is seen as instantiation of a kind, expressed by the PN. Thus, if PNs can express kinds (under the restrictions outlined here), we can straightforwardly assume that the PNs we find in *by*-phrases with adjectival participles are of this type, so they are not a problem for the account to treat such phrases as being PI-ed into the participle.

A further restriction on event-related modification with adjectival passives, which also aligns it with PI, is that the modifier and the participle together have to name a well-established event kind, associated with an institutionalised activity, as illustrated in (12).

- (12) Dieser Brief ist mit einer {Feder / #Fischgräte} geschrieben.  
 this letter is with a feather fishbone written  
 ‘This letter is written with a {feather / #fishbone}.’

The fact that event-related modifiers are also only good in case the event kind described as such is well-established, suggests that the event kind we are dealing with is parallel to a singular definite noun phrase, in having to name a unique kind (cf. §2.5.4). If we furthermore transpose Dayal’s (2004) idea, discussed in that section, that a (nominal) kind can also be established by the overall context, to event kinds underlying adjectival passives, we should expect context to make an adjectival passive (and some event-related modification) possible, where out of context it might not be (see also Gehrke, 2015; Mueller-Reichau and Gehrke, 2015, for further discussion). Some such examples are discussed in Maienborn (2009), such as (13).

- (13) Anna hat ihre Nachbarspflichten erfüllt: Der Briefkasten ist geleert, die  
 Anna has her neighbour\_duties fulfilled the mailbox is emptied the  
 Blumen sind gegossen, und die Katze ist gestreichelt.  
 flowers are watered and the cat is petted  
 ‘Anna has done her neighbourly duties: the mailbox is emptied, the flowers  
 are watered and the cat is petted.’

Contextual licensing of an event kind that is not conventionally established is related to Maienborn’s (2009) idea that adjectival passives involve “event-related ad hoc properties”.<sup>4</sup> A further possible example for contextual licensing of an event-related modifier is given in (14) (from Olav Mueller-Reichau, p.c.).

- (14) Der Rolls Royce Ihrer Frau ist mit Kuhmist eingerieben, ganz wie  
 the Rolls Royce your.GEN wife is with cow dung in-smearred totally how  
 Sie gewünscht haben, Sir!  
 you wished have Sir

<sup>4</sup>However, an ad hoc flavour is not always found with adjectival passives, as discussed in more detail in Gehrke (2015). It arises with verbs that are otherwise not good inputs to the construction, whereas with other verbs adjectival passive constructions are good out of context (and thus, in our terms, the event kind is well-established by convention). It might also further arise with particular participle-modifier restrictions, as discussed here.

‘Your wife’s Rolls Royce is smeared with cow dung, just as you have wished, Sir.’

Let us then turn to the account.

### 3.3 The account

By analogy to Zamparelli (1995), who has argued that nominal predicates start out as predicates of kinds and get realised to enable reference to an entity token when embedded under Num(ber) (cf. also §4.3.1), I propose in Gehrke (2015) that verbal predicates enter the derivation as predicates of event kinds; the event gets realised (turned into an event token) only when such verbal structure is embedded under further functional structure, such as Tense/Aspect (note that this is in line with the conception of event types in Carlson, 2003, as discussed in §2.5.1). In adjectival passives, however, I assume, in line with most syntactic proposals (e.g. Anagnostopoulou, 2003; McIntyre, 2013), that verbal predicates are not directly embedded under Tense/Aspect but instead under an adjectivising head  $A^0$ . As a result of this category change, the underlying event associated with the verb does not get instantiated but remains in the kind domain. This account rules out event token modification, making only event kind modification possible. I furthermore propose in that paper that such modifiers pseudo-incorporate into the participle before adjectivisation can take place.<sup>5</sup>

The proposed derivation of the adjectival passive in (15) is given in (16).

- (15) Die Tür ist geschlossen.  
the door is closed  
‘The door is closed.’
- (16) a. Lexical semantics of *schließ-* (type  $\langle e, \langle e, \langle s, \langle v, t \rangle \rangle \rangle \rangle$ ):<sup>6</sup>  
 $\lambda y \lambda x \lambda s \lambda e [\mathbf{close}(e) \wedge \mathbf{BECOME}(s)(e) \wedge \mathbf{closed}(y, s) \wedge \mathbf{Initiator}(x, e)]$   
 b.  $\text{Pr}t^0$  *ge-en/t*:  $\lambda \wp \lambda y \lambda s \lambda e \exists x [\wp(e)(s)(x)(y)]$   
 c.  $A^0$ :  $\lambda \wp \lambda y \lambda s \exists e_k, x_k [\wp(e_k)(s)(x_k)(y)]$   
 d.  $\textit{geschlossen}_A = \lambda y \lambda s \exists e_k, x_k [\mathbf{close}(e_k) \wedge \mathbf{BECOME}(s)(e_k) \wedge \mathbf{closed}(y, s) \wedge \mathbf{Initiator}(x_k, e_k)]$

The lexical semantics of a result verb, in this case *schließ(en)* ‘(to) close’, is given in (16-a): There is a state  $s$  that comes into existence as a result of an event  $e$ , with the holder of the state (the theme or experiencer) being  $y$  and the Initiator (agent or cause) of the event being  $x$ .<sup>7</sup> Participle formation in (16-b) involves the suppression of

<sup>5</sup>A similar idea underlies the proposal of Maienborn (2007, 2011b) and Maienborn and Geldermann (2013), according to which event-related modifiers of adjectival participles are not regular VP modifiers but are ‘integrated’ into the VP. The term ‘integration’ is to be understood in terms of Jacobs (1993, 1999) as a special syntactic relation between a head (here: a verb) and its sister constituent (here: a PP; in Jacobs: a VP-internal argument).

<sup>6</sup> $e$  is the semantic type for entities,  $s$  the type for states,  $v$  the type for events, and  $t$  the type for propositions. As stated in the main text, I assume that VPs and NPs are predicates of kinds, which get instantiated only when additional functional structure is added (Asp or Num), but to keep the formulae more simple, the respective variables are not subscripted (by  $k$  for kinds and  $o$  for tokens), up to the point where it becomes relevant, i.e. at the point of adjectivisation.

<sup>7</sup>The external argument is labeled ‘initiator’, following McIntyre (2013), and it is represented as part of the lexical semantics of the verb (as in Gehrke, 2013, 2015), not as severed from the verb (in the sense

the external argument  $x$  (see, e.g., Bruening, 2013), which is formalised by existential quantification over this argument. Unlike verbal participles, adjectival participles are not embedded under further verbal structure but instead undergo adjectivisation, and the event remains in the kind domain (the verb's event variable  $e$  is existentially bound as an event kind); cf. (16-c) and (16-d). At this point, it is also determined that the implicit initiator of the event stays in the kind domain (represented as  $x_k$ ), for reasons we will see below.

The internal argument of the underlying verb, in turn, is the subject of the AP and thus has to be externalised at some point. McIntyre (2013) and Bruening (2014) propose different versions of  $\lambda$ -abstraction of the verb's object at the point of adjectivisation/stativisation, and in principle either will do for our purposes. Glossing over these details and abstracting away from Tense, the semantic representation of (15) is given in (17) (after adjectivisation and externalisation of the verb's internal argument) (see also Gehrke and Marco, 2014).

$$(17) \quad \exists s_o, s_k, e_k, x_k [\mathbf{close}(e_k) \wedge \mathbf{BECOME}(s_k)(e_k) \wedge \mathbf{R}(s_o, s_k) \wedge \mathbf{closed}(\mathbf{THE\ DOOR}, s_o) \wedge \mathbf{Initiator}(x_k, e_k)]$$

Thus, an adjectival passive refers to the instantiation (or realisation) of a result (consequent or inchoative) state kind of an event kind. The state is instantiated at some later stage and temporally located, so that temporal modifiers can access the state's temporal index. In particular, some operator binds the state variable and asserts that the state takes place at an instant, which is part of an interval (cf., e.g., Kamp, 1979; Higginbotham, 1985; Truswell, 2011). This, in essence, should be understood as the equivalent of Carlson's (1977) realisation relation, as applied to the verbal domain, represented as  $\mathbf{R}$  in (17).

Since event-related modifiers modify an event and not a state and since the event is closed off and not accessible anymore after adjectivisation, such modifiers adjoin to PrtP before adjectivisation (cf. Kratzer, 1994, 2000, for arguments in favour of phrasal adjectivisation). In event semantics (e.g. Davidson, 1967; Parsons, 1990), event-related modifiers are commonly analysed as predicates of events. Let us illustrate this with (5-b), repeated in (18).

$$(18) \quad \begin{array}{l} \text{Mund und Nase waren mit Klebeband verschlossen.} \\ \text{mouth and nose were with tape closed} \\ \text{'Mouth and nose were closed with tape.'} \end{array}$$

Up to the point of adjectivisation, the derivation will be the same as with verbal participles. Thus, we will start with participle formation in (16-b) in combination with the event-related modifier in (18), which yields (19).

$$(19) \quad \begin{array}{l} \text{Verbal participle } \textit{verschlossen} \text{ plus } \textit{mit Klebeband}: \\ \lambda y \lambda s \lambda e \exists x [\mathbf{close}(e) \wedge \mathbf{BECOME}(s)(e) \wedge \mathbf{closed}(y, s) \wedge \mathbf{Initiator}(x, e) \\ \wedge \mathbf{WITH}(\mathbf{tape}, e)] \end{array}$$

To get to the step in (16-d), I propose in Gehrke (2015) that event-related modifiers have to incorporate into the participle in order for adjectivisation to become possible.

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of Kratzer, 1996), though nothing hinges on this (see Alexiadou et al., 2014, for a proposal that employs Voice).

The account builds on Dayal (2011) (cf. §2.5.2), but modifies it in two ways. Instead of two distinct lexical entries for incorporating vs. non-incorporating verbs only one lexical entry is assumed, namely the kind-level verb form, which can get instantiated only above the VP level during the syntactic derivation. Second, the condition on pseudo-incorporation is represented somewhat differently, but the overall gist of Dayal’s proposal remains. An obvious empirical difference from Dayal’s data is that in the case of adjectival passives, it is not a theme property that modifies the event, but a property provided by other thematic roles, such as agents or instruments. From this it follows that the theme itself is externalised before incorporation and adjectivisation takes place, since incorporation would otherwise target this argument (the one closest to the verb). The general semantics of the (at this stage still verbal) participle *closed* with incorporated event-related modifiers is given in (20).

$$(20) \quad (\text{verbal}) \text{ closed}_{INC-PrI}: \\ \lambda P \lambda y \lambda s \lambda e \exists x [\mathbf{P}\text{-close}(e) \wedge \text{BECOME}(s)(e) \wedge \mathbf{P}\text{-closed}(y, s) \wedge \mathbf{Initiator}(x, e) \\ \wedge \forall e [\mathbf{P}\text{-close}(e) \text{ iff } \mathbf{close}(e) \wedge \exists z [\mathbf{P}(z) \wedge \text{WITH/BY}(z, e)]]]]$$

Adjectivisation, which existentially quantifies over the event and determines that it stays in the kind domain (the same holds for the initiator), yields the representation of (18) (with that particular event-related modifier) in (21).

$$(21) \quad (\text{adjectival}) \text{ closed}_{INC-PrI}: \\ \lambda y \lambda s \exists e_k, x_k [\mathbf{P}\text{-close}(e_k) \wedge \text{BECOME}(s)(e_k) \wedge \mathbf{P}\text{-closed}(y, s) \wedge \mathbf{Initiator}(x_k, e_k)] \\ \wedge \forall e_k [\mathbf{P}\text{-close}(e_k) \text{ iff } \mathbf{close}(e_k) \wedge \mathbf{P} = \mathbf{tape} \wedge \text{WITH}(\mathbf{tape}, e_k)]]$$

The formalisation in (21) makes fully explicit that we are dealing with PI as it is directly modelled after Dayal’s PI account with the minor changes indicated above. As pointed out by Truswell (p.c.), however, (21) is not fully compositional (the same problem holds for Dayal’s formalisation). He suggests the alternative formalisation in (22), which can be more easily compositionally derived and still captures the main gist of the proposal, namely that PI creates an event kind, whereas PI itself remains more implicit.

$$(22) \quad [\text{ be closed}_A \text{ with tape } ]]: \lambda s_o \lambda y \exists e_k, s_k [\mathbf{close}(e_k) \wedge \text{WITH}(\mathbf{tape}, e_k) \\ \wedge \text{BECOME}(s_k)(e_k) \wedge \mathbf{R}(s_o, s_k) \wedge \mathbf{Holder}(y, s_o)]$$

Either way, under this account restrictions on event-related modification follow from general restrictions on event kind modification and on pseudo-incorporation. In particular, only weakly or non-referential nominals can appear in *by*- and *with*-phrases and such modification has to derive an established event kind, so that the state denoted by the adjectival passive construction is seen as instantiating the consequent state kind of a stereotypical activity. Even if it is less clear how to make this restriction more precise, this also holds for other empirical cases that have been analysed as pseudo-incorporation, and the parallels to the restrictions we described for definite singular generics in the nominal domain (cf. §2.5.4) further support an event kind account.

In the following two sections, I will zoom in on *by*-phrases in particular. I will first show that there is a difference between state- and event-related *by*-phrases (§3.4) and then turn quantitative data from Spanish (§3.5) which support this distinction as well as the overall proposal.

### 3.4 Event- vs. state-related *by*-phrases

This section summarises Gehrke (2013) where I show that not all adjectival participles display the referentiality restrictions on nominals in *by*-phrases reported above, but only those that are derived from eventive predicates. Those derived from stative predicates, on the other hand, do not show such restrictions at all. This difference is accounted for if we assume that only event-related modifiers PI into the participle (and thus necessarily modify an event kind), whereas state-related modifiers can apply to the state token also after adjectivisation takes place.

The referentiality restrictions on nominals inside *by*- (and *with*-) phrases modifying adjectival participles discussed in §3.2.2 concern event-related modification only, such as those in (23-a). Building on Rapp (1996) and Schlücker (2005), Gehrke (2013) discerns a second type of *by*-phrase that can appear with adjectival participles, namely when the underlying predicate is stative and in which the *by*-phrase modifies a state, commonly naming the cause of a state (see also Gehrke, 2012). One such *by*-phrase is illustrated in (23-b).

- (23) a. Die Zeichnung ist von einem Kind angefertigt.  
 the drawing is by a child produced  
 ‘The drawing is produced by a child.’  
 b. Das Haus ist von Studenten bewohnt.  
 the house is by students inhabited  
 ‘The house is inhabited by students.’

In particular, Rapp (1996) shows that adjectival participles with state-related *by*-phrases are compatible with the adjectival negative prefix *un-*, whereas those related to an event (“action/process”-) are not, and that both types display word order differences. Schlücker (2005) independently observes differences in prosody and complements with two types of *by*-phrases, though she does not distinguish between state- and event-related ones. Let us take a closer look at these facts.

Event-related *by*-phrases (*by*-phrase I) form a prosodic unit with the participle, with neutral stress on the modifier (24-a). Such *by*-phrases are incompatible with *un*-prefixation (24-b) and cannot switch order with the participle (24-c).

- (24) a. Die Zeichnung ist von einem KIND angefertigt.  
 the drawing is by a child made  
 ‘The drawing is made by a child.’ (Schlücker, 2005)  
 b. Die Suppe ist (\*von Maja) ungewürzt.  
 the soup is (\*by Maja) unseasoned  
 ‘The soup is unseasoned (\*by Maja).’ (Rapp, 1996)  
 c. Der Brief war {\*geschrieben} von einem Experten {geschrieben}.  
 the letter was written by an expert written  
 ‘The letter was written by an expert.’ (Rapp, 1996)

In addition, Schlücker (2005) observes that the complements have a more ‘generic’ character (e.g. *von Feuer* ‘by fire’, *von Bomben* ‘by bombs’).

Rapp’s and Schlücker’s characterisations of these *by*-phrases extend to other event-related modifiers that are allowed with adjectival passives, such as *with*-phrases, which we have already briefly discussed in §3.2.2. The whole paradigm for these phrases is

given in (25).

- (25) a. Der Brief war mit (einem) BLEIstift geschrieben.  
 the letter was with (a) pencil written  
 ‘The letter is written with (a) pencil.’
- b. \*Der Brief war mit (einem) Bleistift ungeschrieben.  
 the letter was with (a) pencil unwritten  
*intended:* ‘The letter was unwritten with (a) pencil.’
- c. Der Brief war {\*geschrieben} mit (einem) Bleistift {geschrieben}.  
 the letter was written with (a) pencil written  
 ‘The letter was written with (a) pencil.’

State-related *by*-phrases, on the other hand (*by*-phrase II), do not form a prosodic unit with the participle: Neutral stress is on the participle, secondary stress on the modifier (26-a). Such *by*-phrases are compatible with *un*-prefixed participles (26-b) and can switch order with the participle (26-c).

- (26) a. Er ist von der MuSÍK beÈINdrückt.  
 he is by the music impressed  
 ‘He is impressed by the music.’ (after Schlücker, 2005)
- b. Die Dresdner Bürger sind von solchen Problemen unbeeindruckt.  
 the Dresden- citizens are by such problems unimpressed  
 ‘The citizens of Dresden are not concerned with such problems.’  
 (Rapp, 1996)
- c. Die Dresdner Bürger sind {(un)beeindruckt} von solchen Problemen  
 the Dresden- citizens are (un)impressed by such problems  
 {(un)beeindruckt}.  
 (un)impressed  
 ‘The citizens of Dresden are (not) concerned with such problems.’  
 (after Rapp, 1996)

Finally, the complements have a more ‘concrete’ character (e.g. *vom Feuer* ‘by the fire’, *von der Bombe* ‘by the bomb’) (Schlücker, 2005). In all these respects they behave differently from both *by*-phrase I (24) and other event-related modifiers (25).

In Gehrke (2012, 2013) I propose that *by*-phrase I modifies the event kind and names a sub-kind; it thus behaves like other event-related modifiers of adjectival passives, as we have seen in previous sections. *By*-phrase II, in turn, modifies the (result) state token. Such *by*-phrases are fully acceptable only with participles derived from stative predicates and sharply contrast with other event-related modifiers in all respects. The proposal that *by*-phrase II modifies a state token, rather than an event kind, is further supported by the fact that it behaves more like *by*-phrases with verbal passives in some respects, and different from *by*-phrase I (recall §3.2.2). In particular, the noun in a *by*-phrase II introduces a discourse referent (27-a) and can be modified (27-b).

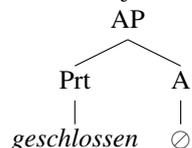
- (27) a. Er ist von einer Melodie beeindruckt. Er hatte sie gestern im  
 he is by a melody impressed he had her yesterday in the  
 Radio gehört.  
 radio heard

- ‘He is impressed by a melody. He heard it yesterday on the radio.’
- b. Er ist von einer Melodie beeindruckt, die er gestern im Radio  
 he is by a melody impressed which he yesterday in the radio  
 gehört hat.  
 heard has  
 ‘He is impressed by a melody that he heard on the radio yesterday.’

The broader distinction which arises is the following. State-related modifiers, including *by*-phrases with adjectival participles derived from stative predicates but also state-related adverbs relating to the result of an event or to the degree of a state (cf. Anagnostopoulou, 2003) should always be acceptable with adjectival passives. If the modifier relates to the event itself, on the other hand, it has to name a somewhat established event subkind and this accounts for the observed restrictions.

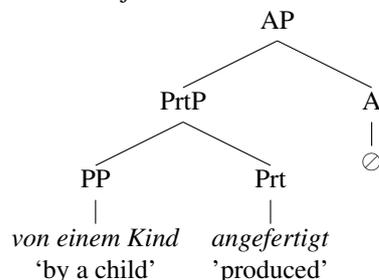
Syntactically, I proposed in Gehrke (2013) to flesh this distinction out as follows, using somewhat simplified syntactic representations, ignoring structure internal to the participle (PrtP) and externalisation of the internal argument and using a head-final structure. Just like Rapp (1996), I follow Kratzer (1994, 2000) in assuming that adjectivisation can be lexical (targeting heads) or phrasal (here: targeting a PrtP). The tree in (28) represents the lexical case, where an adjectival passive does not involve additional event-related modification. The input is the participle alone, e.g. *geschlossen* ‘closed’ (a complex head consisting of  $V^0$  and  $\text{Prt}^0$ ).

- (28) Lexical adjectivisation



(29) represents the phrasal case involving a modifier of the event kind (e.g. instruments, *by*-phrase I). The input is the PrtP and adjoined to it the PP modifier. As outlined in the previous sections, in Gehrke (2015) I made this account more precise in proposing that event-related modifiers PI into the verbal participle before adjectivisation takes place.

- (29) Phrasal adjectivisation: Event kind modifiers

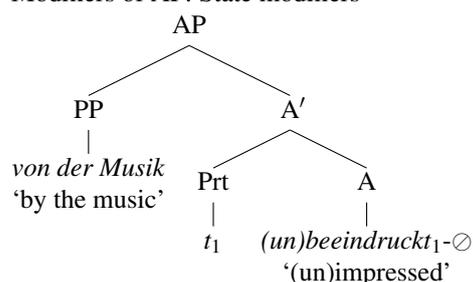


The assumption that event kind modification takes place before adjectivisation (and furthermore that it PIs into the participle) captures the fact that the PP is prosodically integrated into the participle and cannot appear after it. Furthermore, as Rapp (1996)

points out, *un*-prefixation is not possible, since only lexical adjectivisation is compatible with the adjectival prefix *un-* (following Kratzer, 1994).

Finally, an adjectival passive with a *by*-phrase modifying a state token (*by*-phrase II) is represented in (30).

(30) Modifiers of AP: State modifiers



This analysis accounts for the fact that state-related *by*-phrases are not prosodically integrated into the participle and that they can appear before or after the participle, given that they apply after adjectivisation. In addition, the participle itself, which is the output of lexical adjectivisation, is compatible with *un-* (following Rapp, 1996).

In the following section, I will turn to a corpus study into Spanish *by*-phrases presented in Gehrke and Marco (2014). This study corroborates the impressionistic view that (a) there are two different kinds of *by*-phrases, and, more importantly, (b) that there are referentiality restrictions on the nominals in event-related *by*-phrases, in the sense that we did not find strongly referential ones.

### 3.5 Corpus study: Spanish *by*-phrases with participles

As we have seen in §3.2.2, event-related *by*-phrases with adjectival participles in German differ from those with verbal participles mainly in the referential status of their complements: they are non-referential (or at most weakly referential). I only illustrated this with the occurrence of indefinite NPs and the ban of demonstrative NPs in such phrases, but this seems to hold more generally for other kinds of nominals as well: With adjectival passives, bare (singular and plural) nominals and (in)definite noun phrases with a generic or weak interpretation are acceptable, but strongly referential noun phrases, such as regular definites, demonstratives, pronouns, and proper names, are not. With verbal passives, on the other hand, strongly referential noun phrases in event-related modifiers are not a problem. Finally, the complements of state-related *by*-phrases with both adjectival and verbal passives seem to behave on a par with *by*-phrases of verbal passives.

To further substantiate the impression that the complements are indeed qualitatively different, Cristina Marco and I conducted a corpus study into the types of complements found in *by*-phrases (Gehrke and Marco, 2014). Although my previous theoretical considerations were based on German, our corpus study involved data from Spanish, for which our first impression was that it behaves like German in all rele-

vant respects.<sup>8</sup> Like German, Spanish makes a formal distinction between the two types of passives, as it combines a past passive participle with *estar* in adjectival passives, and with *ser* in verbal passives (cf. Bosque, 1990, 1999; Marín, 2004); we gloss these as ‘be.LOC’ and ‘be’, respectively. (31), then, shows that the complements of event-related *by*-phrases with Spanish verbal passives can have wide scope, introduce discourse referents, be modified by common intersective modification, and involve strong determiners, whereas those with adjectival passives cannot (32), just like the German examples discussed in §3.2.2.

- (31) a. Todos los cuadros fueron pintados por un niño.  
all the pictures were painted by a child  
(i) ‘All the paintings were painted by a child.’ (>1 child possible)  
(ii) ‘There was a particular child that painted all the paintings.’
- b. El cuadro fue pintado por [un niño]<sub>1</sub>. *pro*<sub>1</sub> Era pelirrojo.  
the picture was painted by a child was red-haired  
‘The picture was painted by a child. He had red hair.’
- c. El cuadro fue pintado por un niño pelirrojo.  
the picture was painted by a child red-haired  
‘The drawing was painted by a red-haired child.’
- d. El cuadro fue pintado por este niño.  
the picture was painted by this child  
‘The drawing was painted by this child.’
- (32) a. Todos los cuadros estaban pintados por un niño.  
all the pictures were.LOC painted by a child  
‘All the paintings were painted by a child.’ (>1 child possible)  
≠ ‘There was a particular child that painted all the painting.’
- b. El cuadro estaba pintado por [un niño]<sub>1</sub>. \**pro*<sub>1</sub> era pelirrojo.  
the picture was.LOC painted by a child was red-haired  
*intended*: ‘The picture was painted by a child. He had red hair.’
- c. \*El cuadro estaba pintado por un niño pelirrojo.  
the picture was.LOC painted by a child red-haired  
*intended*: ‘The drawing was painted by a red-haired child.’
- d. \*El cuadro estaba pintado por este niño.  
the picture was.LOC painted by this child  
*intended*: ‘The drawing was painted by this child.’

When the underlying predicate is stative, on the other hand, *by*-phrases have the same properties as those with verbal participles (33).

- (33) a. Todos los niños estaban impresionados por una melodía.  
all the children were.LOC impressed by a melody  
(i) ‘All the children were impressed by a melody.’ (>1 melody possible)  
(ii) ‘There was a particular melody that all the children were impressed by.’

<sup>8</sup>One reason why we did not choose German was that the word order in German is much more flexible than in Spanish and therefore it is more difficult to control for the precise data to be extracted without including too many irrelevant cases or excluding too many relevant ones.

- b. Estaba impresionada por [una melodía]<sub>1</sub>. La orquesta la<sub>1</sub> tocó en  
 was.LOC impressed by a melody the orchestra it played in  
 el auditorio.  
 the auditorium  
 ‘She was impressed by a melody. The orchestra played it in the auditorium.’
- c. Estaba impresionada por una melodía que tocó la orquesta en  
 was.LOC impressed by a melody that played the orchestra in  
 el auditorio.  
 the auditorium  
 ‘She was impressed by a melody that the orchestra played in the auditorium.’
- d. Estaba impresionada por esta melodía.  
 was.LOC impressed by this melody  
 ‘She was impressed by this melody.’

Our expectations concerning the results of the corpus study were as follows. With event-related *by*-phrases of adjectival passives, we expected to mainly find bare nominals and weak (in)definites. As we have briefly discussed in chapter 2, these are nominals that have been analysed as not denoting token entities (of type  $e_0$ ), but rather either properties (of type  $\langle e, t \rangle$ ) or kinds (of type  $e_k$ ). For example, the property analysis has been put forward for (narrow scope) indefinites (e.g. van Geenhoven, 1998), bare singular nouns (e.g. Dayal, 2011; Espinal and McNally, 2011)<sup>9</sup> and in particular Spanish bare plurals (McNally, 2004), as well as for weak definites (Schwarz, 2014). Others have proposed a kind account of bare plurals (at least since Carlson, 1977) (see also Chierchia, 1998; Dayal, 2004) and weak definites (Aguilar-Guevara and Zwarts, 2011; Aguilar-Guevara, 2014). What these nominals have in common is that they lend themselves more easily to a generic interpretation and/or are weakly or non-referential and, and some of their occurrences have been analysed in terms of (pseudo-)incorporation, as we have seen in chapter 2. Throughout, we use the descriptive label ‘generic’ for this group of nominals. On the other hand, we expected to find no occurrences of strongly referential nominals, which are standardly analysed as denoting an entity, here a token entity, which is a particular entity in the discourse. Such nominals include strong definites, proper names, personal pronouns, possessives and demonstratives, which we will henceforth descriptively label ‘specific’.

With *by*-phrases of verbal passives, on the other hand, we expected to find many instances of strongly referential nominals. Since, in principle, both event kind and event token reference should be possible with verbal passives, there could also be an equally high number of ‘generic’ and ‘specific’ nominals, so the most important difference we expect to find is with respect to strongly referential nominals with verbal and adjectival passives. Finally, we expected no difference between *by*-phrases with verbal participles and those with adjectival participles derived from stative predicates. Let us then turn to the data.

<sup>9</sup>In particular, Farkas and de Swart (2003) and de Swart and Zwarts (2009) discuss the lack of discourse reference with such nominals. See also Zwarts (2009) for an overview of different kinds of constructions that employ bare singulars, as well as Le Bruyn et al. (2011) for bare nominals in prepositional phrases.

### The corpus data

The data for this study was extracted from a (tagged and lemmatised) corpus of Spanish from the 20th century, with documents from the *Project Gutenberg* (2,5 million words),<sup>10</sup> as well as the *Lexesp corpus* (5,5 million words) (Sebastián-Gallés, 2000), comprising a wide variety of genres (both fiction and non-fiction).<sup>11</sup> Prior to the analysis of the corpus data, we obtained frequency counts of all occurrences of *ser* + past participles (PP) (verbal passives) in combination with *by*-phrases, and *estar* + PP (adjectival passives), using the *IMS Open Corpus Workbench*<sup>12</sup> and analysed with the open-source statistical software R (R-Development-Core-Team, 2010). In order to obtain accurate cases of *ser/estar* + PP + *by*-phrase, the participle had to appear directly left to the *by*-phrase, allowing for some (controlled) intervening material (e.g. particular adverbs).

To exclude noise all data were examined and corrected manually. For example, we excluded cases of incorrect part of speech tagging, where some token was labelled as an adjective or participle but in fact was of a different category. We also excluded examples in which Spanish *por* was not the equivalent of English *by*, such as (34), in which *por* introduces a reason ('for'), rather than naming an agent or cause of an event or state (i.e. an initiator).

- (34) Eric fue detenido por robo.  
Eric was arrested POR robbery  
'Eric was arrested for robbery.'

To test whether a given *by*-phrase introduced an initiator we checked whether the complement could appear as a subject in the active counterpart. If it could, we counted it in, if not (as, e.g., in the previous case) we left it out.

Let us then turn to the presentation and discussion of the findings, which proceed in two steps. In the first study, we considered all instances of participial constructions formed with *ser* and *estar* that appear with *by*-phrases, not yet taking into account the underlying verb class (i.e. the difference between events and states). In the second study, we analysed *by*-phrases that occur with participles derived from eventive and stative predicates separately.

#### 3.5.1 Study 1: *By*-phrases with adjectival and verbal participles

Table 3.1 summarises the overall results we obtained from the corpus, taking into account all occurrences of *by*-phrases with both types of passives, irrespective of the verb class of the underlying predicate.

Both types of passives occur with *by*-phrases, but we find less *by*-phrases with adjectival passives (8.2%; N = 293/3,574) than with verbal passives (10.8%; N = 748/6,923). According to a Pearson's chi-square goodness-of-fit test, this difference is highly significant at a 99.9% confidence level ( $\chi^2 = 17.6345$ , 1 d.f.,  $p < .001$ ). There are some differences with some types of *by*-phrase complements. These differences are highly significant ( $\chi^2$  test, 1 d.f.,  $p < .001$ ) for indefinite determiners

<sup>10</sup><http://www.gutenberg.org/>

<sup>11</sup>For a more detailed description of the corpus and the mode of annotation, see Gehrke and Marco (2014).

<sup>12</sup><http://cwb.sourceforge.net/>

	<i>Estar</i> + PP	<i>Ser</i> + PP	p-value
Total	3,574	6,923	
With <i>by</i> -phrases	293	748	
With <i>by</i> -phrases (%)	8.2%	10.8%	< .001***
Pronouns (%)	3.4%	8.2%	< .01**
Proper names (%)	4.1% (6.1%)	6.8% (10.7%)	< .01**
Possessive determiners (%)	3.4%	4.1%	.7235
Demonstrative determiners (%)	1%	0.9%	1
Definite determiners (%)	43.3%	54.3%	< .01**
Indefinite determiners (%)	17.4%	9.5%	< .001***
Numerals (%)	1.7%	1.1%	.5345
Bare singulars (%)	1.4%	2.5%	.3486
Bare plurals (%)	20.8%	9.6%	< .001***

Table 3.1: *By*-phrases with *estar* + PP and *ser* + PP.

and bare plurals, which occur more often with adjectival passives, and significant ( $\chi^2$  test, 1 d.f.,  $p < .01$ ) for pronouns, (bare and non-bare) proper names<sup>13</sup> and definite determiners, which occur more often with verbal passives. In contrast, the frequency of *by*-phrases containing bare plurals and indefinite determiners is significantly lower with *ser* + PP than with *estar* + PP. Finally, there are no significant differences for possessives, demonstratives, interrogatives, numerals, and bare singulars (according to Fisher's exact test<sup>14</sup>).<sup>15</sup>

### Discussion

Just like in German, Spanish *by*-phrases can appear with both verbal and adjectival participles. Study 1 shows, however, that there are quantitative differences (more *by*-phrases with verbal than with adjectival passives) as well as some qualitative differences, along the lines we expected, as outlined in the beginning of this section. However, the coarse-grained analysis presented in table 3.1 only confirms this for some determiners and then also only as a trend, rather than a total ban on strongly referential nominals. Indicative of this trend is that adjectival participles appear significantly more often with indefinites and with bare plurals, whereas verbal participles combine more often with definites and with proper names. Nevertheless, there are surprisingly many instances of definites with adjectival participles (as well as some instances of proper names). We will come back to this below.

Contra our (initial) expectations, we did not find a significant difference in the

<sup>13</sup>For proper names, the number in parentheses indicates the percentage of (non-bare) proper names with determiners, whereas the number without parentheses is the percentage of bare proper names. Non-bare proper names in Spanish mostly refer to names of companies or organisations, e.g. *la Caja de Ahorros de Asturias* 'the Savings Bank of Asturias'. This also applies to the tables in later sections.

<sup>14</sup>Fisher's exact test is used in situations where the samples are too small to allow the normal approximation underlying the chi-squared test (Agresti, 2002; Baroni and Evert, 2009).

<sup>15</sup>The studies presented in Gehrke and Marco (2014) also included other quantificational determiners, namely *algún* 'some', *ambos* 'both', *cualquier* 'any' (free choice), *muchos* 'many', *ningún* 'no', and *todo* 'all'. Since the predictions for these determiners depend on the precise semantics attributed to each one of them the investigation of which would have gone beyond the scope of the paper, we did not include them in the discussion.

number of demonstrative and possessive determiners; both are typically assumed to be definite, and thus we would expect to find them more frequently (or even exclusively) with verbal passives. Furthermore, there are no significant differences with bare singulars, which (somewhat unexpectedly) appear (insignificantly) more often with verbal passives. Since in principle all kinds of NPs can appear with verbal passives, we will not be interested in these cases however. Finally, there are no significant differences with numerals, which intuitively specify the cardinality of a group of entities so that the respective nominals are expected to pattern with strongly referential ones.

Since we have not yet taken into account the distinction between stative and eventive predicates, our expectations were thus only partially met in study 1. Before turning to study 2, where we separated stative from eventive inputs to then actually confirm our expectations, I will present some representative examples containing definite and indefinite noun phrases.<sup>16</sup>

### Definites and indefinites

Table 3.1 shows that we found an equally high number of definites in *by*-phrases with adjectival as with verbal participles (43.6% vs. 54.7%), which - at least from a Germanic perspective - might be surprising. However, in Spanish (and other Romance languages) the definite article is used for both (regular) definiteness and kind reference (see Chierchia, 1998; Dayal, 2004, and literature cited therein), and in particular in situations where languages like English and German use bare nominals.<sup>17</sup> In addition, all three languages make use of weak definites, and under either analysis of such definites, which we expect to be possible in *by*-phrases with adjectival participles. Finally, all three languages use definite determiners for entities that are unique qua world knowledge (e.g. *the sun*, *the moon*) and thus never occur without such a determiner.

Let us then have a closer look at the definite nominal complements of *by*-phrases we found. There are examples of *by*-phrases with definite determiners that appear with adjectival passives, which involve generic noun phrases (35).

- (35) a. [...] nuestra vida está regida por los símbolos.  
           our life is.LOC governed by the symbols  
           ‘Our life is governed by symbols.’  
       b. A mí los jugadores de este Atlético de Madrid me caen bien:  
           to me the players of this Atlético of Madrid me fall well  
           están perseguidos por la desgracia [...]  
           are.LOC.3PL pursued by the disgrace

<sup>16</sup>In Gehrke and Marco (2014) we also discussed unexpected examples of adjectival participles with *by*-phrases containing demonstratives, numerals and possessives, which upon closer inspection turned out to involve underlying stative predicates. Since this chapter only provides the main gist of the paper and since furthermore we get to the state-event distinction in detail in study 2, I will not address these examples in the context of study 1. The paper furthermore contained a section on proper names, which showed that proper names appear almost exclusively with verbal passives (or with adjectival passives derived from stative predicates), with few exceptions complying with the noteworthiness constraint described in §3.2.

<sup>17</sup>See also McNally (2004) for a discussion of the differences between English and Spanish in the use of bare plurals, and for arguments why Spanish bare plurals should be treated as property-denoting, whereas English bare plurals can be kind-denoting.

‘I really like the players of this Atlético Madrid: They are pursued by disgrace.’

One indication that these are generic or kind-referring noun phrases is the fact that they are translated into English by bare plurals (in the case of count nouns) or bare singulars (in the case of mass nouns, including abstract nouns).

Other definite nominals in *by*-phrases with adjectival passives, in turn, can be identified as weak definites, the properties of which I have already described in §2.5.3. A further case that shares some properties with weak definites are noun phrases referring to entities that are unique in all contexts, quasi by general world knowledge, such as *the moon*, *the sun*, *the chancellor* (cf. Cieschinger and Bosch, 2011). Given that these singular entities are unique in all contexts, they always appear as singular definites and cannot be put in the plural. One such example from our corpus is given in (36).

- (36) Otras estaban quemadas por el sol [...]
   
others were.LOC burnt by the sun
   
‘Others were sunburnt.’

The fact that this expression can be translated into English by a participle that incorporates the nominal ‘sun’ (*sunburnt*) further illustrates that we are not dealing with a regular definite in this case.

To manually check whether a given definite in a particular context is a regular definite that introduces a discourse referent and denotes a token entity (a participant in an event particular), or a weak or generic definite (and is thus kind- or property-denoting), we added adjectival modification and/or changed the number. Changing the number on weak definites from singular to plural renders the weak interpretation impossible, which leads to a strong definite interpretation in the case of weak definites of the type discussed in §2.5.3, and to ungrammaticality or anomaly in the case of entities that are unique qua world knowledge (e.g. in *the suns*, *the moons*). Similar results obtain if we add token modification (cf. §2.5.3). Furthermore, changing the number on generic definite plurals to singular has as an effect that such a singular noun phrase is not interpreted as generic anymore, whereas with abstract nominals the change from singular to plural should result in ungrammaticality. In either case, we expect the adjectival passive construction to become infelicitous under such changes.

(37) illustrates that such changes with the nominals in (35) and (36) lead to ungrammaticality.

- (37) a. \*Nuestra vida está regida por el símbolo.
   
our life is.LOC governed by the symbol
   
b. \*Los jugadores están perseguidos por las desgracias.
   
the players are.LOC.3PL pursued by the disgraces
   
c. \*Otras estaban quemadas por los soles.
   
others were.LOC burnt by the suns

Hence, if such changes rendered the example ungrammatical, we decided to count the respective definites as non-regular definites, which we will descriptively label ‘non-referential definite NPs’ in the following. The results of the analysis of definites in *by*-phrases are summarised in Table 3.2.

In particular, we found that almost 60% of the definite nominals in *by*-phrases with

	<i>Estar + PP</i>	<i>Ser + PP</i>
Total	127	406
Non-referential definite NP	57%	35%
Referential definite NP	43%	65%

Table 3.2: Weak vs. strong definites in *by*-phrases with *estar/ser + PP*.

*estar + PP* are weak or generic, whereas with *ser + PP* this is only the case for a bit over one third of the total number of definites. Obviously, this still leaves the 43% of strongly referential noun phrases unaccounted for but we also have not yet separated adjectival participles derived from eventive predicates from those derived from stative predicates, as we will do in study 2.

Similarly to definites, indefinites can also show a weak or strong interpretation, and thus not all indefinites denote properties or kinds. In particular, indefinites, at least in the Germanic languages, can have generic, partitive or specific readings (e.g. Diesing, 1992; Frey, 2001), and we assume that this carries over to Spanish indefinites. Weak indefinites get an existential interpretation and do not have quantificational force of their own, and the variable introduced by an indefinite has to be bound by another element of the structure (e.g. Kamp, 1981; Heim, 1982), or – in the case of PI – modify the verbal predicate (by set intersection of the two kind properties, as we assume here). Other readings of indefinites are assumed to be strong. According to our account, then, we expect to find only weak indefinites with adjectival passives.

To test this prediction, we counted the number of indefinites of either type with adjectival and verbal passives, employing similar tests as those with definites. After manually checking all the examples from the corpus, however, there was no significant difference between indefinites with verbal and adjectival participles, and, at first sight surprisingly, over two thirds of indefinites show a strong reading, whereas only less than third of them are weak (see Gehrke and Marco, 2014, for a table with the exact numbers). Since we have not yet looked at stative and eventive inputs separately, however, none of these counts are telling us much yet. In particular, when we manually checked the data almost all the cases of strong indefinites in *by*-phrases with adjectival passives involve stative inputs. A typical example is the one in (38).

- (38) Las gentes [...] están habitadas por un gran ardor de vivir [...]  
 the people are.LOC inhabited by a great zeal to live  
 ‘The people are zealous to live.’

Overall, then, it seems that strong indefinites appear mostly in state-related *by*-phrases. Disentangling state-related and event-related *by*-phrases was the task of study 2 to which I turn now.

### 3.5.2 Study 2: State- vs. event-related *by*-phrases

In the second study, we investigated *by*-phrases with eventive and stative predicates separately. In order to do this, we relied on the following lists of verbal predicates that were compiled for independent reasons by Rafael Marín and Cristina Sánchez Marco (Sánchez Marco, 2012). The list of eventive predicates contains approximately 50

verbs each for activities (e.g. *acariciar* ‘to stroke’, *buscar* ‘to search’), accomplishments (e.g. *arreglar* ‘to fix’, *atravesar* ‘to cross’), and achievements (e.g. *abrir* ‘to open’, *alcanzar* ‘to achieve’), which represent the classical aspectual classes of eventive predicates (Vendler, 1957; Dowty, 1979). Thus, in total there are 149 eventive predicates. The list of stative predicates (with a total number of 165 verbs) includes individual-level predicates (e.g. *adorar* ‘to adore’, *atañer* ‘to appertain’) and object experiencer psych(ological) predicates (e.g. *asustar* ‘to frighten’, *aburrir* ‘to bore’).<sup>18</sup>

We follow Arad (1999); Pylkkänen (1999); Marín and McNally (2011) and Marín (2011) in treating psych predicates as states, even though we are aware that this is a highly debated issue. For example, some psych predicates can have agentive uses that make them (appear more) eventive (e.g. *Peter deliberately scared Susan.*), or they can have interpretations of a state coming into existence, i.e. an inchoative state (see de Swart, 1998; Marín and McNally, 2011, for this notion). The latter case merely involves a state with an onset but not eventivity per se (e.g. there is no process component), so that we still treat these predicates as states. Furthermore, adjectival passives of psych predicates that also allow agentive uses (e.g. *Susan is scared.*) are commonly closer in meaning to the stative, non-agentive (and often reflexive or unaccusative) counterparts, a point that is also made by Meltzer-Asscher (2011) for Hebrew (see also Gehrke and Marco, 2015, for passives of Spanish psych predicates).

The results of our study are given in Tables 3.3 and 3.4, which summarise the frequencies of *by*-phrases with adjectival and verbal passives where the underlying predicate is eventive and stative, respectively. The total number of both types of passives, in particular of those with *by*-phrases, is rather low now, given the limitation to passives of exactly those 314 verbs that were classified into states vs. events, as mentioned above. This also means that many cases are excluded that appeared in Study 1 (Table 3.1), since for that study we considered adjectival and verbal passives derived from all verbs, not just these 314 ones. Hence, simply adding up the numbers of Table 3.3 and Table 3.4 will not give us the numbers of Table 3.1, but unfortunately we also cannot run the diagnostics for every single Spanish verb that appears in the corpus. Thus in general, we get very low numbers across the board.

Table 3.3 shows that there is a highly significant higher frequency of event-related *by*-phrases with verbal passives as opposed to adjectival passives. Furthermore, there are relatively more indefinites and bare plurals in such *by*-phrases with adjectival passives. The number of indefinites include both strong (5 with adjectival passives and 8 with verbal passives) and weak ones (1 with adjectival passives and 4 with verbal passives). In contrast, event-related *by*-phrases with verbal passives contain a higher number of definites; for both types of passives, the number of definites indicated here include both strong (2 with *estar* + PP and 43 with *ser* + PP) and weak definites (4 with *estar* + PP and 28 with *ser* + PP). The last column indicates that these differences are statistically significant (according to Fisher’s exact test). Furthermore, possessive and demonstrative determiners only appear in *by*-phrases with verbal participles, but

<sup>18</sup>Since these lists were compiled in Sánchez Marco (2012) for independent reasons they contain all kinds of predicates, even those that might not derive a passive construction in the first place (e.g. unergatives, such as *bailar* ‘to dance’, *chirriar* ‘to squeak’, *dormir* ‘to sleep’, etc.). However, this will not distort the general results, for the following reason: if there is no passive construction of such a predicate, we will also not find a *by*-phrase with such a predicate. Whether or not a given verb is a good input to an adjectival or verbal passive is orthogonal to the issues under discussion here. For the complete list of verbs and the battery of linguistic diagnostics to distinguish between the different classes see Gehrke and Marco (2014).

	<i>Estar</i> + PP-eventive	<i>Ser</i> + PP-eventive	p-value
Total	515	854	
With <i>by</i> -phrases	25	126	
With <i>by</i> -phrases (%)	4.9%	14.8%	<.001***
Pronouns (%)	4%	7.9%	.6923
Proper names (%)	8% (4%)	4.8% (8.7%)	1
Possessive determiners (%)	-	4.8%	-
Demonstrative determiners (%)	-	0.8%	-
Definite determiners (%)	24%	56.3%	<.01**
Indefinite determiners (%)	24%	9.5%	.08243
Numerals (%)	4%	1.6%	.4213
Bare singulars (%)	4%	1.6%	.4213
Bare plurals (%)	28%	7.9%	<.01**

Table 3.3: Event-related *by*-phrases with *estar* and *ser* + PP.

are completely absent from those with adjectival participles. However, there is no statistically significant difference with pronouns, proper names, indefinite determiners, numerals, and bare singulars.

The numbers in Table 3.4 display the types of state-related *by*-phrases that appear with verbal and adjectival passives.

	<i>Estar</i> + PP-stative	<i>Ser</i> + PP-stative	p-value
Total	319	419	
With <i>by</i> -phrases	41	43	
With <i>by</i> -phrases (%)	12.9%	10.3%	.2933
Pronouns (%)	2.4%	25.6%	<.01**
Proper names (%)	4.9% (2.4%)	4.7% (9.3%)	.484
Possessive determiners (%)	7.3%	4.7%	.6722
Demonstrative determiners (%)	4.9%	2.3%	.6114
Definite determiners (%)	70.7%	53.5%	.1204
Indefinite determiners (%)	7.3%	7%	1
Numerals (%)	-	-	-
Bare singulars (%)	-	-	-
Bare plurals (%)	-	-	-

Table 3.4: State-related *by*-phrases with *estar* and *ser* + PP.

The results indicate that state-related *by*-phrases with adjectival participles are of the same type as those with verbal participles. There is no significant difference between the relative number of *by*-phrases in general. Furthermore, there are no significant differences in the complements for any of the categories, except for pronouns ( $p < .01$ , according to Fisher's exact test), which appear more often with verbal passives.<sup>19</sup>

<sup>19</sup>As mentioned above, we had two separate lists of individual level predicates and object experiencer predicates, for independent reasons. Analysing the results separately, we obtained similar results to those presented in Table 3.4. In particular, there are no significant differences in any of the categories, except for definite determiners ( $p < .001***$ ).

### Discussion

Separating the adjectival participles with eventive inputs from those with stative inputs confirms our expectation that some differences between *by*-phrases with adjectival and verbal passives observed in the previous section only by trend (recall Table 3.1) are now much more pronounced and become statistically significant when we look only at event-related *by*-phrases. This is particularly the case for possessives and demonstratives, which do not occur in such *by*-phrases with adjectival participles at all. However, an unexpected finding was that there were no significant differences for pronouns, proper names, indefinites, numerals, and bare singulars in event-related *by*-phrases, and we still found strongly referential definites and indefinites. Such data pose a serious problem for the semantic account outlined in this chapter, and we will take a closer look at these data in the following subsection.

Turning to state-related *by*-phrases, we see that (apart from the pronouns, which we did not look further into) there are no significant differences between adjectival and verbal participles, neither in the number of *by*-phrases nor in the referentiality status of the complement. When we take the results of all three tables into account (3.1, 3.3, 3.4), we see, then, that state-related *by*-phrases with adjectival participles behave on a par with both state-related and event-related *by*-phrases with verbal participles, and all three differ from event-related ones with adjectival participles, as predicted by the semantic account underlying this chapter.

Let us then turn to the five potentially problematic types of nominals we found in event-related *by*-phrases of adjectival passives, namely strong definites and indefinites, pronouns, proper names, and numerals.

### Potentially problematic examples

Let us first address definite noun phrases in event-related *by*-phrases of adjectival passives. We found 8 examples in total, out of which we counted 6 as weak/generic definites. Out of the two remaining ones, one was from the early 20th century (the part of the *Project Gutenberg*) (39).<sup>20</sup>

- (39) [...] confesó que todo estaba preparado por el señor Polichinela para  
 confessed that all was.LOC prepared by the mister Polichinela for  
 deshacerse de tu amo [...]  
 undo.INF-SE of your master  
 ‘He/she confessed that it all was arranged by Mr. Pulcinella in order to get  
 rid of your master.’

This example has an archaic feel to contemporary native ears, and nowadays one would use a verbal passive instead. Similarly, out of the 3 examples with proper names, two are from the beginning of the 20th century ((39), which is both a definite and a proper name, and (40)).

- (40) En un antiguo arcón de madera [...] [las ropas] estaban dobladas con  
 in an old chest of wood [...] the clothes were.LOC folded with  
 cuidado por Margalida.  
 care by Margalida

<sup>20</sup>We will come back to the only remaining more contemporary example with a definite in (42-a).

‘The clothes, in an old wooden chest, were carefully folded up by Margalida.’

Just like the previous example, this one would nowadays be expressed by a verbal passive, whereas the adjectival passive feels infelicitous.

We interpreted such examples as archaic remnants of the verbal passive readings of Old Spanish *estar* + PP, for the following reasons. In Old Spanish *ser* + PP was used as a verbal as well as an adjectival passive, and the establishment of adjectival passives with *estar* + PP took place centuries later, between the 14th and 16th centuries (Bouzet, 1953; Mendeloff, 1964; Pountain, 1985). Furthermore, there is quantitative evidence that this change, and in particular the consolidation of *estar* + PP as the adjectival passive construction, was not concluded during these centuries, but that it continues into the 20th century (Marco and Marín, 2015).

The remaining potentially problematic cases include the proper name in (41-a), the pronoun in (41-b), the definite in (42-a), the numeral in (42-b), and 5 examples of strong indefinites, to be addressed below when we look at stative uses of eventive predicates.

- (41) a. [...] todo parece estar olvidado por Dios.  
           all seems be.LOC forgotten by God  
           ‘Everything seems to be godforsaken.’  
       b. Pero estos versos no están escritos por mí.  
           but these verses not are.LOC written by me  
           ‘But these verses are not written by me.’

We view both examples in (41) as fixed expressions. (41-a) is literally the expression used in Spanish for *godforsaken*, and thus should be treated on a par with well-established proper names (cf. §3.2) or even on a par with those definites that are unique qua world knowledge (in this case qua Christian belief) (cp. (36)). (41-b), in turn, is a common expression found with this particular combination of participle and *by*-phrase with a first person singular pronoun; similar expressions are *estar + dicho / firmado / aceptado por mí* ‘said / signed / accepted by me’; other participles sound odd in this combination.

Finally, let us turn to the examples in (42).

- (42) a. No está reconocida internacionalmente por la oposición de Grecia.  
           not is.LOC recognised internationally by the opposition of Greece  
           ‘He/she/it is not internationally recognised by the opposition of Greece.’  
       b. El pecho [...] estaba cruzado por dos líneas irregulares y  
           the chest was.LOC traversed by two lines irregular and  
           violáceas.  
           violet  
           ‘There were two irregular and violet lines running across the chest.’

Even though a verb like *reconocer* ‘recognise’ in (42-a) clearly has an achievement use (and therefore was classified as such), we believe that in this particular example it is rather used like a stative predicate. In particular, this example is not about a particular recognition, but rather about the status (i.e. state) of international recognition. The *by*-phrase is thus state- rather than event-related. The same observations apply to (42-b), as well as to the 5 examples of strong indefinites with event-related *by*-phrases, as

we will see in the following section, in which we will discuss stative uses of eventive predicates in more detail.

### Stative uses of eventive predicates

There is a class of predicates that have both stative and eventive uses, so-called extent predicates (see, e.g. Gawron, 2009; Koontz-Garboden, 2010); cf. (43).

- (43) a. The police surrounded the house. EVENTIVE USE  
 b. Trees surrounded the house. STATIVE USE

Under the eventive use in (43-a), there is an event taking place in time and space, at the temporal starting point of which the police are not located around the house, whereas at its temporal ending point they are. Under the stative use in (43-b), on the other hand, there is not an event taking place in time and space, rather a state is described, in which trees form an extended (nontemporal) path in space, located around the house. Clearly both uses involve a kind of scale, but only in the first case the scale is mapped onto the spatiotemporal domain (leading to an event reading), whereas in the second case, it is mapped onto the spatial domain only (leading to a state reading).

In our distinction between states and events we have counted all extent predicates as eventive, disregarding their stative use. (42-b) is one potentially problematic case we found in Study 2 in which an extent predicate combines with a *by*-phrase that contains a strongly referential noun phrase. That this is a stative use is evidenced by the fact that the active counterpart cannot be used in the progressive (44), which is generally assumed to require a non-stative input.

- (44) \**Dos líneas irregulares y violáceas están cruzando el pecho.*  
 two lines irregular and violet are.LOC crossing the chest  
 Intended: ‘Two irregular and violet lines are crossing the chest.’

Similarly, all 5 examples of strong indefinites in ‘event’-related *by*-phrases in Study 2 appear with statively used extent predicates, e.g. (45).

- (45) *Los cabellos grises estaban cubiertos en parte por una paoleta*  
 the hairs grey were.LOC covered in part by a neckerchief  
*oscura, a la que el tiempo y la grasa haban dado un tinte rojizo.*  
 dark to the that the time and the fat had given a touch reddish  
 ‘Her grey hair was partly covered by a dark neckerchief, which had obtained a reddish touch due to fat and the passing of time.’

Thus, these are not problematic examples for us, as they turn out to involve state-related *by*-phrases. Overall, then, there remain no event-related *by*-phrase with strongly referential nominals in our sample (of contemporary Spanish data).

### 3.5.3 Concluding remarks

In this section I summarised the results of a Spanish corpus data study that shows that event-related *by*-phrases in the two types of passives are qualitatively different with respect to the types of complements they take: With verbal passives we found more strongly referential nominals, whereas with adjectival passives, we only found weakly

or non-referential nominals. These differences comply with the overall account underlying this chapter, according to which the event in adjectival passives remains in the kind domain, restricting event modification to kind modification. Furthermore, the data show that there are no qualitative differences in the complements we find in state-related *by*-phrases of either passive, which have the same properties as those in event-related ones with verbal passives. We take this fact to support the claim that there are two different kinds of *by*-phrases with adjectival passives: Event-related ones which modify an event kind and PI into the participle before adjectivisation, and state-related ones which modify a state token (the AP).

### 3.6 Conclusion

In this chapter, I presented my previous work on the semantic composition of adjectival participles and the integration of event-related modification. I proposed that since adjectival participles involve the adjectivisation of verbal structure at a fairly low point, the event associated with the verbal predicate itself remains in the kind domain so that only the (consequent) state associated with this event can be instantiated in space and time. I furthermore argued that restrictions on event-related modification follow from general restrictions on event kind modification (deriving an event sub-kind) as well as from restrictions on pseudo-incorporation, which such modifiers have to undergo before adjectivisation takes place. State-related modifiers, on the other hand, can also apply after adjectivisation so that we do not find restrictions with these.

The account that pseudo-incorporated event-related modifiers have to derive a somewhat established event kind and can contain at most weakly referential nominals (unlike such modifiers of verbal participles or state-related modifiers of adjectival participles) makes the prediction that we should not find strongly referential nominals within such modifiers. In the second part of this chapter I presented the results of a corpus study into (Spanish) *by*-phrases with participles, which basically supported this prediction and the overall account underlying this chapter.

In the following we turn to the nominal domain, where we will discuss two types of adjectives that can modify event kinds, namely ethnic and frequency adjectives.

## CHAPTER 4

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### Event kinds in the nominal domain: Event-kind modifying adjectives

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#### 4.1 Introduction

There are a number of adjectives that have been analysed in terms of predicates or modifiers of kinds. For example, McNally and Boleda (2004) propose a kind analysis for so-called relational adjectives, such as *molecular*, *African*, *occasional*. In cases where these adjectives modify or predicate over event nominals, then, they can be analysed as applying to event kinds. In this chapter, I will present previous collaborative work that investigates two such adjectives, ethnic adjectives (e.g. *Indian*) and frequency adjectives (e.g. *occasional*). In both cases I will mainly focus on their application to event kinds that event nominals, which are often deverbal or morphologically related to verbs (e.g. *invention*), make available, even if the works discussed do not primarily focus on event kinds. Again, as I advocate in my main hypothesis underlying this document, we can assume that if there is no additional verbal functional structure inside such nominals responsible for instantiating the event, the event remains in the kind domain. An overarching theme of the work to be discussed is the analysis of particular adjectives as actual adjectival modifiers (or predicates), contra previous analyses that propose to treat them as nouns (ethnic adjectives) or determiners (i.e. quantifiers, as in the adverbial use of frequency adjectives).

#### 4.2 Ethnic adjectives

In Arsenijević et al. (2014),<sup>1</sup> we address the semantics of ethnic adjectives (EAs), such as *French*, which we take to be a subtype of relational adjectives (RAs) (following Bally, 1944; Levi, 1978; Bartning, 1980; Bosque, 1993, among others). EAs (and RAs in general) have been attributed two uses, the thematic and the classificatory use (1)

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<sup>1</sup>Large parts of this section are based on Arsenijević et al. (2014).

(Kayne, 1984; Bosque, 1993; Bosque and Picallo, 1996; Fábregas, 2007; Alexiadou and Stavrou, 2011, among others).

- |     |    |   |                |
|-----|----|---|----------------|
| (1) | a. | French agreement (to participate in the negotiations) | THEMATIC       |
|     | b. | French wine   | CLASSIFICATORY |

Under the thematic use, which is typical with nominalisations (1-a), the adjective describes a participant in the situation described by the verb underlying the nominalisation. Under the classificatory use (1-b), which is also found with nonderived nominals, the relation between the semantics of the adjective and that of the noun it modifies is less predictable, but in general the combination of adjective and noun describes a sub-kind of whatever type of thing the noun describes, much like kind modification in the nominal domain more generally (on which see the literature on nominal kinds, briefly discussed in chapters 1 and 2).

According to a prominent view EAs, at least under the thematic use, are nouns at some level of representation, and are proper arguments of the noun they modify (or even the verb underlying the nominalisation) (cf. Fábregas, 2007; Alexiadou and Stavrou, 2011). In Arsenijević et al. (2014), we instead argue for a unified semantics of the thematic and classificatory uses of EAs that treats them as proper adjectives, but nonetheless accounts for the phenomena that led to their analysis as nouns. In the following, I will outline our account, and I will come back to the discussion of the nominal/argument-saturating analysis and its problems afterwards.

### 4.2.1 The modifier analysis

Given that EAs are a subclass of relational adjectives, the semantics we propose in Arsenijević et al. (2014), as illustrated in (2) for the classificatory use of the respective EA, builds on the analyses of the semantics of relational adjectives proposed in Mezhevich (2002) and McNally and Boleda (2004).

- |     |    |  |
|-----|----|--|
| (2) | a. | $[[\text{wine}]]: \lambda x_k [\mathbf{wine}(x_k)]$  |
|     | b. | $[[\text{French}]]: \lambda P_k \lambda x_k [P_k(x_k) \wedge R(x_k, \mathbf{France})]$   |
|     | c. | $[[[_{NP} \text{French wine}]]]: \lambda x_k [\mathbf{wine}(x_k) \wedge R(x_k, \mathbf{France})]$  |
|     | d. | $[[\text{Num}^0]]: \lambda P_k \lambda y_o \exists x_k [P_k(x_k) \wedge \mathbf{R}(y_o, x_k)]$   |
|     | e. | $[[[_{NumP} [_{NP} \text{French wine}]]]]:$<br>$\lambda y_o \exists x_k [\mathbf{wine}(x_k) \wedge R(x_k, \mathbf{France}) \wedge \mathbf{R}(y, x_k)]$ |

We assume that, as a rule, common nouns can range not only over token entities but also over kinds of entities so that a noun like *wine* has the denotation in (2-a). EAs, such as *French* in (2-b), combine with descriptions of kinds and function as intersective modifiers of the kind description, as the classificatory use suggests more obviously, thereby introducing a contextually-determined relation *R* between the kind described by the nominal property ( $P_k$ ) and the nation associated with the EA; cf. (2-c). We furthermore assume that Number converts the resulting kind description into a description of the token individuals realising the kind, as in (2-d,e), with  $\mathbf{R}$  being the realisation relation, as in Carlson (1977).<sup>2</sup>

<sup>2</sup>Recall from §3 that I propose an analogous structure in the verbal domain for event kinds and their realisations. Crucially, the formalisation in (2) distinguishes between italic *R*, which abbreviates the relation

So far this analysis has only been illustrated for the classificatory use of EAs, as in *French wine*. Crucially, however, the representation for the thematic use, e.g. in *French discovery*, will be identical, with the only difference that now we take *discovery* to describe an eventuality type, that is, a subkind of event; cf. (3).<sup>3</sup>

$$(3) \quad \llbracket \text{French discovery} \rrbracket: \lambda y_o \exists x_k [\mathbf{discovery}(x_k) \wedge R(x_k, \mathbf{France}) \wedge \mathbf{R}(y, x_k)]$$

A basic advantage of this approach is that it treats EAs as proper adjectives and avoids the inelegant claim found in Alexiadou and Stavrou (2011), for instance, that they are lexically ambiguous between an adjective on the classificatory use, and a noun on the thematic use, as we will see in §4.2.3.

An initial problem for the extension of this proposal to the thematic use, however, is that there is no obvious account of why the EA under this use can only pick out those subkinds of events on which the nation (or representative individuals of it, see op.cit. for further details) bears an agent(-like) thematic role, something which approaches that treat thematic EAs as nouns straightforwardly capture. For example, nothing in (3) blocks France from being what is *discovered* but we only get the reading where France did the discovering. The solution we propose in Arsenijević et al. (2014) is that with EAs  $R$  expresses a relation of **Origin**.<sup>4</sup> In particular, then, we posit that origins can be attributed to kinds, including event kinds, and more crucially we consider the agent(-like) participant in an event as the origin of that event (kind) in question.

One reason we propose **Origin** in Arsenijević et al. (2014) is because EAs have an additional use as predicates of ordinary individuals, on which precisely what they attribute is origin; cf. (4).

$$(4) \quad \text{Guillem is French.}$$

We furthermore argue that the **Origin** relation is specifically associated with EAs and not with other RAs like e.g. *molecular*, for which potentially other more specified relations play a role. The semantics of EAs we adopt then is given in (5).

$$(5) \quad \begin{array}{l} \text{a. } \mathbf{French}(x) \text{ iff } \mathbf{Origin}(x, \mathbf{France}) \\ \text{b. } \mathbf{Origin}(x, y) \text{ iff } x \text{ comes into existence within the spatial domain of } y. \end{array}$$

As we point out, the semantics in (5) correctly predicts that e.g. (6) (out of context) is false despite the fact that Louise McNally has had a Spanish passport for many years.<sup>5</sup>

that is part of the semantics of every relational adjective, including EAs (which expresses a relation between  $x$  and the country or nominal that the adjective is related to), and boldface **R** as an abbreviation for the realisation relation between kinds into tokens.

<sup>3</sup>To make this even more obvious I could have replaced the variable  $x_k$  in (3) by  $e_k$ , but I will stick to the original formalisation in Arsenijević et al. (2014) here.

<sup>4</sup>See op.cit. for exceptions to this generalisation.

<sup>5</sup>However, it may need to be slightly weakened insofar as we have detected cases where the nationality predication is accepted even though the individual in question was not born in the nation in question, but may have moved there at an early age and thus is perceived as having come into existence in the nation in question.

Something we have not discussed and therefore not further worked out in Arsenijević et al. (2014) and Boleda et al. (2012) is that in a specific context, e.g. where something needs to be signed by someone with a Spanish passport, one could utter the sentence in (6), with some kind of contextual enrichment ‘Spanish by citizenship’ or the like. Thus, it might be necessary to make the **Origin** relation context-dependent or more generally integrate a context parameter into the formalisation. Alternatively, it could be that the concept related to **Spanish** is stretchable in a given context, to extend to these cases.

- (6) Louise McNally is Spanish.

Thus, the relation *R* is the source of the argument-saturating effect, as nothing in principle prevents it from corresponding to a thematic relation when the modified nominal describes a kind of eventuality. Since EAs do not denote entities, the analysis predicts their general failure to introduce discourse referents, and thus their failure to license discourse anaphora. Furthermore, we view **Origin** as a default value for *R* because other interpretations are possible when prior discourse makes it clear what that specific relation is between the country and the referent of the head noun. Finally, conceiving of the agent relation as a subcase of a default **Origin** value for *R* allows us to provide a unified account of both the basic semantics for the thematic and classificatory uses of EAs and the restrictions on the specific interpretations under these uses.

In the following section, I will make clearer what we had in mind proposing the **Origin** relation, which, to our knowledge, has not been dealt with in previous proposals, and why we think it is useful for the analysis of EAs.

#### 4.2.2 The Origin relation

As noted above, with EAs, we take the **Origin** relation to involve a kind; we take the origin of kinds to correspond to the origin of their first recognised instances. For example, the invention of a kind of object is supported by the invention of an instance of the kind. Since these instances have a specific origin, we can associate the kind with that origin as well.

In the case of the classificatory use, the kind in question must come into existence (or at least have been thought to come into existence) in the nation in question. For example, (7-a) is not acceptable as a description of a style created by a random Italian individual or even by a community of Italians e.g. in the US (note also the existence of e.g. *Italian-American*). A similar point is made by (7-b).

- (7) a. (painting/furniture/music in) the Italian style  
 b. The French press (was probably invented in France in the 1850s, but first patented by Italian designer Attilio Calimani in 1929)

Turning now to the thematic use, as noted, we assume that event nouns modified by EAs generally describe types of eventualities,<sup>6</sup> so the semantics we have proposed can apply. We take eventualities to have as their origins the individuals who immediately cause, initiate or control them; compare, for example, Pustejovsky's (1995) interpretation of the Agentive quale. This correctly predicts the existence not only of the typical agentive interpretations of EAs (8-a), but also certain non-agentive interpretations such as (8-b).

- (8) a. the Italian attack on Ethiopia  
 b. the British arrival on the American continent in the 17th century

Furthermore, the analysis yields interesting minimal pairs such as the one in (9), which shows that while EAs cannot bear a typical theme role, exceptions are possible pre-

<sup>6</sup>See also the comments in Grimshaw (1990) and van de Velde (2004).

cisely when the eventuality can be understood as under the control of or as caused by the theme.

- (9) a. ??the French disappearance from the list of nations that haven't approved the treaty  
b. the French disappearance from Upper Louisiana

In the case of nouns describing psychological states, the use of an EA to express an experiencer is possible when the state is not externally provoked, as happens with nouns with "target of emotion" arguments (10).

- (10) a. the Italian love for opera  
b. the American admiration of the French

A similar observation accounts for the contrast in (11) vs. (12).

- (11) a. American surprise at how close Saddam Hussein had gotten to the bomb before the first Gulf War  
b. American irritation with British imperialism in the Middle East  
(12) a. ??the American surprise at Pearl Harbor/by the enemy army  
b. ??American irritation by the neighboring regime

The EAs in (11) are felicitous because the emotion experienced is not externally provoked, as it is in (12).<sup>7</sup> To express the intended meanings in (12), a DP referring to the nation in question in an *of*-phrase or a genitive has to be used (13).

- (13) a. the surprise of the Americans at Pearl Harbor/by the Japanese  
b. the irritation of the American government by the neighboring regime

A final, important point to note is that **Origin** is not the same as Source. For example, (14) is difficult to interpret as e.g. individuals of possibly diverse nationalities who embarked on a plane in France (at least out of context).<sup>8</sup>

- (14) the French passengers

Furthermore, our analysis, which is based on the notion of kinds, correctly predicts the contrast in (15) vs. (16), which is not accounted for by the previous analyses.

- (15) a. George Washington was the father of America. ≠  
b. George Washington was the American father.

<sup>7</sup>A generalisation we can draw from these data, which is not discussed in Arsenijević et al. (2014), however, is that thematic EAs can be thought to relate to the experiencer with subject experiencer verbs, as those in (10), and with non-agentive object experiencer verbs, as those in (11). This is not possible with agentively used object experiencer verbs, however, such as those in (12); it has more generally been shown that agentively used object experiencer verbs lose typical properties of experiencer predicates and rather behave like canonical transitive agentive predicates (see Gehrke and Marco, 2015, and literature cited therein for further discussion).

<sup>8</sup>Again, something we did not work out in our previous work is that in the right context, e.g. where the previous discourse established that there are passengers that arrived from France and passengers that arrived from, say, Germany, one could in the ongoing discourse continue to talk about the former as the 'French passengers', where *French* seems to function discourse-anaphorically (see also the discussion around example (18)). How exactly this could be fleshed out in an analysis, however, is a topic for future research.

- (16) a. George Washington was a president of America. =  
 b. George Washington was an American president.

The expression *American father* in (15-b) requires a kind of fathers originating in America. Many such kinds can be defined, e.g. fathers living in America, fathers born in America, fathers that are being fathers in an American way, and all such interpretations are available for (15-b). However, one relevant kind is not among them: the kind of fathers of America. No such kind exists because the father-offspring relation specifies a unique father for a specific offspring. Thus, the equivalence in (15) does not obtain.

*American president* in (16-b) similarly requires a kind of president originating in America. Again, depending on the context, it is possible to define a number of such kinds, e.g. presidents of any organisation in America, or presidents who act in a way that originates from America. In contrast to (15), however, one possible kind is also the kind of presidents of America, as this kind has multiple (if temporally distinct) instances. This difference between *father of America* and *president of America* is also at the base of the difference in the article use between (15-b) and (16-b).

Finally, we have alluded to the fact that one can use an EA with a relatively free interpretation for the specific relation between the nation and referent of the head noun when prior text makes it clear what that specific relation is. If that condition is not met, the EA is difficult to accept, as in the oddness of (17-a) out of context to describe a visit to Canada; instead a PP has to be used, as in (17-b).

- (17) a. Yeltsin met the prospective Democratic presidential candidate Bill Clinton on June 18. His itinerary also included ??**an official Canadian visit**.  
 ≠  
 b. Yeltsin met the prospective Democratic presidential candidate Bill Clinton on June 18. His itinerary also included **an official visit to Canada**.  
 (BNC)

Purely discourse anaphoric uses of EAs are particularly acceptable when they help distinguish one particular referent from others in the context that could also be described by the same head noun, as in (18), which comes at the end of a long text that makes it clear that South Africa was defeated.

- (18) This is not the story of a South African defeat. It is the story of an Angolan defeat...  
 (<http://www.rhodesia.nl/barber.htm>)

In principle, there are two possible approaches to such examples. One holds that the **Origin** here is the ‘kind of N that was mentioned’, with discourse as a spatial metaphor. Alternatively, the EA could be taken to be effectively equivalent to an anaphoric demonstrative and is not interpreted as a modifier.

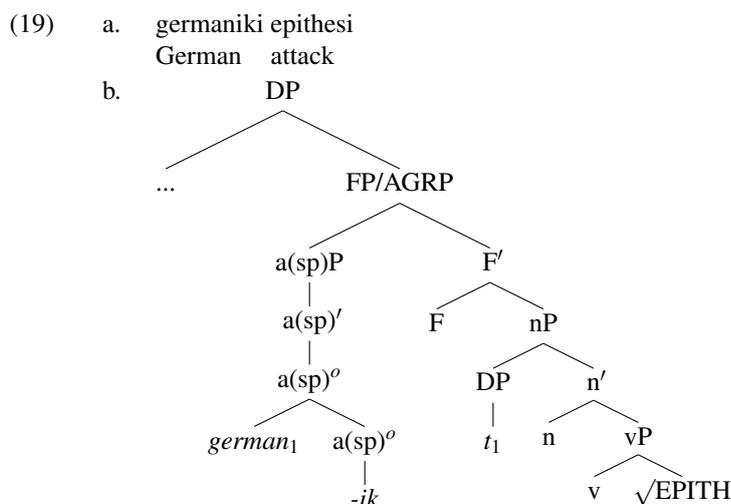
To conclude, we take relational adjectives in general to specify a relation between the element they are derived from and the element they modify, and we furthermore proposed to specify the relation in ethnic adjectives as one of **Origin**; with different classes of RAs other relations could be specified, but this has to be left for future research. Effectively, however, our analysis treating EAs as adjectival modifiers paired with the proposal of the **Origin** relation at play accounts for their argument-like be-

haviour without treating the EA itself as a noun, unlike previous analyses to which I turn now.

### 4.2.3 The nominal/argument-saturating analysis and its problems

In this section, I will sketch the main features of the argument-saturating analysis, as discussed in Arsenijević et al. (2014). For reasons of space, I only discuss Alexiadou and Stavrou (2011) (A&S), but the overall comments should generalise to other analyses that preserve the key features of such an analysis. A&S, working in the framework of Distributed Morphology (Halle and Marantz, 1993), treat thematic(ally-used) EAs as covert nominals whose nominal source is visible at the level of interpretation. In contrast, classifier(il)y (used) EAs are viewed as proper, ‘deep’ adjectives which are merely homophonous to thematic ones. Since their article focuses on the thematic use, no full account is provided for classificatory EAs.

Thematic EAs are argued to bear the agent thematic role assigned to them by the (deverbal) noun they modify but to lack case. Since every noun needs case, these nouns are assumed to be deficient and to become adjectives in the course of the syntactic derivation. The analysis of a (Greek) example of theirs is shown in (19).



*German-* starts out as a DP in the specifier of the noun phrase *epithesi* ‘attack’, represented in (19-b) via the root  $\sqrt{\text{EPITH}}$ .<sup>9</sup> In this position, *german-* is necessarily assigned the agent theta role by the underlying verb, on analogy to genitive DPs, which are also generated in this position. Since *german-* is not valued for case, it is forced to move up and to adjoin as a head to *a(sp)*, the head of an adjectival projection that generally occupies the specifier position of a functional category between D and N, where it is spelled out as an adjective. On this account, both thematic EAs and genitive DPs (e.g. *the Germans’ (attack)*) or PPs (e.g. *(the attack) of the Germans*) are base-generated in the same position, hence their relation to the nominal they combine with is the same, namely they saturate the agent argument of the nominal.

<sup>9</sup>Presumably, the nominalising suffix *-esi* sits in *n*; these details are left out in A&S.

One argument put forward in favour of nominal approaches to EAs is the fact that they do not behave like typical adjectives in some respects. For example, EAs cannot be used predicatively (20-a), are not gradable (20-b) and cannot be coordinated with ‘normal’ adjectives (20-c), but only with other EAs (20-d) (examples from A&S).

- (20) a. \*The intervention in Cyprus was American.  
 b. \*the very / more American invasion  
 c. \*the immediate / quick / possible and American intervention  
 d. the Italian and French intervention

However, as we argue in Arsenijević et al. (2014) we do not think that this warrants a nominal analysis of EAs.<sup>10</sup> In particular, under our account, the nonpredicative behavior of these adjectives is predicted to be similar to that of relational adjectives in general. McNally and Boleda (2004) argue that RAs have predicative uses just in case the nominal the RA is predicated of describes a kind; (21) is one such example with a thematically-interpreted EA.

- (21) A senior government official explained that because the military deployment was primarily American, “it should be paid for by one nation.”  
 ([http://belfercenter.ksg.harvard.edu/experts/393/kerry\\_abelson.html?groupby=1&page=1&hide=1&id=393&back\\_url=%2Fexperts2F&back\\_text=Back+to+list+of+experts](http://belfercenter.ksg.harvard.edu/experts/393/kerry_abelson.html?groupby=1&page=1&hide=1&id=393&back_url=%2Fexperts2F&back_text=Back+to+list+of+experts))

The apparent nongradability of EAs follows from the **Origin** relation not being gradable except to some extent on the dimension determined by the part structure of the argument. When the part structure does support gradability, the EA can be graded; see e.g. (22).

- (22) a. Jangle Pop was a mostly American post-punk movement of the mid-’80s...  
 (<http://blogcritics.org/music/article/sunday-morning-playlist-jangle-pop/>)  
 b. Their agreement specified partially British and partially international control of Palestine...  
 (<http://www.pbs.org/wnet/wideangle/shows/suicide/timeline2.html>)

Finally, the failure of EAs to coordinate freely is explained in part by sort-theoretic considerations.<sup>11</sup>

A serious problem for the nominal account is that the EA does not behave like a typical noun, either. Already Postal (1969) noted that EAs are ‘anaphoric islands’: the alleged nominal underlying the EA does not license anaphora (23-a), in contrast to the

<sup>10</sup>Something we did not discuss in Arsenijević et al. (2014) and Boleda et al. (2012) is that EAs can be gradable, not along a degree scale but along a prototypicality scale, e.g. when we say that someone is *very French* or *more French* than someone else. Also nouns can be gradable along a prototypicality scale (see, e.g., Constantinescu 2011, for such an analysis, and Morzycki 2012b for an alternative degree-based account); crucially, however, gradation cannot directly apply to the N but extra material has to be inserted: *much/more of an idiot*.

<sup>11</sup>In the following section dealing with frequency adjectives we see that under one particular reading to be discussed there, the adverbial reading, these adjectives show similar ‘unadjectival’ behaviour and similar explanations for this behaviour hold for them as well.

related nominal in (23-b).

- (23) a. \*The American<sub>i</sub> proposal to the UN reveals its<sub>i</sub>/her<sub>i</sub> rigid position.  
 b. America<sub>i</sub>'s proposal to the UN reveals its<sub>i</sub>/her<sub>i</sub> rigid position.

This fact is also acknowledged by A&S, and they provide further examples that show the failure of EAs to bind reflexives (24-a), antecede personal pronouns (24-b), or control a relative pronoun (24-c).

- (24) a. The Albanian destruction (\*of itself) grieved the expatriot community.  
 b. ??I amerikaniki epemvasi sto Kosovo tus  
 the American interference to Kosovo them (the Americans)  
 eksethese diethnos.  
 exposed internationally  
 Intended reading: 'The American interference in Kosovo exposed them internationally.'  
 c. \*Oli katadikasan tin Amerikaniki epithesi sti Servia, i opii  
 all condemned the American attack to-the Serbia the who  
 fisika exun parelthon se tejes energies.  
 of course have past in such acts  
 Intended reading: 'Everybody condemned the American attack to Serbia, who, of course, have a precedent of such activities.'

To account for these facts, A&S argue that the status of EAs as anaphoric islands follows from the fact that the underlying noun is morphologically deficient, which results in it becoming an adjective in the course of the derivation. They stipulate that the resulting 'adjective' is deprived of typical nominal anaphoric properties, and that anaphoric rules are sensitive to surface structure configurations only, even though for argument-saturation purposes the nominal nature of EAs is still visible. In contrast, our proposal, which treats EAs as adjectives to begin with, directly accounts for their failure to enter into binding/anaphora relations.

As we note in Arsenijević et al. (2014), one prediction that any nominal account of EAs makes is that an expression like *French agreement* in (1-a) should be equivalent in a strict sense to (at least some of) the examples in (25).

- (25) a. agreement of France (to participate in the negotiations)  
 b. France's agreement (to participate in the negotiations)  
 c. agreement by France (to participate in the negotiations)

While intuitively, we can, in some cases, replace the examples in (25) with *French agreement (to participate in the negotiations)*, this is not possible in all contexts (in this sense they are not equivalent in a strict sense) and thus there must be some difference between the two; we will see in §4.2.4 that corpus data point in this direction as well, since their distribution is different and in some cases it is just impossible to replace the PP with an EA (cf. Boleda et al., 2012).

Given these observations, the nominal account of EAs raises several questions which our account has direct answers to. First, how can EAs contribute arguments, given that adjectives in general do not function as arguments? Our answer is that EAs are not proper arguments: the argument-like interpretation arises when EAs modify

event nominals as a result of the interaction between the semantics of the adjective and that of the noun. Second, why do thematic EAs systematically have a homophonous classificatory EA counterpart? And related to this, what is the relationship between the two uses of EAs? On A&S's account this is just accidental homophony (but see Fábregas, 2007, for a uniform nominal account). Under our proposal, the two uses derive from a single lexical entry. The common semantic analysis involving an **Origin** relation accounts for both readings.

The third question, which is maybe the most crucial one, concerns the reason why languages like English have these different constructions to express exactly the same semantic relation? Under our account, the answer is that EAs are in fact not semantically identical to their nominal counterparts. In Boleda et al. (2012), we provide further evidence for the modifier and against the argument-saturating analysis from a large-scale, statistical corpus data analysis. I will present this study in §4.2.4.

Finally, non-agentive uses of thEAs of the type we discussed in §4.2.2 are also problematic for A&S's analysis. One way out for them could be to project a *vP* on top of the unaccusative verb and move the EA to receive an agent role associated with the *vP*. However, there are several problems for this solution. A perhaps minor one is that it would require assigning more than one thematic role per argument. A more serious problem is that it remains unclear why *vP* can project if the structure is going to be nominalised, but not if it is realised as a full-fledged verb phrase, projecting TP and CP. In particular, why is (26) grammatical, whereas (27) is not?

- (26) a. French disappearance from Upper Louisiana  
 b. [[French]<sub>i</sub> [<sub>nP</sub> -ance [<sub>vP</sub> [French]<sub>i</sub> disappear<sub>j</sub> [<sub>vP</sub> [French]<sub>i</sub> disappear<sub>j</sub> [<sub>PP</sub> from Upper Louisiana]]]]]]
- (27) a. \*John disappeared Mary.  
 b. [<sub>vP</sub> John disappear<sub>i</sub> [<sub>vP</sub> Mary disappear<sub>i</sub>]]

Hence, without further explanation, these data remain a serious problem for accounts on which EAs are argued to be restricted to agentive interpretations. In contrast, on the analysis defended here, these facts are not a problem, since we do not abandon the view that *disappear* assigns a theme role; it is simply the case that if the theme somehow controls or initiates the situation in question, the use of an EA will be possible.

In the following section, I will summarise the results of a large-scale corpus study (Boleda et al., 2012) that aimed at providing quantitative support in favour of the modifier analysis over the argument-saturating analysis.

#### 4.2.4 Quantitative support for the modifier analysis

In Boleda et al. (2012), we explored different predictions of the modifier and the argument-saturating analysis.<sup>12</sup> In particular, we looked at the following three contrasting predictions of the two analyses that could be translated into features that could be automatically extracted from a corpus containing only morphosyntactic annotation.

<sup>12</sup>This section is based on Boleda et al. (2012).

### Predictions

**Prediction 1.** The argument-saturating analysis predicts the distribution of EAs vs. PPs to be roughly the same with event nominals, all other things being equal, given that both are treated as nominals that saturate an argument of the noun they modify. In contrast, the modifier analysis predicts event nominals to combine less often with EAs because when the event nominal has argument structure that must be saturated (i.e. is complex in the sense of Grimshaw, 1990), the EA will not be able to do the job, and thus a PP will be required.

**Prediction 2.** Since, in nondefault cases, the modifier analysis relies on context to supply the identity of the relation between the referent of the head nominal and the country, this analysis predicts the distribution of EAs to be more restricted than that of PPs, as the latter make the relation explicit via the preposition, not relying on context in the same way (recall examples like (17)). Specifically, EAs should occur only when the relevant relation is default or entailed by prior context. In contrast, the argument-saturating analysis predicts, all things being equal, no sensitivity to context in the distribution of EAs vs. PPs.

**Prediction 3.** A third difference in prediction is specific to analyses such as Arsenijević et al.'s (2014) that treat the EA as a modifier of kind descriptions as opposed to token descriptions. A modifier of kind descriptions produces a description of subkinds of the modified kind description. For example, *French bread* and *Italian bread* describe subkinds of bread. We assume that there must be nontrivial criteria that motivate the use of a subkind: a certain number of recognisable instances, an “act of baptism”, a recognisable property that characterises the subkind in contrast to other subkinds, etc. We therefore expect the use of EAs to be concentrated in a comparatively smaller number of nouns than the PPs, i.e. those that meet these criteria, rather than being thinly and evenly distributed across all nouns, as would be expected if the EA could denote a modifier of any token individual description. On the other hand, though we see no reason in principle for PPs whose DP complements denote token individuals to be prohibited from serving as a modifier of kind descriptions, we also see no reason for them not to be used as complements or modifiers to descriptions of token entities. The argument-saturating analysis, again all things being equal, does not predict this asymmetric distribution, as it does not provide any basis to distinguish EAs and PPs in terms of the sorts of descriptions they can combine with.

In a previous study on the British National Corpus that did not employ a statistical model (Berndt et al., 2011), we found that this prediction was in fact borne out and that the effect was even more pronounced with EAs with a low frequency and with event nominals. From this we concluded that use of the EA positively correlates with concept stability, i.e. the degree to which the full noun phrase describes a well-established subkind of (abstract or concrete) entities. We posited 1) that stable subkinds describable with EAs are unlikely to be formed for events (e.g. we do not classify agreements according to who makes them) and 2) that fewer stable concepts are formed for those countries we talk about less. However, as will be discussed below, with the statistical model we obtain different results, so this is a parameter that needs further exploration.

These different predictions grounded our decisions about which features in the corpus to include in the statistical analysis. For Prediction 1, the feature was whether the noun was an event nominal or not. For Prediction 2, since our corpus lacks any semantic annotation, we approximated prior contextual entailment of the value for *R*

with features that correlate with prior mention of the relation: the definiteness of the DP containing the target EA/PP and prior mention of the EA, the head noun, and the corresponding country noun. We also could not test Prediction 3 directly because it is sensitive to the number of *types* of lemmata, and our model operates on the *token* level. To approximate type frequency, we chose the frequency of the head noun as a factor, on the hypothesis that well-established concept descriptions will tend to be formed with nouns of a higher frequency, and thus that EAs will occur more often with these nouns than with low frequency nouns, once possible collocational relations between the EA and the head noun as well as effects due to variation in the overall token distribution of the EA vs. the corresponding country noun are controlled for. We will see, however, that this hypothesis turned out to be incorrect.

### Method

We conducted a study on the British National Corpus (BNC)<sup>13</sup> in order to determine the factors influencing the choice between an EA and a PP, for a sample of 44 different countries whose adjective (e.g., *French*) and proper noun (*France*) forms occur between 1,000 and 30,000 times in the BNC.<sup>14</sup> We tested the predictions outlined in the previous section by defining *features* that could be automatically extracted from a corpus (by running computer programmes on the information contained in the BNC) and tested as *factors* in a statistical model. For instance, to test for definiteness of the NP containing the EA or PP (for Prediction 2), we searched for the words *the*, *this*, *that*, *these*, and *those*, followed by at most 4 (for EAs) or 5 (for PPs) arbitrary words excluding verbs, nouns, prepositions, pronouns, determiners, subordinating conjunctions, and punctuation (but optionally allowing for a comma after each adjective) preceding the relevant EA or PP. This type of approach is noisy and the information thus gathered is just an approximation of the real syntactico-semantic information that we want to model. However, it has the advantage that it can be applied on a large scale and that it can be refined and extended with very little effort, so that very different types of information can be explicitly coded and tested.

Our model contained information for the 74,094 occurrences of the relevant adjectives and prepositional phrases (*target expressions* from now on) found in the BNC. These data were analysed with a logistic regression model (Harrell, 2001), which predicts the probability of an adjective realisation based on the specified factors and their interactions.<sup>15</sup> For model fitting and analysis, we use the R package *rms* (Harrell, 2011). Our best model used 9 factors, which are listed below and grouped according to the theoretical predictions they are connected to.

**Prediction 1: tco1:** the semantic sort of the head noun, according to the Top Concept Ontology resource (TCO, Álvez et al., 2008). This resource restructures the noun hierarchy in WordNet 1.6<sup>16</sup> into a coarse-grained ontology. We only

<sup>13</sup><http://www.natcorp.ox.ac.uk>.

<sup>14</sup>The prepositions considered in this study (all those occurring at least 100 times with the tested countries) are the following, ordered by decreasing frequency: *in*, *of*, *to*, *with*, *from*, *against*, *for*, *between*, *on*, *by*, *into*, *over*, *like*, *about*.

<sup>15</sup>See Harrell (2001) for a detailed introduction to logistic regression, or Baayen (2008, §6.3.1) for practical examples of its application in linguistics.

<sup>16</sup>A lexical semantic resource for English, see <http://wordnet.princeton.edu/>.

used the highest level of the TCO concept hierarchy, which divides the nominal domain into, roughly, object, event, and abstract nouns.

**Prediction 2:** **definite:** the definiteness of the NP containing the target expression, defined as explained above; **recent-mod:** distance, in number of words, to the last mention of the target expression in the same discourse, rescaled as a “decaying activation”  $10/(9 + distance)$ , or 0 if no previous mention is found; **last-mod-equiv:** whether the previous mention is of the same form (adjective or noun) as the target expression; **recent-head:** same as *recent-mod*, but for the head noun and rescaled as  $1/distance$ .<sup>17</sup>

**Prediction 3:** **collocAN:** the collocational strength between head noun and EA, measured by a conservative estimate of pointwise mutual information<sup>18</sup>; **nhead:** total frequency of the head noun (log-transformed); **ntotal:** total frequency of the target expression (both adjective and noun form, log-transformed); **log-odds-ea-country:** ratio between the frequencies of adjective and noun forms of the target expression in the corpus (log-transformed).

### Results and discussion

From a logistic regression analysis, two basic insights can be gained: (i) which factors or combinations of factors (“interactions”) play a significant role in the choice between EA and PP; and (ii) for each significant factor, to what extent and in which manner it increases or decreases the likelihood of an adjective realisation (the “partial effect” of the factor).

Prediction	Factor	Chi-Square	d.f.	P
<b>1</b>	tcol	2507.40	2	<.0001
	definite	42.19	1	<.0001
<b>2</b>	recent-mod	658.74	1	<.0001
	last-mod-equiv	46.39	1	<.0001
	recent-head	20.76	1	<.0001
<b>3</b>	collocAN	14.30	1	0.0002
	nhead	648.24	1	<.0001
	ntotal	8.37	1	0.0038
	log-odds-ea-country	1230.93	1	<.0001
	TOTAL	5598.08	10	<.0001

Table 4.1: Logistic Regression Model: Results of an ANOVA test on the model (Wald Statistics, response: EA). Data distribution: EAs: 51,946 datapoints (70%), nouns (PPs): 22,148 datapoints.

Following Harrell (2001, ch. 10), we tested the significance of factors and interactions by analysis of variance based on the asymptotic standard errors of coefficient

<sup>17</sup>The different scaling formulae for *recent-mod* and *recent-head* were found by manual experimentation and resulted in a better fit of the logistic regression model.

<sup>18</sup>This measure compares the observed number of co-occurrences of two words against their expected number of co-occurrences assuming independence; see Johnson (2001) and Evert (2004, p. 86ff.) for details.

estimates (so-called Wald statistics). Table 4.1 shows highly significant effects for all 9 predictive factors included in the model, lending initial support to the modifier analysis. There is no clear evidence for an interaction between the factors: most interaction terms are not significant or only weakly significant (not shown in the table). Considering the large sample size, we feel that inclusion of such interactions in the model is not justified at this point.

Let us then turn to Figure 4.1, which displays a graphical representation of the partial effect of each factor on the likelihood of an adjective realisation. In the log odds scale, a value of 0 corresponds to equal likelihood of adjective and noun; positive values indicate that an EA is more probable than a PP. The baseline adjective likelihood of 70% corresponds to a log odds slightly below 1. For example, the middle left panel shows that speakers are more likely to use an adjective with low-frequency head nouns. The same holds if there was a prior mention of the target expression in the same discourse (top center panel). Prior mention of the head noun has an opposite effect (top left panel), but the shaded confidence band around the line indicates considerable uncertainty.

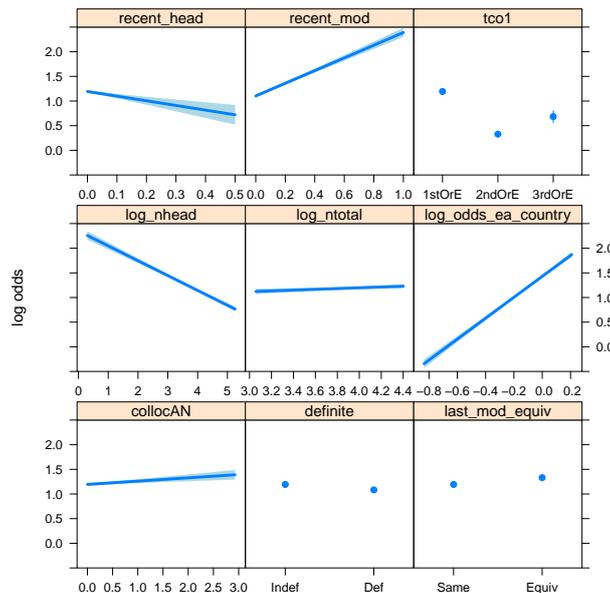


Figure 4.1: Logistic Regression Model: graphical representation of the effect of each factor.

From these results we conclude the following. Prediction 1 is borne out, as event-denoting nouns strongly disprefer EAs: In the top right panel of Figure 4.1, adjective likelihood is considerably lower for 2nd Order Entities (the TCO equivalent of event-related nouns) than for 1st Order Entities (object-denoting nouns in the TCO). This is also the most significant effect in Table 4.1. The results also support Prediction 2, as (a) NPs with definite determiners (bottom center panel in Figure 4.1) have a slight preference for PPs, (b) a recent mention of the target expression (modifier) favors the

use of an EA (top center panel), and (c) a prior mention of the head noun is associated with a PP rather than EA realisation (top left panel).<sup>19</sup>

However, the results do not support Prediction 3, as (a) the collocational strength between the EA and head noun has only a very small effect (bottom left panel), (b) frequent head nouns typically prefer the PP realisation rather than the EA (contrary to what we expect based on a modifier analysis; middle left panel), and (c) the overall frequency of the target expression has virtually no effect (whereas we expected more familiar countries to combine more readily with EAs than infrequent countries; middle center panel). However, manual inspection of the corpus data revealed that many of the apparent counterexamples to Prediction 3 involve descriptions of unique individuals (e.g., *Gulf of Mexico*), which have been predicted to resist EAs (Arsenijević et al., 2014). Further examination of these data may thus lead to better results. Finally, lexical effects also seem to play an important role, as the overall corpus ratio of adjective/noun expressions has a very large effect on the EA likelihood (middle right panel).

The goodness-of-fit of the logistic regression model is not quite satisfactory yet, with a Nagelkerke  $R^2$  of 11.5% and  $c$  index of 67.5% indicating low discriminative power (Harrell, 2001, p. 247).<sup>20</sup> As explained in the previous section, all the data used in this study were automatically obtained, a method that, for semantic analysis in particular, adds noise to the data set insofar as the factors are sometimes imperfectly correlated with meaning. Moreover, we are testing the effect of only 9 factors for more than 74,000 tokens. As the choice between EA and PP is a multi-faceted and intricate problem, we expect that adding more factors will improve the predictive power of the model. Potential candidates for a follow-up study are posterior mention of the EA/country noun (as discourse topichood of the country may be a factor) and the presence of other modifiers in the target NP (since syntax allows only one EA per noun phrase).

## Conclusions

In this section I presented statistical support for our account of ethnic adjectives as modifiers, as opposed to saturators. In particular, we tested three predictions of the modifier analysis on automatically extracted data for over 70,000 phrases and showed support for two of them; however, the statistical model is still not predictive enough, but there are different ways in which the model can be enhanced in the future. Given that automatically extracted information is noisy, another enhancement could be to build a supplementary statistical model on a much smaller, manually annotated set of data points. The annotation would then include information that cannot be automatically extracted and that has been found to be relevant in the analysis of the results, e.g., whether the NP denotes a unique entity.

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<sup>19</sup>It has to be noted that (a) and (c) are relatively small effects despite their high significance, so they do not provide strong evidence for either analysis.

<sup>20</sup>The  $c$  index shows how well the model can discriminate between an example of an EA realisation and an example of a PP realisation, with a value of 0.5 corresponding to random guesses.

### 4.2.5 Concluding remarks

This section summarised Arsenijević et al. (2014), in which we proposed a uniform account of the thematic and the classificatory uses of ethnic adjectives treating them as proper adjectives that modify (nominal or verbal) kinds, as well as Boleda et al. (2012), in which we provided quantitative support for this account. More generally, we argued that the proposed analysis of EAs as a subclass of relational adjectives lends support to the analysis of those adjectives defended in McNally and Boleda (2004), and raises the possibility that other interesting subclasses of relational adjectives might be identified that would differ from EAs only in the specific sort of relation that they encode as an alternative to **Origin**.

In the next section, I will turn to another class of adjectives, so-called frequency adjectives, which, at least under one reading, have also previously been treated not as adjectival modifiers, but in this case as determiners, based on some traits that are not typical of run-of-the-mill adjectival modifiers. In Gehrke and McNally (2011, 2014, 2015), however, we show that a modifier analysis is tenable if some additional assumptions are made, to which we will turn now.

## 4.3 Frequency adjectives

In this section, I address the semantics of frequency adjectives (FAs; e.g. *daily*, *frequent*, *occasional*, *rare*), in particular in relation to event kinds.<sup>21</sup> FAs intuitively express that the entity they modify or predicate over is distributed in a particular way, usually over some stretch of time (but see below and in particular the examples in (29)). FAs have been attributed three different readings, the internal (28-a), the generic (28-b), and the adverbial reading (28-c), commonly identified by paraphrase (see also Stump, 1981; Zimmermann, 2003).

- (28) a. Mary is a frequent swimmer.  
 ~ Mary is someone who swims frequently.  
 b. A daily glass of wine is good for you.  
 ~ Having a glass of wine on a daily basis is good for you.  
 c. The occasional sailor strolled by.  
 ~ Occasionally, a sailor strolled by.

Schäfer (2007) proposes a uniform account of these three readings, under which the information about frequency in the lexical semantics of these adjectives is calculated as realisation probabilities of event kinds. This idea is taken up and further elaborated on by Gehrke and McNally (2011, 2014, 2015).

Unlike all previous studies of FAs, Gehrke and McNally (2015) (and also Gehrke and McNally, 2014) make an additional distinction between temporal(ly distributing) FAs, such as *daily*, *frequent*, *sporadic*, and non-temporal(ly distributing) ones, such as *rare*, *odd*<sup>22</sup>, which also allow distribution in some non-temporal domain (commonly space); we furthermore take *occasional* to be the only FA that can be used both temporally and non-temporally. This contrast is illustrated in the examples in (29), which

<sup>21</sup>Large parts of this section are based on Gehrke and McNally (2015).

<sup>22</sup>All following observations hold for *odd* only under its FA reading, not under its more common reading 'weird, strange'.

involve distribution over a spatial domain with non-temporal FAs, as opposed to (30), which shows that such non-temporal distribution is not possible with temporal FAs.

- (29) a. **The occasional sailor** is six feet tall. (ex. inspired by Stump, 1981)  
 b. In the middle of all this life is a featureless landscape: **the occasional two-or three-story apartment building**, put up in the twenties, when it was thought that people in this city would wish to live in apartments; a glimpse of commerce – **the odd office, barbershop, or Vietnamese strip mall**; some abandoned developments. (ex. from the COCA)
- (30) ??a glimpse of commerce – **the weekly / frequent / infrequent / periodic / sporadic office, barbershop, or Vietnamese strip mall ...**

This distinction is based on further empirical generalisations, namely that temporal FAs are sortally restricted to apply to events (event kinds or pluralities of event tokens) (cf. the oddness of the FA-modified sortal nouns in (30)),<sup>23</sup> can be used both as modifiers and as predicates (31-a) and require indefinites for the generic and adverbial reading (31-b).

- (31) a. The check-up was weekly / infrequent / frequent / periodic / sporadic.  
 b. **A(n) / ??The** weekly / infrequent / frequent / periodic / sporadic check-up is necessary.

Non-temporal FAs are not sortally restricted as such, i.e. they can also apply to sortal nouns (cf. (29-b)). In addition, they can only apply to kinds (of events or individuals), can only appear as modifiers (of predicates of kinds) but not as predicates (32-a) and require the definite article for the generic and adverbial reading (32-b).

- (32) a. ??The mosquito was occasional / odd.  
 b. He might point out **the** [ / ??an] odd bird or tell us the name of a plant, but these park excursions were not botanical treks.  
 (ex. from the COCA)

Since this distinction is not crucial for the current purposes, the following section will mainly be concerned with the account of temporal FAs applying to event kinds (as modifiers or as predicates); see op.cit. for the complete picture, and Gehrke (to appearb) for a general overview of multiple event readings and occasional-type adjectives.

### 4.3.1 The account

In Gehrke and McNally (2015) (G&McN) we take nouns to denote properties of kinds, as represented in (33-a), building on Zamparelli's (1995) implementation of reference to kinds vs. tokens via a 'layered' DP, which we already briefly discussed in the previous section on ethnic adjectives. These can be converted via inflectional morphology,

<sup>23</sup> In some cases, in particular under the generic reading, sortal nouns can be coerced into events, e.g. in (28-b); however, such event coercion is available only in some cases, seemingly when coercion has also been observed with such nouns in other constructions (as in, e.g., *finish the wine ~ finish drinking the wine*). For more on such cases of event coercion, see op.cit. and Schäfer (2007) and Gehrke and McNally (2014).

which is introduced in (33-b) by a syntactic Num(ber) projection, into properties of token entities (see e.g. Farkas and de Swart, 2003; McNally and Boleda, 2004; Déprez, 2005; Espinal, 2010; Mueller-Reichau, 2011, and references cited there for related proposals).

- (33) a.  $\llbracket [_{NP}[_{N}car]] \rrbracket: \lambda x_k [\mathbf{car}(x_k)]$   
 b.  $\llbracket [_{NumP}[_{NP}car]] \rrbracket: \lambda y \exists x_k [\mathbf{car}(x_k) \wedge \mathbf{R}(y, x_k)]$

Existential closure binds off the kind variable in the representation of the noun in (33). Thus, the numberless noun *car* denotes the set of all kinds of cars (station wagons, sedans, etc.), the (phonologically identical) singular NumP *car* denotes the set of atomic tokens that realise some car kind, and the plural NumP *cars* denotes the set of token pluralities of some car kind.

By analogy, we assume that verbs start out as predicates of (event) kinds or relations between event kinds and (kind or token) individuals (subscripted as  $\alpha$ ) (34), which can be turned into predicates of event tokens in composition with functional morphology (cf. chapter 3 for further elaboration).

- (34)  $\llbracket \text{strolled by} \rrbracket: \lambda x_\alpha \lambda e_k [\mathbf{strolled\_by}(e_k, x_\alpha)]$

In addition to the by now familiar assumption that declarative sentences can also be used to make assertions about event kinds, we already proposed in Gehrke and McNally (2011) that kinds can be realised not only by single tokens, as has been the case in the previous empirical domains discussed, but also by sets of tokens, as in the case of FAs. FAs are assumed to impose particular conditions on the distribution of these sets of tokens at a given index. In particular, in G&McN we propose that temporal FAs denote properties of event kinds or of pluralities of event tokens (35).

- (35)  $\llbracket \mathbf{FA}_{temp} \rrbracket: \lambda e_\alpha [\mathbf{FA}_{temp}(e_\alpha)]$

In the following, I will mostly be concerned with cases where the FA applies to event kinds. The satisfaction condition we assume for temporals FAs in this case is given in (36).

- (36)  $\forall e_k, i [\mathbf{FA}_{temp}(e_k) \text{ at } i \leftrightarrow \mathbf{distribution}(\{e : \mathbf{R}(e, e_k) \text{ at } i\}) = dist]$

According to (36), a temporal FA is true of its argument at a (temporal) index  $i$  just in case the distribution of the set that realises the argument at  $i$  is whatever distribution the FA requires; here, **distribution** is a function that yields the distribution *dist* of a set of entities at  $i$ , with values like *high*, *low*, *daily*, etc.<sup>24</sup>

Intuitively, a distribution is a relation between a (non-singleton) set of events and a well-defined stretch of time. A temporal FA can be combined with a numberless nominal describing a kind of event because from a single event kind a set of token event realisations can be retrieved, whose distribution can then be characterised. In contrast, the FA will never combine with a singular (count) nominal describing a token

<sup>24</sup>In addition, the distribution function must guarantee that the members of the set be properly individuable and that the distribution be sufficiently regular; see Stump (1981); Zimmermann (2003); Schäfer (2007) for further discussion.

event<sup>25</sup> because there is no way to give an individual event an interesting distribution over time, hence the unacceptability of (37-b), in contrast to (37-a).

- (37) a. Her job changes were frequent.  
b. ??Her job change was frequent.

The semantics in (35) and (36) and its effect in combination with a noun is illustrated in (38) for *frequent downdraft*, where the adjective is argued to combine with the noun via a predicate conjunction rule (see e.g. Larson, 1998).

- (38) a.  $[[\text{frequent}]]: \lambda e_k [\mathbf{frequent}(e_k)]$   
b.  $\forall e_k, i [\mathbf{frequent}(e_k) \text{ at } i \leftrightarrow \mathbf{distribution}(\{e : \mathbf{R}(e, e_k) \text{ at } i\}) = \text{high}]$   
c.  $[[\text{frequent downdraft}]]: \lambda e_k [\mathbf{downdraft}(e_k) \wedge \mathbf{frequent}(e_k)]$   
 $= \lambda e_k [\mathbf{downdraft}(e_k) \wedge \mathbf{distribution}(\{e : \mathbf{R}(e, e_k) \text{ at } i\}) = \text{high}]$

The NP *frequent downdraft* denotes a property of the downdraft event kind, whose instantiations have a high distribution over the given index  $i$ . In adding an intersective condition on the kind, the FA creates a subkind, which is characterised by the distribution of the instances of the superkind and which can be contrasted with other subkinds characterised by other distributions.

### 4.3.2 Application to the data

In this section I show how this uniform account of the semantics of (temporal) FAs captures the three readings outlined above and the different properties found under these readings, as identified in the literature. For illustration, *frequent* is used, whose denotation and relevant satisfaction conditions were already given in (38-a) and (38-b).

The **internal reading**, illustrated in (39), only comes about when the FA modifies a deverbal participant noun, such as *sailor* in (39), or a stage noun, such as *passenger*.

- (39) John is a frequent sailor.

In G&McN, we propose that what distinguishes these nouns from other nouns is the presence of an additional event argument in their semantic representation, as often assumed (see, e.g., Larson, 1998), in this case an event kind argument. Here, let me go one step further even, by building on the analogy to the adjectival domain, as discussed in chapter 3. In particular, if we assume that participant nouns contain additional verbal structure that provides the event but crucially not the verbal functional structure needed to instantiate the event, we again only have an event kind argument at our disposal (for syntactic proposals concerning the verbal structure inside such nominals see, e.g., Alexiadou and Schäfer, 2010; Roy and Soare, 2014).

The representation that G&McN propose for a noun like *sailor* is given in (40-a); this is converted into a property of token individuals via the introduction of number morphology, as in (40-b). This representation guarantees that  $x$  bears the appropriate role in the particular event.

- (40) a.  $[[[NP [N \text{ sailor}]]]]: \lambda x_k \lambda e_k [\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k)]$

<sup>25</sup> Abstract nouns like, e.g., *despair*, which behave like mass nouns and cannot be pluralised in any case, fall outside this generalisation (thanks to Jonathan Ginzburg, p.c., for pointing this out to me).

$$\text{b. } \llbracket \llbracket_{NumP} [NP \text{ sailor}] \rrbracket \rrbracket: \lambda y \exists x_k, e_k [\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k) \wedge \mathbf{R}(y, x_k)]$$

The FA thus combines with the noun before the latter combines with Number, as in (41), much in the way that relational adjectives combine with kind descriptions before these are turned into token-level descriptions on the analysis in McNally and Boleda (2004) (recall the discussion in §4.2).

$$(41) \quad \llbracket \llbracket_{NP} \text{ frequent sailor} \rrbracket \rrbracket: \lambda x_k \lambda e_k [\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k) \wedge \mathbf{frequent}(e_k)]$$

Since the FA is sortally restricted to apply to events, the only option is for it to apply to the event argument in the noun's representation.

When Number is added, the result is a description of those token individuals of the sailor kind who participate in that kind of event that can be described as frequent sailing.

$$(42) \quad \llbracket \llbracket_{NumP} \text{ frequent sailor} \rrbracket \rrbracket: \\ \lambda y \exists x_k, e_k [\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k) \wedge \mathbf{frequent}(e_k) \wedge \mathbf{R}(y, x_k)]$$

This account correctly predicts that the FA under the internal reading can combine with any determiner, as illustrated in (43), since they apply to token individuals.

$$(43) \quad A/\text{Some}/\text{One}/\text{The}/\text{That}/\text{Each} \text{ frequent sailor I know owns his own boat.}$$

An additional correct prediction of this analysis is that any token-level modification has to appear further away from the head noun than the FA, since it can only be added once a variable corresponding to the token individual is introduced by Number (44).

$$(44) \quad \text{a. Martin is a skilled frequent sailor.} \\ \text{b. ??Martin is a frequent skilled sailor.}$$

To the extent that (44-b) is acceptable, it entails that skilled sailors are a recognisable subkind of sailor, rather than simply entailing that Martin is skilled.

The **generic reading** comes about when the FA-modified noun appears with a generic predicate (cf. Stump, 1981). As a rule, the generic reading with temporal FAs requires the indefinite article or bare plural and is incompatible with the definite article (45).

$$(45) \quad \text{a. A periodic inspection is important.} \\ \text{b. Periodic inspections are important.} \\ \text{c. ??The periodic inspection is important.}$$

Given that without the FA, the definite also lacks a generic reading (46), we conclude that the determiner restrictions follow from the requirements of the generic predicate, rather than from the FA itself.

$$(46) \quad \text{a. The inspection is important.} \\ \text{b. The glass of wine is healthy.}$$

In particular, the presence or absence of the FA should have no impact on the eventual availability of a generic or nongeneric interpretation, because the FAs in (45), for instance, simply contribute an additional intersective condition on the nominal description. Thus, whatever readings the nominal independently allows with whatever

combination of articles should be just those that are available when the FA is present. In G&McN, we assume that the same explanation extends to the failure of the definite article to appear with temporal FAs on the so-called adverbial reading, discussed below, which also crucially involves interpreting the FA-modified nominal as a kind description.

The sentences in (45) are analysed in the same way as other generic sentences involving indefinite singular and bare plural DPs. For example, in the case of indefinite singulars we assume that the source of genericity is external to the subject DP and the indefinite is treated as nonquantificational (see Farkas and Sugioka, 1983; Cohen, 2001; Greenberg, 2002; Krifka, 2013, *inter alia*, for different proposals) (recall the brief discussion in §2.3.1). Given these assumptions, we propose the representation of (45-a) in (47), where **Gen** represents a generic quantifier.

$$(47) \quad (\mathbf{Gen} \ e_k : \mathbf{inspection}(e_k) \wedge \mathbf{periodic}(e_k))[\mathbf{important}(e_k)]$$

In prose, (47) says that if  $e_k$  is an inspection kind of event whose instances are sets with periodic distributions,  $e_k$  is important.

Finally, with temporal FAs, the paraphrasability of FAs in terms of a sentence-level adverb that identifies the **adverbial reading** is only systematically possible with event nominals (48).

$$(48) \quad \begin{array}{l} \text{The department has undergone a periodic review (over the last 10 years).} \\ = \text{Periodically, the department has undergone a review.} \end{array}$$

As such sentences are not, as a rule, generic, there is no motivation for using **Gen**. Rather, we conclude that the DP is an instance of an indefinite kind nominal of the sort found in sentences like (49) (see e.g. Dayal, 2004; Mueller-Reichau, 2011, for additional discussion and examples of indefinite kind nominals).

$$(49) \quad \begin{array}{l} \text{a. A giant tortoise has recently become extinct.} \\ \text{b. Fred invented a pumpkin crusher.} \end{array}$$

The denotation of the nominal in (48) is composed in exactly the same way as before (50-a). When the indefinite article is added, the result is (50-b), where for the sake of illustration the resulting DP is treated as denoting the entity returned by a choice function  $f_i$  on the set denoted by *periodic review* (Reinhart, 1997; Kratzer, 1998).

$$(50) \quad \begin{array}{l} \text{a. } \llbracket \text{periodic review} \rrbracket : \lambda e_k [\mathbf{review}(e_k) \wedge \mathbf{periodic}(e_k)] \\ \text{b. } \llbracket \text{a periodic review} \rrbracket : f_i(\lambda e_k [\mathbf{review}(e_k) \wedge \mathbf{periodic}(e_k)]) \end{array}$$

In Gehrke and McNally (2011), we observe that, because of the distribution condition on the set of tokens that realise this kind, it is difficult to imagine how any such set could participate in one token event of the sort described by the verb. However, nothing would prohibit it from participating in the kind of event described by the verb, if the latter could be instantiated by multiple tokens. This leads to the assumption that the adverbial reading involves event kinds, and the denotation of (48) is represented as in (51), where **d** stands for *the department*.

$$(51) \quad \begin{array}{l} \llbracket \text{The department has undergone a periodic review} \rrbracket : \\ \exists e_k [\mathbf{undergo}(e_k, \mathbf{d}, f_i(\lambda e'_k [\mathbf{review}(e'_k) \wedge \mathbf{periodic}(e'_k)]))] \end{array}$$

In G&McN, the following satisfaction conditions are proposed for sentences that are used to make assertions about event kinds. First, in order for an event kind to exist at some index  $i$ , at least one realisation of the event kind should exist at  $i$  (52).<sup>26</sup>

$$(52) \quad \forall e_k, x_\alpha, P, i [P(e_k, x) \text{ at } i \leftrightarrow \exists e, x_\alpha [\mathbf{R}(e, e_k) \wedge P(e, x_\alpha) \text{ at } i]]$$

(52) entails that if it is true, for example, that a kind of event that we can describe as undergoing a review has taken place, a token undergoing of a review must have taken place. Crucially, an analogous condition holds in the vast majority of cases on statements about kind-level participants in token events. If it is true, for example, that the department has undergone a kind of review, it must be true that it has undergone a realisation of that kind of review.

We furthermore propose that if a kind is realised by a set of tokens in a particular distribution, each element of the set that realises the participant should participate in a token event of the relevant event kind. In such cases, it follows automatically that the corresponding token events satisfy the same distribution as the token participants. Thus, for (51) to be true, there has to be a set of token review-undergoing events with a distribution that can be described as ‘periodic’. This is precisely what the adverbial paraphrase expresses.

### 4.3.3 Concluding remarks

To conclude, frequency adjectives under one reading, the adverbial reading, show behaviour that is not typical for adjectival modifiers. In particular they can be paraphrased as adverbs that seemingly take wide scope over the entire sentence, which has led to previous influential analyses that treat these adjectives effectively as determiners (quantifiers). However, we show that the seemingly wide scope and thus ‘un-adjectival’ behaviour of these adjectives can be accounted for under an analysis that treats them as real adjectives, with additional assumptions about kinds, including event kinds, some of which were also used in the analysis of ethnic adjectives presented in the previous section.

## 4.4 Conclusion

In this chapter, I discussed two types of adjectives, ethnic and frequency adjectives, for which previous accounts have argued that they are not true adjectives but rather ‘nouns in disguise’ (EAs) or complex determiners (FAs). Instead we argued that by assuming that such adjectives apply to kinds and in the problematic cases in question to event kinds, we can maintain an adjectival analysis that additionally accounts for other readings these adjectives have, e.g. when they apply to nominal kinds. The analyses proposed for EAs and FAs equally accounted for the alleged ‘un-adjectival’ behaviour, in the sense that the adjectives (under the relevant reading) cannot freely coordinate with (token-level) adjectival modifiers, cannot (or can hardly) appear in predicative position, and other such properties.

<sup>26</sup>This is the intuition behind the semantics of existential sentences in McNally (1992), which built on observations in Strawson (1959); a similar idea underlies Carlson’s (1977) analysis of nongeneric sentences involving kind terms.

Let me then return to the hypothesis underlying this manuscript concerning event kinds in deverbal adjectives and nominals. We have seen from the discussion of ethnic adjectives that the apparent argument-saturating effect (their thematic use) arises when these adjectives combine with nominalisations, and furthermore from the discussion of temporal FAs that these have to modify or predicate over nominals that make available an event (modulo event coercion, cf. fn. 23), which basically concerns participant nouns under the internal reading and event nouns under the generic and adverbial reading. While syntactic accounts propose verbal structure inside nominalisations that are clearly morphologically derived (e.g. *sailor*, *inspection*) this might be less obvious for participant nouns like *passenger* or event nouns like *check-up* or *review*. Nevertheless, it seems intuitive to assume that also these make available an event. At any rate, they lack further verbal functional structure responsible for instantiating the event so the event stays in the kind domain, and this will hold for most instances of morphologically derived (deverbal) nominals.

In the following, we will return to the verbal domain and to another topic, for which the distinction between event kinds and tokens might be useful, namely to the ambiguity of some adverbs between a clausal and a manner reading.



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## Back to the verbal domain: Agent-oriented vs. manner adverbs

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### 5.1 Introduction

Many adverbs display more than one reading, which in English partially correlates with their syntactic position, whereas languages like Japanese and German (also) morphologically distinguish between the readings. For example, adverbs like *rudely*, *stupidly*, *cleverly* are generally attributed (at least) two readings (Jackendoff, 1972; Bellert, 1977; McConnell-Ginet, 1982; Wyner, 1994; Eckardt, 1998; Geuder, 2000; Ernst, 2002; Schäfer, 2005, among many others), as illustrated by the paraphrases in (1),<sup>1</sup> namely the manner reading (1-a) [M] and a subject-, in particular agent-oriented reading (1-b) [AO] (terminology of Ernst, 2002).

- (1) Alice has **rudely** written the letter. (Ernst, 2002)
- a. M: Alice has written the letter in a rude manner.
  - b. AO: It was rude of Alice to write the letter.

In English, these readings can be differentiated based on their syntactic position (cf. Jackendoff, 1972): While in the position between the auxiliary and the main verb in (1) both readings are available, in sentence-initial position the adverb only has an agent-oriented reading (2-a) and in sentence-final position only a manner reading (2-b) (examples from Piñón, 2010).

- (2) a. **Cleverly/rudely**, John dropped his cup of coffee. AO  
 ≈ It was clever/rude of John to drop his cup of coffee.

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<sup>1</sup>However, just like in the discussion of frequency adjectives in §4.3, we have to be aware of the fact that these paraphrases are not necessarily identical to the precise meanings the sentences with the adverbs convey. For example, under the agent-oriented reading of the adverb, it is asserted that Alice has written the letter while rudeness conveys a meaning component that is not at issue; under the paraphrase, in turn, rudeness is asserted and it is merely presupposed that Alice has written the letter (see also discussion in Geuder, 2000, and in §5.6).

- b. John dropped his cup of coffee **cleverly/rudely**. M  
 ≈ The manner in which John dropped his cup of coffee was clever/rude.

While syntax also plays a role in German (see §5.4), already the morphology makes clear which kind of adverb we are dealing with. In particular, under the agent-oriented reading the adverb comes with an additional morpheme *-weise*, as illustrated in (3)<sup>2</sup> (see, e.g., Geuder, 2000; Schäfer, 2005).

- (3) a. Maria hat **klugerweise** geantwortet. AO  
 Mary has clever-WEISE answered  
 ‘Cleverly, Mary answered.’  
 b. Maria hat **klug** geantwortet. M  
 Mary has clever answered  
 ‘Mary answered cleverly.’

Similarly, Japanese agent-oriented adverbs come with an additional suffix *-mo* (4) (Kubota, 2015).

- (4) a. John-wa **orokani-mo** odotta. / **Orokani-mo** John-wa odotta. AO  
 John-TOP stupidly danced stupidly John-TOP danced  
 ‘Stupidly, John danced.’  
 b. John-wa **orokani** odotta. / **Orokani** John-wa odotta. M  
 John-TOP stupidly danced stupidly John-TOP danced  
 ‘John danced stupidly.’

These additional morphemes (*-weise/-mo*) can also be found on some speaker-oriented evaluative adverbs, a point to which we will come back in §5.5.

There have been a number of different proposals to account for the distinction between manner and agent-oriented readings, of which I will highlight merely two here.<sup>3</sup> Geuder (2000) relates the semantics of adverbs directly to the adjectives they are morphologically related to and observes that there is a duality between what he calls a dispositional and agentive reading of the related adjectives, as illustrated in (5).

- (5) a. John is rude. DISPOSITIONAL  
 b. John is being rude. AGENTIVE

Geuder then argues that agent-oriented adverbs have the same lexical semantics as agentive adjectives, and that the manner reading is derived from the agent-oriented one. I will similarly assume that the semantics of these adverbs should be analysed in terms of the related adjectives, though I will depart from Geuder in particular points to be discussed below. Ernst (2002) also assumes that agent-oriented readings are derived

<sup>2</sup>Given that many adverbs in German, especially manner adverbs, are not morphologically marked as adverbs but look like (uninflected) adjectives, I gloss them as adjectives.

<sup>3</sup>Since I will be more concerned with the semantic distinction and will remain agnostic with respect to the syntactic status of adverbs (or of modifiers more generally), I will leave aside strictly syntactic accounts that treat adverbs as base-generated in the specifier of dedicated functional projections that are ordered in a particular sequence, so that the readings follow simply from the different base positions of the adverbs in question (e.g. Alexiadou, 1997; Cinque, 1999). I will also not discuss treatments of these adverbs in terms of different event structure construals (e.g. Vendler, 1984; Pustejovsky, 1991), modifiers of higher vs. lower events (i.e. silent vs. lexical verbs) (McConnell-Ginet, 1982; Piñón, 2010) or modification of events vs. facts/state of affairs (e.g. Parsons, 1990; Moore, 1995; Wyner, 2008).

from manner readings and he proposes that the interpretation of event-related adverbs involves comparison classes consisting of events, by analogy to comparison classes used in the semantics of gradable adjectives (see also Schäfer, 2005; Kubota, 2015). In particular, he proposes that the manner reading involves comparison of ‘Specified Events’ (e.g. answering events in (3-a)) and he argues that manner adverbs sit in Spec, PredP, a projection right above VP. The agent-oriented reading, in turn, is argued to involve comparison of ‘Events’, and AO ADVs sit higher in the structure. However, he does not make precise what exactly the difference between ‘Events’ and ‘Specified Events’ could mean, from a semantic point of view, and I will try to be more precise in this respect.

In this chapter, I will follow Ernst (2002) in assuming that the interpretation of (event-related) adverbs involves comparison classes of events, to be outlined in §5.2.1. In §5.2.2 I will discuss Sassoon and Toledo’s (2011) treatment of gradable adjectives as involving either a comparison between (kinds or instantiations of) individuals or a comparison within a kind of individual and therefore between instantiations or stages of that particular individual, and I will briefly discuss Geuder’s (2000) observation that the interpretation of the adverb under either reading involves alternatives (§5.2.3). I will then apply this distinction to the domain of events, again, by treating manner modification more generally as event kind modification, following Landman and Morzycki (2003); Landman (2006), as already discussed and applied in §2.5.5 and chapter 3. In particular, I will propose that the agent-oriented reading involves comparison between different instances of events (event tokens) whereas the manner reading involves comparison within an event kind, i.e. of subkinds of that event kind, and I will sketch an account along these lines in §5.3. In the subsequent sections §5.4–§5.6, I will show how such an account makes sense of other differences between the two readings, compare agent-oriented and evaluative adverbs and sketch how the different readings carve up the semantic-pragmatic pie differently. Finally, §5.7 concludes the discussion of manner vs. agent-oriented adverbs.

## 5.2 Building blocks from the previous literature

In this section, I address three building blocks that my proposal will employ. First, I outline Ernst’s (2002) proposal that the interpretation of event-related adverbs involves comparison classes of events. I then discuss a recent account of comparison classes in the domain of gradable adjectives (Sassoon and Toledo, 2011) and how these can be comprised of different entities, depending on the type of adjective. Finally, I briefly address Geuder’s (2000) observation that the adverbs in question involve different kinds of alternatives under their two readings, namely focus alternatives (for agent-oriented adverbs) and script alternatives (for manner adverbs).

### 5.2.1 Comparison classes of events for adverbs

Ernst (2000, 2002) argues that the interpretation of (event-related) ‘predicational’ adverbs (i.e. for English this means adverbs in *-ly*, which are directly related to adjectives without *-ly*) involves comparison classes of event. In particular, he argues that

the agent-oriented reading involves comparison of ‘Events’, as illustrated in (6).<sup>4</sup>

- (6) a. Rudely, she left.  
 b.  $\exists e[\mathbf{leave}(e) \wedge \mathbf{Agent}(e, \text{she}) \wedge \exists e' : [e' = [\mathbf{leave}(e) \wedge \mathbf{Agent}(e, \text{she})]] \wedge \mathbf{RUDE}(\text{she}, e', \llbracket e'' \rrbracket)]$

In words, (6-b) says that we have a leaving event  $e$  whose agent is ‘she’ and this event is said to be rude (this modification derives the event  $e'$ ) as compared to other events  $e''$ , with the comparison class being specified within the  $\llbracket \cdot \rrbracket$  symbols.

The manner reading, in turn, is argued to be derived by the ‘Manner Rule’ which turns higher adverbs into manner adverbs whenever these adverbs appear in Spec, PredP, a position right about the VP. In this position, then, the interpretation of the adverb is assumed to involve comparison of ‘Specified Events’, such as those of leaving in (7).

- (7) a. She left rudely.  
 b.  $\exists e[\mathbf{leave}(e) \wedge \mathbf{Agent}(e, \text{she}) \wedge \exists e' : [e' = [\mathbf{leave}(e) \wedge \mathbf{Agent}(e, \text{she})]] \wedge \mathbf{RUDE}(\text{she}, e', \llbracket e'' : \mathbf{leave}(e') \wedge \mathbf{Agent}(e'', \text{she}) \rrbracket)]$

In words, (7-b) says again that we have a leaving event  $e$  whose agent is ‘she’ and this event is said to be rude ( $e'$ ), but this time as compared to other leaving events  $e''$  whose agent is ‘she’.

As noted in the introduction to this chapter, it is not clear what exactly Ernst means by ‘Events’ and ‘Specified Events’, so I will not employ these terms in my proposal. However, we will see that the general gist of his proposal, namely that both types of adverbs are event-related but differ only in the type of events that make up the comparison class, will also play a crucial role under my approach. Let us then turn to the role of comparison classes in the adjectival domain.

### 5.2.2 Comparison classes in the semantics of gradable adjectives

The use of comparison classes goes back to semantic analyses of gradable adjectives which quite standardly employ comparison classes (McConnell-Ginet, 1973; Klein, 1980; Bierwisch, 1989; Kennedy, 1999, among many others) (for more details on different analyses of gradable adjectives see Gehrke and Castroviejo, 2015, and literature cited therein). For example, the sentence in (8) is evaluated as true or false depending on what individuals Timo is compared to.

- (8) Timo is tall.

If the comparison class consists of NBA basketball players (tall for an NBA basketball player), the proposition in (8) is true if Timo’s height is at least as high as the average for NBA basketball players, preferably though quite a bit higher, so that it is true, for instance, if Timo is, say, 2.10m but false if he is 1.95m (or shorter). If, in contrast, the comparison class consists of 10-year old German boys, (8) would be true if Timo were just 1.45m.

<sup>4</sup>Here I discuss the formalisation found in Ernst (2000) (as discussed Geuder, 2000) because it is a direct event semantic implementation and thus more readily comparable to the formalisations in the current manuscript. Since Ernst (2002) is mainly concerned with the syntax of adverbs (as the title of his book suggests), the semantic assumptions there are not fully formalised and thus less transparent.

One particular approach to comparison classes in the semantic analysis of gradable adjectives is found in Toledo and Sassoon (2011); Sassoon and Toledo (2011) who explore the question as to which entities make up the comparison class. In particular, they propose that so-called relative adjectives, or adjectives used relatively, such as those in (8), involve the comparison of different individuals. In (8), then, Timo's height is compared to that of other individuals in the extensional context. Absolute or absolutely used adjectives, as those in (9), in turn, are argued to involve comparison within an individual. For example, in (9) different stages that that particular cup could be in (in the intensional context) are compared, and other cups do not even play a role.

(9) The cup is full.

They furthermore suggest that this account could be extended to the distinction between individual- and stage-level predication, and this is further worked out and applied to Spanish data in Gumiel-Molina et al. (2015). Thus, a natural relation to kinds is at hands, if we recall already Carlson (1977) who argued that individuals can be realised by stages (spatiotemporal slices) whereas kinds can be realised by both individuals as well as by stages (tokens) (recall the discussion in chapter 1). More recently, Castroviejo and Schwager (2008) have argued that equivalence classes of individuals, as used in the determination of comparison classes for gradable adjectives, are related to kinds.

In the proposal I will sketch in §5.3 I will transfer Sassoon & Toledo's distinction between within-individual vs. between-individuals comparison to the domain of events. Let me then turn to the last building stone from the previous literature, namely the alternatives generated by agent-oriented and manner adverbs.

### 5.2.3 Focus/script alternatives with agent-oriented/manner adverbs

A final building block comes from Geuder (2000) who observes that agent-oriented adverbs (his 'agentive' adverbs) are sensitive to focus and therefore generate focus alternatives, as illustrated in (10).

- (10) a. Stupidly, John drank the [water]<sub>F</sub>.  
 b. Stupidly, John [drank]<sub>F</sub> the water.

In (10-a), what is being evaluated as stupid is that John drank the water, as opposed to drinking something else (narrow focus) or as opposed to doing something else (wide focus, with focus projection). In (10-b), in turn, the contrasting focus alternatives are something else John could have done with the water (instead of drinking it). In (11), I informally spell out the set of alternatives generated by (10).<sup>5</sup>

- (11) a.  $\{\mathbf{drank}(x)(j) \mid x \in \text{ALT}(\mathbf{w})\} = \{\text{John drank the water, John drank the juice, John drank the milk, ...}\}$   
 b.  $\{R(\mathbf{w})(j) \mid R \in \text{ALT}(\mathbf{drank})\} = \{\text{John drank the water, John spilled the water, John used the water to wash his car, ...}\}$

<sup>5</sup>This is not spelled out by Geuder; I rely here on the notation of Krifka (2001) and only represent the narrow focus of (10-a); see Krifka's work and literature cited therein for more sophisticated treatments of focus.

Geuder furthermore argues that the manner reading is derived from the agent-oriented reading, with the difference that now the alternatives are “generated by abduction from the script” (in the sense of Schank and Abelson, 1977), i.e. our general conceptual knowledge about a particular type of event and how it has to look like in order to be described by a given verbal predicate (on scripts see also Asher, 1993; Irmer and Mueller-Reichau, 2012; Mueller-Reichau, 2015). He argues that “the different manners of an event are the alternative ways in which an event can unfold while still falling under the same event type” and that scripts allow for variation and thus for further specification of the manner.

In the following I will sketch how these building blocks could be put together to spell out the gist of a proposal. I will only spell out the general idea and point out how it sheds new light on generally known differences between agent-oriented and manner adverbs; a fully worked out approach has to await future research.

### 5.3 The general idea

Given that the adverbs we are concerned with (e.g. *cleverly*, i.e. Ernst’s predicational adverbs) are morphologically related to gradable adjectives, I will derive their basic semantics from that of such adjectives, as already advocated by Geuder (2000). For sake of concreteness I will assume a degree analysis for the semantics of gradable adjectives (e.g. Kennedy, 1999), like the one in (12-a), according to which such adjectives express a relation between entities and (contextually determined) degrees (see Gehrke and Castroviejo, 2015, and literature cited therein). The related adverb, then, expresses a relation between events and degrees, as in (12-b).

- (12) a.  $[[\text{clever}]] = \lambda x. \mathbf{clever}(x) \geq d_c$  ADJ  
 b.  $[[\text{cleverly}]] = \lambda e. \mathbf{clever}(e) \geq d_c$  ADV

As is standardly assumed under any approach to the semantics of gradable adjectives and as we have briefly already outlined in §5.2.2, the standard for a given adjective, and therefore also for the adverb related to it, is contextually determined based on the comparison class we are concerned with, and this is what is indicated by the subscript  $c$  on the standard degree in (12). I propose that the comparison classes for the interpretation of agent-oriented and manner adverbs are made up of the focus and script alternatives, respectively, following the observations in Geuder discussed in §5.2.3. For example, when combined with the verb *drink*, we (informally<sup>6</sup>) get (13-a) with a manner adverb and (13-b,c) with an agent-oriented adverb, taking into account two different possible focus alternatives of (11).

- (13) a.  $\mathbf{C}(c_1) = \{e \mid e \text{ is a DRINK event kind.}\}$   
 b.  $\mathbf{C}(c_2) = \{e \mid e \text{ is the instantiation of a DRINK event kind by John.}\}$   
 c.  $\mathbf{C}(c_3) = \{e \mid e \text{ is the instantiation of an event kind by John with } w \text{ as its theme.}\}$

<sup>6</sup>Different formalisations are possible here, which should also take into account intensionality. Helpful overviews of the more or less recent research on comparison classes in adjectives (and particular proposals one could apply to the data here) can be found in Burnett (2012) and Bylinina (2013).

If we now add the distinction between event kinds and tokens (instantiations) as well as comparison of individuals vs. stages from the semantics of gradable adjectives, as discussed in §5.2.2, we arrive at the following picture. The manner reading in (14-a) involves a comparison within an event kind so that manner modification derives an event subkind, as we have already seen in previous discussion (in particular §2.5.5 and chapter 3). Under the agent-oriented reading in (14-b), in turn, different instantiations of an event kind are compared (comparison between events); in particular I propose that the agent instantiates this event kind, and this gets evaluated as ADJ (*clever* in the case at hand). As a result, the agent is indirectly evaluated as ADJ.

- (14) Maria cleverly answered.
- a. Maria instantiated the CLEVER ANSWER event kind.  

$$\begin{aligned} & \llbracket [\dots \textit{VoiceP} \textit{Maria} \{\textit{stupidly}\} \textit{answer} \{\textit{cleverly}\}] \dots \rrbracket \\ & = \lambda e. \mathbf{answer}(e, \mathbf{m}) \wedge^{\cup} k(e) \wedge \mathbf{clever}(k) \end{aligned}$$
  - b. Maria instantiated the ANSWER event kind; this event token was clever.  

$$\begin{aligned} & \llbracket [\dots \textit{cleverly} \dots [\textit{VoiceP} \textit{Maria} \textit{answer}] \dots] \rrbracket \\ & = \lambda e. \mathbf{answer}(e, \mathbf{m}) \wedge^{\cup} k(e) \wedge \mathbf{clever}(e) \end{aligned}$$

Thus, applying the idea that gradable adjectives can involve comparison within or between individuals to the related adverb, we get a difference between a comparison within or between events. There is a crucial difference between events and individuals though. Carlson (1977) proposed that individual objects can be realised (instantiated) by stages, while individual kinds can be realised by stages or objects (recall the discussion in chapter 1). For example the stages of the individual John are John at different points in time. However, there are no different stages of event tokens (instantiations) at different points in time, since event tokens are directly tied to the space-time continuum. This can also be seen from the quote of Carlson (2003, 204f.) from §2.5.1, repeated here, that ‘ephemeral, token events “get to” make but one “appearance” in the structure of possible worlds, and then they’re done for’. Therefore event kinds have only one type of realisation, namely event tokens, so that in the domain of events the counterpart to objects and stages necessarily have to coincide. We then arrive at the distinction above between comparing event subkinds or different event tokens instantiating the same event kind.

This sketch of a formal proposal still leaves a number of questions open. For example, why is the comparison class of agent-oriented adverbs made up of events and not of facts or of states of affairs or the like (see also discussion in Geuder, 2000)? Even though I do not have any knockdown arguments for this assumption, there still seems to be some indication that agent-oriented adverbs are lower than, e.g., speaker-oriented adverbs, and furthermore that they are not necessarily factive, which they would have to be if they applied to a fact. I will come back to this point in §5.5 and §5.6.

Furthermore, where does the obligatory agent-orientedness come from? There are different proposals in the literature. For Bellert (1977) the agent (or the derived subject) and the sentence are both arguments of the adverb (see also §5.6). Within Wyner’s (1998) proposal agent-orientedness comes about more indirectly in that he ties the experiencer of the state expressed by the adverb to the entity that has volition in the event described by the verbal predicate. Geuder (2000) adopts a richer lexical semantics for both the adjective and the adverb that builds in dispositionality which

in turn is generally tied to human agents. I will tentatively assume that the latter is on the right track in that disposition is part of the conceptual semantics of both adjectives and adverbs like *clever(ly)*, *stupid(ly)* but I will not spell this out here.

Finally, we have to come back to the question of how and when events get instantiated. In proposing in (14) that the agent instantiates the event, i.e. that instantiation is tied to the level of VoiceP, I departed from my own proposal in chapter 3 that events get instantiated at the level of aspect. Ultimately, I believe the latter is true since we should not tie event instantiation to arguments but to time and since arguments themselves come with kind-token counterparts (see Gehrke and McNally, submitted, for further discussion), but here I will keep this simpler version which indirectly captures the agent-orientedness as well.

In the following section, I will discuss some well-known differences between manner and agent-oriented adverbs and I will show how the current proposal sheds new light on these differences.

## 5.4 Position, word order, prosody

As is well-known there are syntactic and prosodic differences between manner and agent-oriented adverbs. For example, agent-oriented adverbs are generally assumed to be base-generated higher than manner adverbs (see discussion in Ernst, 2002, and literature cited therein), and already the word order facts from English first discussed in Jackendoff (1972) and briefly mentioned in the beginning of this chapter support this view. Under the current proposal we can take the position of the adverb to determine what exactly goes into the comparison class, an idea already found in Ernst (2002). For manner adverbs, which appear at the level of the VP, the comparison class is made up of VP events, i.e. event kinds, given our general assumption that at the level of the VP we only have event kinds (as discussed in more detail in §2.5.1 and in chapter 3). For agent-oriented adverbs, which are generated higher (at VoiceP/AspP/IP? I will not commit myself here, as long as it is still at a point where the event token is accessible and we are not at the level of facts), the comparison class has to be made up of event instantiations.

The current proposal also sheds new light on the following facts, illustrated with German data to make sure we are dealing with a manner or agent-oriented adverb, given that the latter always appears with the additional *-weise*, as discussed above. First, agent-oriented but not manner adverbs can be separated from the verb by sentential negation (15). Second, agent-oriented but not manner adverbs can be dislocated to the right (16). And finally, agent-oriented but not manner adverbs (without additional stress) can appear in sentence-initial position (17); in particular, the manner adverb is only allowed in this position as a contrastive topic or in focus (marked by additional stress on the adverb) (17-b).

- (15) a. Maria hat {\*nicht} klugerweise {nicht} geantwortet.  
 Mary has not clever-WEISE not answered  
 ‘Cleverly, Mary did not answer.’  
 b. Maria hat {nicht} klug {\*nicht} geantwortet.  
 Mary has not clever not answered  
 ‘Mary did not answer cleverly.’

- (16) a. Maria hat {klugerweise} geantwortet, {klugerweise}.  
 Mary has clever-WEISE answered clever-WEISE  
 ‘Cleverly, Mary answered.’  
 b. Maria hat {klug} geantwortet, {\*klug}.  
 Mary has clever answered clever  
 ‘Mary answered cleverly.’
- (17) a. Klugerweise hat Maria geantwortet.  
 clever-WEISE has Mary answered  
 ‘Cleverly, Mary answered.’  
 b. {\*Klug / KLUG} hat Maria geantwortet.  
 clever clever has Mary answered

There are also related prosodic differences between the two types of adverbs. Thus, while manner adverbs are prosodically integrated into the verbal complex, i.e. the VP, with (neutral) main stress on the head of the phrase (cf. Frey and Pittner, 1999) (18-a), agent-oriented adverbs form their own prosodic unit independently of the verbal complex (18-b).

- (18) a. Maria hat [klug geANTwortet].  
 Mary has clever answered  
 ‘Mary answered cleverly.’  
 b. Maria hat [KLUGerweise] [geANTwortet].  
 Mary has clever-WEISE answered  
 ‘Cleverly, Mary answered.’

These facts follow automatically under the current proposal, which treats the level of the VP as the level of event kinds. Additional modifiers of the event kind (which derive an event subkind) have to remain within the VP. Event tokens, on the other hand, rely on additional functional structure above VP, responsible for instantiating the event. This additional structure intervenes between the VP and the event token modifying agent-oriented adverb.

Note that the prosodic facts partially parallel VP-internal PP arguments vs. VP-external PP adjuncts (19) (cf. Gehrke, 2008, and references therein) as well as event-kind vs. state-token modification of adjectival passives (20) (recall the discussion in §3.4).

- (19) a. Maria ist [in den SEE gesprungen].  
 Mary is in the.ACC lake jumped  
 ‘Mary jumped into the lake.’  
 b. Maria ist [im SEE] [geSPRUNGen].  
 Mary is in.the.DAT lake jumped  
 ‘Mary jumped inside the lake.’
- (20) a. Die Zeichnung ist [von einem KIND angefertigt].  
 the drawing is by a child produced  
 ‘The drawing is made by a child.’  
 b. Er ist [von der MuSIK] [beEINdruckt].  
 he is by the music impressed  
 ‘He is impressed by the music.’

So far I have used the adverb *klug(erweise)* ‘cleverly’ to illustrate the difference between manner and agent-oriented adverbs. This is so because the agent-oriented antonym *dummerweise* ‘stupidly’ has an additional use as a speaker-oriented evaluative adverb, and it is sometimes hard to distinguish these two from each other. In the following I will briefly summarise their commonalities and differences.

## 5.5 Speaker-oriented evaluative vs. subject-oriented adverbs

As we have already mentioned above, both agent-oriented and (some) speaker-oriented adverbs have the same morphology in some languages. For instance, in German they both appear with *-weise* (21) and in Japanese with *-mo* (Kubota, 2015); (21-c) illustrates that sometimes we can have both readings for the (morphologically) same adverb.

- (21) a. Maria hat klugerweise geantwortet.  
 Maria has clever-WEISE answered  
 AO: ‘Cleverly, Maria answered.’  
 b. Maria hat unglücklicherweise geantwortet.  
 Maria has unfortunate-WEISE answered  
 EVAL: ‘Unfortunately, Maria answered.’  
 c. Maria hat dummerweise geantwortet.  
 Maria has stupid-WEISE answered  
 (i) AO: ‘Stupidly, Maria answered.’  
 (ii) EVAL: ~ ‘Too bad Maria answered.’

Furthermore, the duality between a manner and a higher reading of adverbs we have established above for agent-oriented adverbs is sometimes also found with evaluative adverbs, as illustrated in (22) (see, e.g., Ernst, 2002, for further discussion).

- (22) Carla hat sonderbar(erweise) getanzt.  
 Carla has odd-WEISE danced  
 ‘{Oddly, } Carla danced {oddly}.’

We also sense an evaluative meaning in both, in the sense that they involve a subjective evaluation on part of the speaker. However, I argue that in both cases different entities are being evaluated. With evaluative adverbs, the speaker evaluates the circumstance or the fact expressed by the entire sentence, and thus the adverb has to appear very high in the structure where speaker-oriented adverbs are located more generally. With agent-oriented adverbs, on the other hand, evaluativity is part of the lexical semantics already of the corresponding adjective (cf. the distinction between evaluative and dimensional adjectives in Bierwisch, 1989) and thus do not rely on a higher level in syntax. Thus, even though the adverb is lower, at a point where agent and event tokens are accessible, the subjective nature of the underlying adjective gives us evaluation (usually on part of the speaker) for free, given that evaluative predicates are generally subjective and judge-dependent (cf. Lasersohn, 2005; Stephenson, 2007; Bylinina, 2013; Umbach, 2014, a.o.). Nevertheless, since both involve an aspect of evaluation,

it is possible to analyse both as conventional implicatures (CIs, in the sense of Potts, 2005). I will come back to this point in §5.6.

Geuder (2000) discusses further differences between the two classes. First, the related adjectives combine with different PPs (23). Second, agent-oriented adverbs select for agentive events (see also Wyner, 1998) so that with the related adjective the DP-complement of the PP has to be identical to the agent of the event (24). Finally, their related adjectives express dispositions and thus only these can be used as individual level predicates (25).

- (23) a. That was clever of John / ??for John.  
 b. That is sad for me / ??of me.
- (24) a. It was {stupid of / unfortunate for} John that he broke the glass.  
 b. It was {??stupid of / unfortunate for} John that his daughter broke the glass.  
 c. It was {??stupid of / unfortunate for} John that the glass broke.
- (25) a. Otto is clever / rude / generous.  
 b. ?#Otto is regrettable / tragical / surprising.

The second point is also illustrated in (26), which furthermore shows that only those agent-oriented adverbs that also have a speaker-oriented evaluative reading are allowed with non-agentive events (and then the agent-oriented reading is not possible anymore).

- (26) {Dummerweise/#Klugerweise} regnet es heute.  
 stupid-WEISE/clever-WEISE rains it today

Let me then turn to differences between manner and agent-oriented adverbs in the way they distribute their meaning over semantics and pragmatics.

## 5.6 Semantics/pragmatics

In this section I will first summarise some points that the previous literature has made about the semantics and pragmatics of manner, agent-oriented and evaluative adverbs. I will then turn to some preliminary results of two diagnostics to determine what is at issue and not at issue in sentences containing manner and agent-oriented adverbs, which so far only report my own personal judgments.

### 5.6.1 Previous observations about manner adverbs

According to Bellert (1977), manner adverbs imply the sentence without the adverb (27-a), and this is also so in questions and under negation when the adverb bears main stress (27-b,c).

- (27) a. John is speaking loudly. → John is speaking.  
 b. John is not speaking loudly. → John is speaking.  
 c. Is John speaking loudly? → John is speaking.

There are different proposals in the literature as to the precise nature of this inference. Abbott (2000) and Simons (2001) treat it as a presupposition, and Schlenker (2008) sees it as a ‘quasi-presupposition’, which is not lexically encoded but arises compositionally and is triggered pragmatically. The results of the experiments in Chemla (2009) do not give a uniform picture since sometimes it behaves like a presupposition and other times like an implicature. Finally, Abrusán (2013) argues that this inference is merely a givenness effect of focus and bases this argument on the following facts from Hungarian.

Hungarian has a position directly before the finite verb that is often argued to host focused elements (possibly among other elements; see also Szendrői, 2001; É. Kiss, 2002). Abrusán (2013) argues that inferences of the type in (27) only arise when the adverb is in focus, i.e. in the preverbal position in Hungarian; this is illustrated in (28-a), where the adverb appears right before the verb and the verbal particle *el* appears in a position after the verb. However, when the particle appears in its canonical position before the verb and the adverb appears yet before the particle (and thus not in focus), the inference is argued not to hold anymore (28-b).

- (28) a. Kétlem, hogy Péter [**hangosan**]<sub>F</sub> énekelt **el** a Himnuszt.  
 doubt.1SG that Peter loudly sang PRT the anthem.ACC  
 ‘I doubt that Peter sang the anthem [loudly]<sub>F</sub>.’  
*implies*: Peter sang the anthem.
- b. Kétlem, hogy Péter **hangosan** élenkelt a Himnuszt.  
 doubt.1SG that Peter loudly PRT.sang the anthem.ACC  
 ‘I doubt that Peter sang the anthem loudly.’  
*does not imply*: Peter sang the anthem.

On the other hand, Egedi (2009) reports that there seems to be a strong preference for (at least some) manner adverbs to appear precisely in this preverbal position and to be prosodically integrated into the verbal complex (indicated by <> and with phrasal accent indicated by ’ in (29-a)), just like its German counterpart in (18-a); the order adverb-particle-verb, on the other hand, is argued to be infelicitous (29-b).

- (29) a. Hugó <’’**szokatlanul** díszítette **fel** a ’’karácsonyfát>.  
 Hugo oddly decorated PRT the Christmas tree  
 ‘Hugo decorated the Christmas tree oddly.’
- b. ?Hugó ’’**szokatlanul** ’’**feldíszítette** a ’’karácsonyfát.  
 Hugo oddly PRT.decorated the Christmas tree

It has to be left for future research whether there is a real conflict between different empirical claims or whether what Abrusán reports for one class of manner adverbs (here: *loudly*) does not necessarily hold for another class discussed by Egedi (here: *oddly*). Even though the label ‘manner adverb’ is more often than not treated as a monolithic label, there have been proposals to acknowledge different subclasses of manner adverbs (for recent discussion see Schäfer, 2013), and I will come back to this issue in §6.1.1.

Let me then turn to what the previous literature has said about agent-oriented and evaluative adverbs before discussing some preliminary tests to see how these adverbs, including manner adverbs, distribute their meaning over semantics and pragmatics.

### 5.6.2 Previous observations about agent-oriented adverbs

According to Bellert (1977), agent-oriented adverbs take two arguments, namely the derived subject of sentence S and S itself. She furthermore argues that they assert two propositions in one sentence and observes that negated sentences with agent-oriented adverbs imply the negated sentence without the adverb (30); thus, we can conclude that they scope above negation, unlike manner adverbs. She also notes that agent-oriented adverbs are not possible in questions (31), stating that “we cannot ask a question and assert a proposition”; also in this respect they are different from manner adverbs (and from their agent-oriented paraphrase relying on an adjective, of the sort ‘It is A (of N) to ...’; recall footnote 1).

- (30) John cleverly did not drop his cup of coffee.  
→ John did not drop his cup of coffee.
- (31) a. \*Did John cleverly decide to come here?  
b. \*Did John carefully stop smoking?

More recently, then, it has been claimed that agent-oriented adverbs are veridical or factive (e.g. Bonami et al., 2004), though we will see in §5.6.4 that the empirical facts from German do not necessarily support this claim. Nevertheless, we see in (32) that a sentence with an agent-oriented adverb implies the sentence without the adverb, just like we have seen above with manner adverbs; however, given the different behaviour under negation (and possibly also in questions; I will come back to this in §5.6.4), we have to assume that this inference might be of a different nature for both types of adverbs.

- (32) Peter arrogantly/idiotically put his love letters on the net.  
→ Peter put his love letters on the net.

Veridicality / factivity also plays a role in the semantics of evaluative adverbs, to which I turn now.

### 5.6.3 Previous observations about evaluative adverbs

Also for sentences containing evaluative adverbs Bellert (1977) claims that they involve two propositions, but this time S (without the adverb) which denotes a fact, event or state of affairs, and an evaluation of S. She observes that also these adverbs are factive (33), and that they are infelicitous in questions (33-b) and hypothetical *if-then*-clauses (33-c).

- (33) a. Fortunately John (didn’t) arrive(d). → John (didn’t) arrive(d).  
b. \*Has John surprisingly arrived?  
c. \*If John were sane, he would fortunately accept the offer.

There are two types of proposals how to account for the behaviour of evaluatives under negation and in questions. One camp (e.g. Nilsen, 2004; Ernst, 2007, 2009) treats them as positive polarity items (PPIs), whereas the other camp argues that they contribute their meaning through a conventional implicature (CI) (e.g. Potts, 2005; Bonami and Godard, 2007, 2008; Liu, 2012, 2014).



- a. **At-issue:** Otto is sick.
- b. **CI:** It is unfortunate that Otto is sick.
- c. **presupposition of the CI:** Otto is sick.

Under Liu's conditional semantics of non-factive evaluatives in (35-b), on the other hand, the CI tier and the at-issue tier are completely independent from one another so that non-factive evaluatives should be acceptable in all entailment-canceling contexts. Thus, she argues, examples like (37) do not constitute a logical contradiction but rather a semantic clash between the two levels (building on Bonami and Godard, 2008).

- (37) \*Otto is nicht unglücklicherweise krank.  
 Otto is not unfortunately sick
- a. **At-issue:** Otto is not sick.
  - b. **CI:** If Otto is sick then it is unfortunate that he is sick.

In particular, at the at-issue tier we are asserting that Otto is not sick but for the CI tier we are entertaining the idea that he is sick.

There could be an alternative explanation for the two-way division within evaluative adverbs, building on Umbach (2014) (see also discussion in Martin, 2014; Castroviejo and Gehrke, submitted). In her paper on evaluative propositions and subjective judgments, Umbach distinguishes between objective / general and subjective evaluation. Objective evaluation (e.g. by *schön* 'beautiful') involves an evaluation that is up for debate whether or not it should be added to the Common Ground, i.e. it is part of the question under discussion (QUD). Thus, if Liu's non-factive evaluatives (and the related adjectives) express objective evaluation, they should in principle be acceptable in questions and conditional sentences. According to Umbach, subjective evaluatives like *wunderbar* 'wonderful', on the other hand, involve a public commitment by the speaker that will be added to his individual discourse obligations (building on Farkas and Bruce, 2010), but they express a personal opinion that is not up for debate and thus not part of the QUD. If Liu's factive evaluatives belong to this kind, then, it would make sense that they are bad under all entailment-cancelling contexts. A fully worked out proposal along these lines has to be left for future research.

Let me then turn to preliminary results of applying (non-)at-issue tests to sentences containing the adverbs under question.

#### 5.6.4 Testing what is at issue: preliminary results

A first observation about agent-oriented adverbs is that they behave like Liu's non-factive evaluatives (i.e. like Ernst's and Umbach's objective evaluatives), which is demonstrated in (38).<sup>7</sup>

- (38) a. \*Otto hat nicht klugerweise / unglücklicherweise geantwortet.  
 Otto has not cleverly unfortunately answered
- b. Otto hat vielleicht klugerweise / unglücklicherweise geantwortet.  
 Otto has maybe cleverly unfortunately answered

<sup>7</sup>These judgments depart from the judgments that Bellert (1977) report for English (recall (31)). This could mean that there are cross-linguistic differences or also that different classes of agent-oriented adverbs behave differently. Future research has to answer these questions.

- c. Hat Otto klugerweise / unglücklicherweise geantwortet?  
has Otto cleverly unfortunately answered
- d. Falls Otto klugerweise / unglücklicherweise geantwortet hat, ist es kein  
if Otto cleverly unfortunately answered has is it no  
Geheimnis mehr.  
secret anymore

This indicates that agent-oriented adverbs are not factive, which would be one argument for treating them as applying to events rather than facts.

In the following, I will employ two of the diagnostics discussed in Tonhauser (2012) to test which meaning component in a sentence is at issue and which is not at issue. The two meaning components we are interested in in a sentence like (39), for instance, are (a) the ANSWER event (Maria answered), and (b) the evaluative component CLEVER where, depending on the reading but also the precise theory, ‘it’, ‘Maria’, ‘the answer’, ‘the event’ etc. is evaluated as clever.

- (39) Maria cleverly answered.

The first test to diagnose what is at issue employs assent with a positive continuation. (40) shows that with a manner adverb it is not felicitous to agree with the ANSWER meaning component (B) but it is possible to agree with the CLEVER component (B’). Thus, according to this test CLEVER is at issue but ANSWER is not.

- (40) A: Maria hat **klug** geantwortet.  
Maria has clever answered
- B: ?Ja, das stimmt, sie hat geantwortet.  
yes that is true she has answered
- B’: Ja, das stimmt, das/sie/die Antwort war klug.  
yes that is true that/she/the answer was clever

For agent-oriented adverbs this test gives the opposite result (41). Thus, according to this test with agent-oriented adverbs ANSWER is at issue but CLEVER is not.

- (41) A: Maria hat **klugerweise** geantwortet.  
Maria has clever-WEISE answered
- B: Ja, das stimmt, sie hat geantwortet.  
yes that is true she has answered
- B’: #Ja, das stimmt, das/sie/die Antwort war klug.  
yes that is true that/she/the answer was clever

The second test I employ is to test what is not at issue, and here we have assent with an adversative continuation. For manner adverbs, both continuations are infelicitous, as illustrated in (42). Hence, according to this test neither component seems to be not at issue.

- (42) A: Maria hat **klug** geantwortet.  
Maria has clever answered
- B: #Ja, das stimmt, aber sie hat nicht geantwortet.  
yes that is true but she has not answered

B': #Ja, das stimmt, aber das/sie/die Antwort war nicht klug.  
 yes that is true but that/she/the answer was not clever

For agent-oriented adverbs the results point in the same direction as the previous test (43): the continuation is good only for the CLEVER component and thus this meaning component behaves like it is not at issue.

- (43) A: Maria hat **klugerweise** geantwortet.  
 Maria has clever-WEISE answered  
 B: #Ja, das stimmt, aber sie hat nicht geantwortet.  
 yes that is true but she has not answered  
 B': Ja, das stimmt, aber das/sie/die Antwort war nicht klug.  
 yes that is true but that/she/the answer was not clever

The results of both tests paired with the previous observations about the semantics-pragmatics of the adverbs in question and couched within the current approach result in the following picture. With manner adverbs the semantic contribution of the adverb is at issue, whereas the event itself does not behave like it is at issue but it can also not be indirectly denied (as the second test shows). This would be in line with the previous approaches discussed above that treat this meaning component as a presupposition; presuppositions are not at issue but since they are in a way taken for granted, assent with an adversative continuation would cancel the presupposition, which should be at least odd. A proposition with a manner adverb, then, can be seen as asserting the instantiation of an event subkind (derived by the manner adverb), with a kind of lexical presupposition that this event token is a subtype of event named by the verb itself.

With agent-oriented adverbs, on the other hand, the event is at issue while the meaning component of the adverb is not. This result would be captured by the CI analysis of Liu (2014). Already Geuder (2000) notes in passing that agent-oriented adverbs are like parentheticals, and parentheticals have also been treated as contributing CI meaning (e.g. Potts, 2005). Within the current approach, then, we can interpret these results as follows: propositions with agent-oriented adverbs assert the instantiation of an event kind; the meaning component of the adverb is like an evaluative side remark on this event instantiation.

Obviously, much more research needs to be done in order to fully grasp the empirical facts, which then would deserve a proper formalisation. However, this has to be left for the future. This chapter was merely intended to sketch different directions in which one could go in exploring the application of the event kind/token distinction to the domain of adverbs.

## 5.7 Conclusion

In this chapter I proposed that taking into account the distinction between event kinds and event tokens and transferring insights from the literature on comparison classes in the adjectival domain to the adverbial domain can provide new insights into the duality of adverbs like *rudely* and *cleverly* between an agent-oriented and a manner reading. Following Geuder (2000) I took the semantics of these adverbs to be directly related to the lexical semantics of the related adjective. For agent-oriented adverbs I

proposed that their interpretation involves the comparison of event instantiations. In particular, the instantiation of an event kind is asserted and the adverb conveys CI meaning involving the evaluation of the event token and thus indirectly of the agent involved in bringing about this event token (given the dispositional lexical semantics of the adverbs in question). These cases were argued to involve the comparison between event tokens. The manner reading, in turn, was proposed to involve comparison within event kinds. I suggested that sentences with manner adverbs assert the instantiation of the event subkind derived by the manner adverb, whereas the (instantiation of the) event itself (the event superkind) is presupposed.

In contrast to previous accounts, this account has several advantages. First, we do not have to make ad hoc assumptions as to which reading is basic, since this falls out from more general considerations. Furthermore, we can maintain a uniform semantics for these adverbs that is directly related to the semantics of the underlying adjective (unlike e.g. Piñón, 2010). Finally, the partial correlation between syntactic position and the reading of the adverb (cf. Jackendoff, 1972) follows automatically from more general assumptions about event kinds/tokens, in particular that event kinds are restricted to the level of VP, whereas event tokens are instantiated in space and time and are thus associated with the higher (temporal) domain of the sentence. However, the different readings come about semantically because of a different choice of comparison class, rather than directly following from syntax. Finally, the proposal to distinguish between event kind and token modification might be a good start to account for other differences within the broad class of manner adverbials, which I will come back to in the concluding chapter.

### Conclusion and outlook

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#### 6.1 Concluding remarks and open issues

This manuscript provided an overview of my post-doctoral research that argued for the inclusion of event kinds into the analysis of various empirical phenomena. Building on previous works (by other authors), direct parallels were drawn to the motivation that have led to positing kinds in the nominal domain, such as the idea that elements like *so* (English *such*) involve kind anaphora and that kind modification derives sub-kinds, which is related to the general hierarchical organisation of kinds found in both domains. Furthermore, we have seen in §2.5.1 and §3 that modified event kinds have to be well-established, a constraint that is also found on kind reference by singular definite noun phrases. The latter point raises the question whether in the verbal domain we also expect to find direct counterparts to bare plural and singular indefinite generics (on which see also Farkas and Sugioka, 1983; Cohen, 2001; Greenberg, 2002; Dayal, 2004; Mueller-Reichau, 2011; Krifka, 2013), and if so what exactly they would be, or whether there are reasons to rule these out.

Another point that has been addressed only in the nominal domain so far is that of cross-linguistic variation in kind reference. For example, Chierchia (1998) posited the Nominal Mapping Parameter to account for the fact that languages like English allow reference to kinds by employing bare plurals whereas the Romance languages necessarily have to project a D layer (and thus use determiners) for kind reference. Dayal (2004) furthermore explores the cross-linguistically different role that Number plays in kind reference. Thus, a task for future research is whether there are cross-linguistic differences in event kind references with respect to the presence or absence of verbal projections parallel to D and Num. For example, Mueller-Reichau (2013, 2015) argued for Russian that (grammatical) Aspect leads to the assertion that (parts of) the event has taken place (an event token). It is possible that in other languages, in particular those that lack grammatical aspect markers, the role of instantiating the event kind might be taken over by Tense.

Finally, the key idea underlying this manuscript is that (re-)categorisation of ver-

bal structure (as an adjective or as a nominal) has (or at least can have) consequences for the semantic nature of the underlying event: it does not get instantiated. We should expect that this idea has repercussions for the analysis of other non-verbal categories that have been argued to contain verbal structure, i.e. not just adjectival participles, for which I have argued in more detail that this is the case, or for particular nominalisations, for which I have argued this point in this manuscript only in passing. Further deverbal derivations should be taken into account, for example deverbal adjectives in *-able* (e.g. *debatable*), and different kinds of deverbal nominals should be investigated more closely.

We should also expect some parallels between event participants of deverbal adjectives and deverbal nouns. For example, a comparison of *by*-phrases with adjectival passives and with nominalisations might be revealing for the overall question whether or not adjectival passives contain Voice, which I have not discussed in further detail in chapter 3. Alexiadou et al. (2009), for example, argue that in English *by*-phrases can be licensed by Voice (e.g. in verbal passives) or by encyclopaedic knowledge associated with the (underlying) verb (e.g. in *-(a)tion*-nominalisations). They also suggest that the German counterpart of *-(a)tion* is *-ung*. Unlike adjectival passives, now, such nominalisations do not combine with *von*-‘by’, but only with *durch*-‘through’-phrases (introducing both agents and causers, from a semantic point of view). This, in turn, might indicate that the *von*-phrases in adjectival passives are licensed by Voice (a conclusion drawn on independent grounds also by McIntyre, 2013; Bruening, 2014; Alexiadou et al., 2014) and not just by encyclopaedic knowledge. A more detailed investigation of this question would have to address the general question concerning prepositions across verbal and nominal domains, also from a cross-linguistic perspective.

Further broader issues remain that do not have to do with event kinds per se. For one, there is no consensus in what counts as a manner adverb in the first place. Furthermore, throughout this paper it became evident that it was not always clear what counts as a conceptually established event kind, in particular when these were modified, which derived an event subkind. In the following, I briefly sketch these issues, but the overall investigation has to remain for future research.

### 6.1.1 What counts as a manner adverb?

In the discussion of manner adverbs or manner readings of adverbs it is commonly taken for granted what a manner adverb is. However, in the literature explicitly addressing this question there is no consensus and certainly no precise definition (see also discussion in Gehrke and Castroviejo, 2015). Just like there is no clear definition of what counts as a manner modifier, there are also no clear diagnostics to unequivocally identify a manner adverb. For example, while in English the sentence-final position is taken to host manner adverbs, it can also host adverbs that have been labelled degree or resultative or for that matter VP-internal adverbs more generally. Does that then mean that degree and resultative adverbs are a subtype of manner or are these distinct classes of adverbs?

Following Dik (1975), authors like Schäfer (2008), Piñón (2010) and Alexeyenko (2012) add manner as a primitive to the ontology, and they suggest that manner adverbs can at least be identified by paraphrase (*in a A manner*). However, we have also

seen in previous discussion (particularly in §4.3 and in the beginning of the previous chapter) that paraphrase alone does not suffice since there might be many different compositions to arrive at the same paraphrase. Others commonly treat manner expressions as event predicates, and in the discussion in §2.5.5 and §3 I at least suggested that all event kind modification can be seen as manner in the broadest sense. However, even that is not precise enough.

Among the authors that treat manner as applying to events, Geuder (2006) discusses three possible definitions. Under the first definition, a manner modifier could be taken to restrict some conceptual dimension of a multidimensional concept (of category V). Under this definition, manner modifiers could also apply to states, which are usually taken to be incompatible with (most) manner modifiers, as we will see below.

Under a more restrictive definition that Geuder discusses, manner modifiers could be taken to restrict the conceptual dimension of an event-denoting predicate. However, this raises the question what exactly counts as an event predicate and in particular how to draw the dividing line between events and states. This leads to another possible diagnostics for manner adverbs which would be those that require an eventive predicate, e.g. (1-a), and are incompatible with stative predicates, e.g. (1-b).

- (1) a. protest revoltingly  
b. #hate revoltingly

Given such observations, Katz (1995, et seq.) and Maienborn (2005, et seq.), for instance, argue that only eventive predicates have a (Davidsonian) event argument. Apparent counterexamples, where some adverbs classified as manner do apply to stative predicates (e.g. *completely, quickly, loudly*) are argued to not involve manner but degree or other types of modifiers, in particular by Katz. Both authors, however, disagree as to where the exact cutoff point is between events and states, and thus on the precise definition of a stative predicate.

In contrast, Mittwoch (2005) and Geuder (2006), for instance, have shown that there is no such principled distinction between events and states. Rather, both involve events in the broadest sense and thus come with a Davidsonian argument. The restrictions on modification of states rather have to do with the fact that states are conceptually simpler in the sense that they have less conceptual structure to make available attributes or properties that can be targeted by particular adverbs. In a recent extensive study on manner modification of stative predicates, Ernst (2016) takes up this point and shows that by increasing the conceptual complexity of the stative predicate, more manner modifiers become acceptable, as illustrated by his examples in (2).

- (2) a. intelligently funny  
b. militantly mild  
c. calmly busy  
d. complexly dense  
e. gracefully slender

Thus, the picture is not so black-and-white: Stative predicates are compatible with some adverbs that are clearly manner.

Finally, a third possible definition that Geuder entertains is that manner modifiers restrict the eventive type of conceptual dimension. Under this definition, only those

modifiers “addressing change-of-state concepts or continuation conditions (etc.) inside a verbal concept” would count as manner modifiers; for example, *sleep peacefully* would involve manner modification, but *shine brightly* would not.

Thus, possible definitions range from the most narrow to the broadest notion of ‘manner’. Under the narrow notion, only those adverbs are included that directly relate to the event described by the sentence and not to sub-aspects of it. Under the broadest notion, in turn, any adverb that can be analysed as predicating over (part of) an event (in the broadest sense, to include states) is a manner adverb.

If we take the broadest notion, we need to allow for subclasses of manner adverbs. For example, Schäfer (2005) distinguishes between implicit resultatives (e.g. *illegibly*) (cf. Bartsch, 1976), pure manner (e.g. *softly*), agent-oriented manner (e.g. *stupidly*), and scope-taking manner adverbs (e.g. *carefully*) (cf. Parsons, 1972, 1990). In Schäfer (2008), he implements Eckardt’s (1998) notion of a ‘big event’ to tackle cases in which an adverb does not apply to the event as a whole but to subaspects of it. Eckardt’s big event, represented by  $e^*$ , is a complex event consisting of smaller event objects, introduced by the **PART\_OF**-relation, as in (3).

$$(3) \quad \lambda P \lambda e * \lambda e [\mathbf{PART\_OF}(e, e^*) \wedge P(e)]$$

A manner adverb (in the broadest sense) can then target the big event or one of the smaller event objects (for related proposals see Dölling, 2003; Maienborn, 2003).

‘Implicit resultatives’ could also include adverbs discussed in the literature under other labels. ‘Degree-of-perfection’ adverbs (4) (Eckardt, 1998, 160), for instance, have been analysed as a special case of manner adverbs (Schäfer, 2005) or as possibly semantic blends of manner and result (Piñón, 2007).

- (4) a. Olga spielte die Sonate perfekt.  
 Olga played the sonata perfectly  
 ‘Olga played the sonata perfectly.’  
 b. Paul hat den Handstand mittelgut ausgeführt.  
 Paul has the handstand middle-well executed  
 ‘Paul executed the handstand sub optimally.’  
 c. Tim baute das Zelt schlampig auf.  
 Tim built the tent sloppily up  
 ‘Tim built the tent sloppily.’

‘Result-oriented’ adverbs, in turn, are taken to target implicit resultant objects (6) (Geuder, 2000, 81f.).

- (5) a. They decorated the room beautifully. → beautiful decoration  
 b. She dressed elegantly. → elegant dress  
 c. They loaded the cart heavily. → heavy load  
 d. She wrapped the gift nicely. → nice wrapping

Geuder (2000) discusses three different possible analyses of ‘result-oriented’ adverbs, which all treat them as predicates of events. While Parsons (1990) analyses them in terms of result state modification, Pustejovsky (1995) invokes modification of the event in the telic quale of the verb. Similar semantic effects are also found with so-called ‘degree’ readings of *well* (6), which McNally and Kennedy (2013) also analyse

as applying to the telic quale of an event (see §6.2.1 for further discussion and an alternative proposal).

- (6) a. They are well acquainted.  
b. The truck is well loaded.

Geuder himself opts for a third type of approach, under which the resultative meaning comes about by predicate transfer (in the sense of Nunberg, 1995) which turns this event modification into indirect modification of resultant individuals that are hidden in a verb's meaning as implicit (semantic but not syntactic) arguments.

To conclude, there is no consensus on the precise definition or diagnostics for manner adverbs, and in many respects it depends on whether we take a narrow or a broad notion of manner. This difficulty in precisely pinning down manner not only arises under approaches that treat manner as event predicates but also under those that add manner as a primitive to the ontology. Returning to the topic of this manuscript, it may very well be possible that under a broader notion of manner, only a subclass of such modifiers apply to event kinds whereas others might require event tokens; this point has to be left for future research.

Let us then turn the the question what counts as an event kind, especially taking into account modified event kinds and the idea that such event kinds have to name an established event concept.

### 6.1.2 What counts as an event kind?

In the discussion of event kind modification in particular it became clear that such modification seems to be acceptable only if the event kind thus derived is somewhat established or noteworthy. This leads to the more general question as to what constitutes an event kind. For any lexical verb stored in the lexicon, we can assume that these are generally associated with event kinds, but as soon as a VP gets modified by an event kind modifier, this question becomes more tricky.

Asher (1993, 47), for example, characterises event types as being events of the same type “naturally connected together” in some sort of script-like world knowledge, with scripts in the sense of Schank and Abelson (1977). As we have already briefly discussed in chapter 5, Geuder (2000, 172) notes that “the different manners of an event are the alternative ways in which an event can unfold while still falling under the same event type”. Here, again, event types are related to Schank and Abelson's notion of scripts, which allow for variants and thus for the specification of manner.

In his discussion of agent-oriented vs. manner readings of adverbs, Geuder (2000) furthermore observes that manner readings, which thus rely on script knowledge, are not always possible with these adverbs. This is illustrated in his example from English in (7-a), where the adverb should receive a manner rather than an agent-oriented reading, due to its sentence-final position (cf. Jackendoff, 1972; Ernst, 2002), and by a further example I add from German, in which the form of the adverb itself signals that it has the manner and not the agent-oriented reading (7-b).

- (7) a. ?John left the room recklessly.  
b. #Hans hat den Raum dumm verlassen.  
John has the room stupid left

Intended: ‘John left the room stupidly.’

For (7-a) Geuder points out that there is no clue from the script of leaving events as to what dangers could intrinsically be connected to this event type (unlike what we get with, e.g., *drive recklessly*). (7-b) creates the same unease for the manner reading of the adverb (signalled by #), and *dumm* ‘stupid’ here can only be understood as a depictive adjective, which in German is morphologically identical to a manner adverb (cf. discussion in Geuder, 2000; Schäfer, 2005, 2013).

The role of scripts for event kinds is also explored more recently by Irmer and Mueller-Reichau (2012, 2016) in accounting for restrictions on the modification of adjectival participles by *still*, and it is the object of current ongoing research by Mueller-Reichau.<sup>1</sup> The following quote from Mueller-Reichau (2015), for instance, elaborates on the well-establishedness condition on event kinds as a requirement for the general-factual use of the Russian imperfective (on which see op.cit., as well as §6.2.3), which is quite similar to the well-establishedness requirement on event kinds in adjectival passives I described in chapter 3 (for a comparison of these two empirical domains see Mueller-Reichau and Gehrke, 2015).

[A]n activity is well-established if it is shared knowledge that a realization of the activity will have a specific consequence: it must imply a recategorization of the agent of the event [...] this is tantamount to saying that the realization of the activity must be known to imply the assignment of a new individual-level property to the agent. (Mueller-Reichau, 2015, 291)

This condition rules out activities that are not familiar (out of context) to both speaker and hearer or that are too ordinary to count as well-established, i.e. to lead to a re-categorisation of the agent of the event. Thus, investigating scripts is a promising endeavour for future research, in particular for getting a better understanding of the well-establishedness requirement on modified event kinds.

In the following section, I will briefly outline current research I am involved in that does not directly relate to event kinds.

## 6.2 Current research

In this section, I briefly outline research topics that I am currently involved in. In §6.2.1 I address collaborative research with Elena Castroviejo on modification by *well* and *good* in German and Catalan. §6.2.2 briefly outlines a processing study we did (with Nino Grillo, Artemis Alexiadou, Nils Hirsch, Caterina Paolazzi, and Andrea Santi) (Grillo et al., submitted), which builds on previous work with Nino Grillo (Gehrke and Grillo, 2009, 2010) in which we propose a theoretical account of verbal passives which predicts that verbal passives of statives should be harder to process (and to acquire) than those derived from eventive predicates. Finally, §6.2.3 summarises preliminary results of a corpus study with Olga Borik into periphrastic passive constructions employing imperfective past passive participles in Russian, which traditionally are assumed not to occur (at least not productively), but for which we found

<sup>1</sup>For more details on the categorisation of nominal kinds and subkinds see Mueller-Reichau (2011).

regular and compositional examples in the corpus. This section ends with a broader research topic that I want to focus on in the future, namely that of cross-Slavic variation in the expression of passives and aspectual restrictions on the formation of participles and event nominalisations, mainly by comparing Russian and Czech. This line of research will also be able to build on my more descriptive MA thesis (Gehrke, 2002) which compared Russian and Czech aspect usage in narrative discourse.

### 6.2.1 Modification by *well* and *good*

In recent papers (Castroviejo and Gehrke, 2015, submitted; Gehrke and Castroviejo, 2016), Elena Castroviejo and I investigated different readings that the adverb *well* can have in English, German and Catalan. While the adverb *well* commonly behaves like a manner modifier in the verbal domain (8-a), Kennedy and McNally (2005) (K&McN), in their investigation of scale structure requirements on degree modification of adjectival participles, discern a use of *well* as a degree modifier in the adjectival domain (8-b) (see also Bolinger, 1972).

- (8) a. He has written the article well.                    ~ in a good way (MANNER)  
 b. They are well acquainted.                            ~ to a good degree (DEGREE)

They argue that the degree reading of *well* only comes about with scales that are closed on both ends, evidenced by their compatibility with *partially* or *fully* (9).

- (9) a. The truck is well / partially / fully loaded.  
 b. ??Marge was well / partially / fully worried when she saw the flying pig.

Treating ‘degree’ *well* as a standard booster, they posit a further condition: the standard of comparison cannot be the maximum. E.g. what counts as a loaded incremental theme, K&McN argue, can only be such that the maximum standard is met (completely loaded); the degree reading of *well* is unavailable (10-a). With other arguments (10-b), the standard is not necessarily the maximum (a truck can be partially loaded); the degree reading is available.

- (10) a. The hay is well loaded. ~ manner only  
 b. The truck is well loaded. ~ manner and degree

However, they note that degree *well* cannot be a true degree modifier: true degree modification does not allow additional degree modification (11-a), whereas ‘degree’ *well* does (11-b).

- (11) a. \*{completely very / very completely} red  
 b. very well acquainted

Building on K&McN’s observations but providing a different account, not couched within an account for ad-adjectival degree modification, we investigate the behaviour of *well* also in the verbal domain. This has to do with the fact that the examples to illustrate the degree reading of *well* commonly involve participles, whereas it is generally not possible to use *well* as a degree modifier of genuine adjectives. Similar observations hold for German (12).

- (12) \*Der Zug ist gut blau / lang / schön.  
 the train is well blue long beautiful

This suggests that *well* is exclusively a VP modifier (a predicate of events). This in turn means that we should change the perspective by moving away from the adjectival domain and investigating the conditions under which a degree reading arises in the verbal domain. In fact, when we looked at German, the same verbs that do or do not give rise to a degree reading with adjectivised participles (which combine with the copula *sein* ‘be’; cf. chapter 3) also do or do not so with verbal participles (which combine with the auxiliary *werden* ‘become’) (13).

- (13) a. Der Lastwagen {ist / wurde} gut beladen. DEGREE/MANNER  
 the truck is became well AT-loaded  
 b. Das Heu {ist / wurde} gut geladen. ONLY MANNER  
 the hay is became well loaded

This difference is related to event structure and only indirectly to scale structure: with incremental theme verbs such as *laden* ‘load (x on y)’ (13-b), there is no scale to begin with but it is only provided by the incremental theme (as Kennedy, 2012, argues himself); hence the verb itself only has an activity component that can be modified by *well*, thus giving rise to the manner reading. This is different with the prefixed verb *beladen* ‘load (y with x)’, which has a built-in stative component that can be modified by *well*, giving rise to the degree reading.

Additionally, even verbs that do not have adjectival participles allow for the degree reading, as the stative one in (14-a); other verbs do not, cf. the necessarily agentive one in (14-b).

- (14) a. Sie kennen einander gut. DEGREE  
 they know each other well  
 b. Sie ist gut in den Baum geklettert. ONLY MANNER  
 she is well in the.ACC tree climbed

Whether or not we get a degree reading of *well*, then, depends entirely on the nature of the event denoted by the (underlying) verb. With verbs that only have an activity component (13-b), or whose manner/activity component cannot be absent (e.g. they cannot appear as anti-causatives) (14-b), we only get the manner reading. With verbs that have a stative component (resultatives and statives) the degree reading is possible (13-a), (14-a). Thus, ‘degree’ *well* is an event predicate (a manner modifier, in the broadest sense of manner, as outlined in §6.1.1), predicated over the stative (sub)event of non-agentive verbs or verbs that allow for a non-agentive reading.

To account for the restrictions on *well* in English and German, we assume that the adverb *well* under both readings has the same general lexical semantics as the underlying adjective *good* (approval by some judge). We treat *good* as a relation between degrees and individuals (15-a) (cf. Kennedy, 1999, i.a.). Given the standard treatment of manner modifiers as predicates of events, we get the semantics in (15-b).

- (15) a.  $[[\text{good}]] = \lambda d. \lambda x [\text{good}(x) \geq d]$   
 b.  $[[\text{well}]] = \lambda d. \lambda e [\text{good}(e) \geq d]$

In the absence of additional degree morphology  $d$  gets bound by POS, which determines the standard with respect to some comparison class.

To formalise the degree reading, we build on Schäfer's (2008) underspecification account illustrated in §6.1.1, which, in turn, builds on Eckardt's (1998) notion of a 'big event', represented by  $e^*$ , which is a complex event consisting of smaller event objects, introduced by the **PART\_OF**-relation. Abstracting away from the degree argument, which is bound off by POS at this point, *good* accesses either the big event or part of the event (16).

- (16)  $\exists e^* [\text{subject}(\text{John}, e^*) \wedge \text{object}(\text{the-cart}, e^*) \wedge \exists e [\text{PART\_OF}(e, e^*) \wedge \text{load}(e) \wedge \text{good}(e/e^*)]]$

The results of this study are presented in Gehrke and Castroviejo (2016).

In Castroviejo and Gehrke (2015, submitted), we further explore Catalan *ben* 'well', which actually can appear with genuine adjectives and then expresses intensification. In particular in the latter paper we discuss the overall behaviour of degree expressions under negation and interrogation and propose an account of the positive polarity distribution of *ben*.

Based on the observation that Spanish expressions of extreme degree, such as *bien* 'well' in (17), are incompatible with negation and cannot occur in questions, Bosque (1980), González-Rodríguez (2006), and Hernanz (2007) argue that they should be analysed as positive polarity items (PPIs).

- (17) Irene (\*no) es **bien** espabilada.  
Irene (\*NEG) is well bright  
'Irene is (\*NEG) quite bright.'

Catalan ad-adjectival *ben* 'well' behaves much like Spanish *bien* in (17), as it also cannot occur under negation or in a question (18) (unless it receives an echo interpretation).

- (18) a. En Pere (\*no) és **ben** alt.  
the Peter (\*NEG) is WELL tall  
'Peter is (\*NEG) pretty tall.'  
b. \*En Pere és **ben** alt?  
the Peter is WELL tall

The PPI analysis of Spanish *bien* in examples like (17) builds on two main claims: (i) relatives (i.e. extreme degree modifiers) are the PPI counterpart to minimisers (strong NPIs), since they place the subject of the property on the topmost end of a scale; (ii) *bien* has assertive uses analogous (to some extent) to *sí* 'yes', as shown in (19) (cf. Hernanz, 2007).

- (19) a. **Bien** ha cantado la soprano.  
WELL has sung the soprano  
'WELL, the soprano has sung.'  
b. **Sí** ha cantado la soprano.  
yes has sung the soprano  
'The soprano did sing.'

Similarly, Morzycki (2012a) identifies the PPI behaviour of ‘extreme degree modifiers’ in English (e.g. *downright*, *absolutely*, *full-on*), as in (20).

- (20) a. \*Murderers aren’t **downright** generous.  
b. \*Are murderers **downright** dangerous?

Rather than providing a PPI analysis, however, he associates their resistance to embed under negation and questions with the regular behaviour of expressive items (Potts, 2007), as in (21) (see also discussion in chapter 5).

- (21) a. \*Peter isn’t **fucking** calm.  
b. \*Is Peter **fucking** calm?

There are further arguments against motivations (i) and (ii) for the PPI analysis of elatives, more generally. Unlike the Spanish extreme degree expression *extremo* ‘extremely’, its French counterpart *extrêmement* can occur under negation; furthermore, degree expressions that can occur under negation in Spanish (e.g. *mucho* ‘very’) are quite marginal in other languages (e.g. *molt* ‘very’ in Catalan). Therefore, extremeness does not seem to be the key to the polarity behaviour of such expressions. As for the data in (19), the analogy with *yes* is partly based on their syntactic position, which is not shared with ad-adjectival *ben*. Moreover, *ben* exhibits further discourse restrictions that do not follow from it being a PPI.

For example, elative *ben* cannot be used as a reply to a question of the form *how is x?* (22). By contrast, it is acceptable if the property ascription has been previously challenged (23).

- (22) A: Com és en Carles?  
how is the Charles  
‘What is Charles like?’  
B: És {molt / #ben} intel·ligent.  
is very WELL intelligent  
‘He is {very/#WELL} intelligent.’
- (23) A: Ahir m’ho vaig passar molt bé amb en Pere. És tan  
yesterday me-it have.1SG passed very well with the Peter is so  
divertit!  
funny  
‘I had such a blast yesterday with Peter. He is so funny!’  
B: Doncs jo el trobo ben avorrit.  
actually I him find well boring  
‘Actually, I find him WELL boring.’

Furthermore, elative *ben* cannot be modified by an intensifier like *molt* ‘very’ (24-a). This would follow automatically if it were a regular degree modifier but then it should not have the discourse properties illustrated above; in particular (22) shows that *molt* is acceptable in cases where *ben* is not. *Ben* also surfaces as a regular event modifier when it combines with participles, in which case it can be further modified by *molt* (24-b) (cf. the discussion of Kennedy and McNally, 2005, above).

- (24) a. \*molt **ben** alt  
           vey WELL tall  
       b. molt **ben** pintat  
           very WELL painted

Instead of treating elative *ben* as a degree modifier that operates on the degree argument by setting a new standard, we claim that it derives degree intensification by positively evaluating a property ascription. In particular, it implies high degree only indirectly, by operating on the saying event. This allows us to provide a unified analysis for manner (e.g. (24)) and elative *ben*, and to recast the lexical semantics of *ben*, GOOD, as part of the analysis. E.g. (18-a) conveys that *tall* is WELL ascribed to Peter. Building on Piñón's (2013) performative account for speaker-oriented adverbs such as *frankly*, we propose that *ben* introduces a saying event corresponding to the actual utterance whose expression manner is characterised as good (25).

- (25)  $\llbracket 2\text{-a} \rrbracket$ :  $\text{utterance}(C) = e \wedge \text{speaker}(C) = x \wedge \text{hearer}(C) = y \wedge \text{say}(e, \llbracket \text{POS tall} \rrbracket(\mathbf{p})) \wedge \text{now} \subseteq \tau(e) \wedge \text{agent}(e, x) \wedge \text{recipient}(e, y) \wedge \text{good}(\text{expression}(e))$

We argue that elative *ben* cannot be in the scope of negation or interrogation, because on top of the entailed content that the subject meets the standard of Adj-ness (i.e. Pos-Adj(x)), it conventionally implicates that Pos-Adj(x) is a GOOD property ascription. Since its output is not at-issue, we propose that elative *ben* is of type  $\langle \langle e, t \rangle, \langle e, t^c \rangle \rangle$  (Potts, 2005). As such, it cannot be further modified (24-a), denied or questioned (18). As for (22) and (23), we posit that self-evaluation of an asserted content has an emphatic effect, so *ben* will be felicitous in contexts where such a redundancy is possible; i.e. not when new, at-issue information is required.

Summing up, the positive polarity distribution of elative *ben* follows from characterising a saying event and hence delivering an emphatic meaning, amenable to a conventional implicature. Other elatives could receive an analogous treatment; instead of evaluating a property ascription, though, they conventionally implicate that the saying event is emphatic. The broader picture that emerges, then, is that items that contribute expressive meanings could be added to the elements that display properties of PPIs, but it remains to be seen whether a treatment of these items as PPIs in and by itself helps understand their behaviour.

In current ongoing research, we aim at broadening this account by addressing the semantic contribution of Catalan *bon* 'good' in contexts where it emphasises the property denoted by the modified N and thus has an intensifying use (also present in other Romance languages). Relevant examples are the following.

- (26) a. una bona dosi vs. #una mala dosi  
           a good dose    a bad dose  
           ≈ a big dose  
       b. un bon tros vs. #un mal tros  
           a good piece    a bad piece  
           ≈ a big piece
- (27) Hem tingut un bon ensurt!  
       we had a good shock  
       '≈ We had a big shock!'

- (28) (#No) he menjat un bon tros de pa.  
 NEG have.I eaten a good piece of bread  
 ‘I have (#not) eaten a good piece of bread.’

We aim to make the notion of ‘emphasis’ more specific by claiming the following: (i) INTENSIFYING GOOD selects the good members of the property denoted by N; (ii) a non-truth-conditional content is conveyed to the effect that if the subject were higher in the ordered domain denoted by N, it would also be a good instance of N (monotonicity), and (iii) the utterance of INTENSIFYING GOOD may yield the expression of an emotive component, such as satisfaction or the opposite depending on the denotation of N. First results of this research have been or will be presented at Going Romance 2016 and at a workshop on Secondary Information and Linguistic Encoding, which will be part of the 2017 DGfS meeting.

### 6.2.2 The processing of verbal passives

Not many experiments have investigated the processing of passive sentences in unimpaired adults, and the few existing studies were conducted mostly in English and typically measured either offline comprehension or reading times (RTs), but not both. A fragmented picture emerges from these studies, showing that passives lead to worse performance in comprehension (Ferreira, 2003), but faster RTs in reading (Carrithers, 1989; Rohde, 2003; Traxler et al., 2014). As recently argued by Paolazzi et al. (2015, 2016), it is hard to evaluate the role of voice alternation itself in determining previous results as these are potentially confounded by three factors: i. variable degree of morphological richness across voice, which likely influences RTs; ii. ubiquitous presence of adjectival/verbal passive ambiguity in English and iii. the use of a mixed bag of verbs, which is problematic at the light of ii. since event structure interacts with this ambiguity.

Paolazzi et al. (2015, 2016) show that, contrary to broadly held theoretical perspectives, (English) passive sentences are not inherently harder to process than actives. Complexity of passivisation in English is tied to the aspectual class of the verbal predicate passivised (as predicted by the account in Gehrke and Grillo, 2009, 2010): with eventive predicates, passives are read faster (as previously observed in the literature) and generate no comprehension difficulties (contrary to previous findings with mixed predicates). Complexity effects with passivisation, in turn, are only found with stative predicates. The asymmetry is claimed to stem from the adjectival/verbal ambiguity of stative passives in English.

In our current research (Grillo et al., submitted) we tested Paolazzi et al.’s account by looking at the processing of verbal passives in German. As we have already seen in chapter 3 and in contrast to English, German passives are unambiguously verbal or adjectival so that this feature allows for the study of passivisation independent of any (verbal/adjectival) ambiguity confound. We conducted two word-by-word non-cumulative self-paced-reading studies in a moving-window paradigm that manipulated syntax (active vs. passive), with each sentence followed by a comprehension question. The first experiment contrasted the processing of actives and passives built on eventive predicates, while the second used stative verbs (in particular subject experiencers). The prediction was that when the adjectival reading is no longer available, the effects observed with English statives should disappear. The results supported this

prediction, both offline and online: unambiguously verbal passives in German are just as easy to understand as their active counterpart, and this effect is independent of the eventive vs. stative nature of the underlying predicate.

The present paper thus adds to the picture in Paolazzi et al. (2015, 2016) in two ways. First, we replicate the main finding, showing that passives are not necessarily harder to parse than actives. Second, by embedding stative verbs in unambiguously verbal passives in German, we indirectly support the claim in the previous study that the interaction of the adjectival/verbal ambiguity with the lexical aspect of the underlying predicate (state vs. event) is responsible for previously observed complexity effects with English passives. We interpret the German findings, which particularly differed in Experiment 2, by arguing that the effect in English is indeed due to the ambiguity between the adjectival and the verbal reading of the passive. The ambiguity is maintained up until the specific *by*-phrase, which forces structural reanalysis and possibly coercion of the stative predicate into a consequent state (as argued by Gehrke and Grillo, 2009, 2010). As no ambiguity is present in German (and furthermore no coercion into an inchoative reading is needed), no complexity effects are expected.

We are currently writing up the results and plan to submit the paper to a journal. The next and final topic also deals with passives.

### 6.2.3 The presuppositional imperfective passive in Russian

As in all Slavic languages, the Russian verbal paradigm contains forms for grammatical imperfective and perfective aspect (just like, e.g., English verbal paradigms have forms for grammatical past and present tense), and this across the board, i.e. for both finite and non-finite verb forms. The point of departure for our study is that Russian imperfective (IPF) past passive participles (PPPs) are commonly assumed not to occur in regular periphrastic passive constructions (e.g. Schoorlemmer, 1995; Dickey, 2000; Paslawska and von Stechow, 2003).<sup>2</sup> This is so because the generally accepted semantics for PPPs is formulated in terms of a consequent state attributed to a subject of a passive sentence, and completed events (with consequent states) are normally described by the perfective (PF) in Russian. Thus, there is a wideheld assumption that Russian PPPs are regularly derived only from PF verbs; the few IPF ones that one finds are thus assumed to be part of fixed/idiomatic expressions, possibly frozen forms that function like genuine adjectives, but certainly not found in regular passive constructions.

For example, the Academy Grammar (Švedova, 1980) states that IPF PPPs are rarely used and difficult to distinguish from adjectives, and it lists a number of IPF verbs that do not form PPPs at all, including secondary imperfectives (SIs, i.e. IPFs with IPF marked by a suffix and added to a (commonly) prefixed verb, which would be PF without the suffix). A more nuanced view is found in Knjazev (2007), who also notes that IPF PPPs are used a lot less often and attributes this to the fact that PPPs cannot refer to an event in process, one of the main functions of the IPF. However, he observes that in cases we do find IPF PPPs (in regular opposition to PF ones) they express one of the ‘retrospective’ IPF meanings, such as repeatability or the so-called general-factual meaning (on which see below).

<sup>2</sup>IPF verbs are assumed to instead rely on the reflexive to express a passive, similar to the passive use of reflexive constructions in Romance languages. I come back to reflexive passives at the end of this section.

In current ongoing research, first results of which were presented at a couple of conferences and workshops<sup>3</sup>, Olga Borik and I conducted a corpus study into the Russian national corpus (*ruscorpora.ru*) to look at IPF PPPs in predicative position. For practical reasons, the search was restricted to IPF PPPs directly preceding or following a finite form of *byt'* 'be'. Our purpose was to investigate the following questions: (A) Are IPF PPPs limited to fixed or idiomatic expressions and should the PPP in question be viewed as a genuine adjective instead? (B) Do only particular verb classes or certain IPF forms derive PPPs, e.g. are SIs excluded? (C) If we find non-idiomatic IPF PPPs in clear passive constructions, what are the particular features of these contexts? (D) What would be a general semantic-pragmatic characterisation of an IPF PPP, and what kind of account captures these? Our preliminary findings are as follows.

Concerning (A), we certainly found examples that could be treated as idiomatic (e.g. *lykom šit* lit. 'sewn with bast fiber', meaning 'simple, ordinary'), fixed expressions (e.g. *byl rožden/kreščen* 'was born/baptised') or as PPPs used as genuine predicative adjectives, such as *viden*. lit. 'seen' but rather meaning 'visible', and similar such forms related to perception verbs (e.g. *slyšan* 'heard, audible'). On the other hand, we also found many cases of IPF PPPs used productively in passive constructions, such as those in (29), contra the received view.

- (29) a. Recepty im pisany byli i na drugoe imja [...] prescriptions he.INSTR written.IPF were and on other name  
'The prescriptions were written by him for different names as well.'
- b. Znamenitij pokojnik nesen byl do mogily na rukax [...] Famous deceased.NOM carried.IPF was until grave on arms  
'The famous deceased was carried in arms until the grave.'

Even more surprising, given the received view, is that our IPF PPPs, which function as true passive participles in passive constructions, give rise to both a stative/adjectival (in (30-a)) and an eventive/verbal passive (in (30-b)), as witnessed by the event-related modifiers; cf. chapter 3).

- (30) a. Kryt byl dom solomoj [...] covered.IPF was house hay.INSTR  
'The house was covered with hay.'
- b. Pisano èto bylo Dostoevskim v 1871 godu [...] written.IPF it was Dostoevskij.INSTR in 1871 year  
'This was written by Dostoevskij in 1871.'

In particular in the latter case, then, they do not behave as genuine adjectives, but have typical features of a participle.

As for (B), the general impression is that we find many verbs of saying and incremental verbs of creation (*write, sew, publish, make* etc.), though not exclusively (cf. *carry* in (29-b)). Nevertheless, we did not attest a lot of different PPPs in our search, they were mostly the same forms appearing in many different contexts. This suggests that there might still be lexical restrictions, but our sample size is also fairly

<sup>3</sup>HSE Semantics & Pragmatics Workshop (Moscow, September/October 2016), Event Semantics 2016 (Düsseldorf, November 2016), Formal Description of Slavic Languages 12 (HU Berlin, December 2016), TELIC 2017 (Stuttgart, January 2017)

small. The productivity of those IPF PPPs that we found corroborates their transparent (compositional) semantics. Finally, we encountered few SI PPPs in passives, and since all the attested examples are archaic (i.e. from biblical texts or texts from the 18th century or before) we conclude that they are not productive.

Concerning (C), we could confirm Knjazev's (2007) observations: passive IPF PPPs are found in non-progressive IPF contexts, e.g. in the clearly iterative/habitual context in (31).

- (31) [Vjačeslav ...] kormlen byl skupo, sderžanno [...]  
 Vjačeslav fed.IPF was sparingly reservedly  
 'Vjačeslav was fed little.'

However, our preliminary results show that in most, if not all cases we found the general-factual reading of the IPF at play, i.e. a traditionally well-described non-canonical use of the IPF to refer to a completed event and report the sheer fact that it happened; such uses, however, are commonly described for active sentences so that our data from passives broadens the empirical domain for which this use has been attested. In particular, as an answer to (D), we argue that we are dealing with Grønn's (2004) presuppositional factual IPFs, as in (32).

- (32) a. Stroeno bylo èto ploxo, xromo, ščeljasto.  
 built.IPF was that badly lamely with.holes  
 'It was built/constructed badly, defectively, with holes.'  
 b. Zapiski byli pisany ne dlja pečati [...]  
 notes were written.IPF not for print  
 'The notes were written not to be printed.'

In these (as in all previous) examples, the event's completion is backgrounded and presupposed, whereas in the foreground we find an expression (a modifier) specifying the manner (in the broadest sense) or the quality of the event. This is furthermore reflected by the non-canonical (or at least marked) word order with the PPP in sentence-initial topic position and the foregrounded information expressed by the modifier appearing after BE, in focus.

As for (D), we assume Grønn's (2004) DRT account of the presuppositional factual IPF, illustrated in (33-a), along the lines of (33-b) and (33-c) (with the VP embedded under Aspect).

- (33) a. V ètoj porternoj ja napisal pervoe ljubovnoe pis'mo. Pisal  
 In this tavern I wrote.PF first love letter wrote.IPF  
 [karandašom]<sub>F</sub>.  
 pencil.INSTR  
 'In this tavern, I wrote my first love letter. I wrote it [in pencil]<sub>F</sub>.'  
 b. [VP]:  $\lambda e[x]$  Instrument( $e, x$ ), pencil( $x$ )<sub>[write(e)]</sub>  
 c. [AspectP]:  $\lambda t[x]$  Instrument( $e, x$ ), pencil( $x$ )<sub>[e|write(e), e ⊆ t]</sub>

In this notation, the subscripted part introduces presupposed information into the DRS, here the writing event itself. Presuppositions, in turn, are treated as discourse anaphoric (building on van der Sandt, 1992), so that it has to refer back to a previously introduced event, e.g. the PF form in the first sentence in (33-a), or has to be justified

by the input context.

We propose that this account can be extended to our cases of passive IPF PPPs, and we are currently working on the precise formalisation. Thus, as an answer to the more general question concerning what kind of consequent state an IPF PPP could possibly refer to, we propose that since the event's completion is only presupposed, the IPF shifts the focus on another aspect of the event, instead of the consequent state. Here, depending on the lexical properties of the verb, we get different results, but mostly it is about some circumstance of the event, be it its manner/quality or purpose. We furthermore speculate that the lack of SI PPPs is also due to the fact that SIs morphologically mark both a consequent state (commonly by a prefix) as well as one of the two canonical IPF meanings (progressive, repeatability), and none of these meaning components are prominent or even present in general-factivals (cf. Gehrke, 2002). Future work has to take into account a larger data set (for now we only manually inspected a fraction of the data) and to investigate the broader contexts in which IPF PPPs occur to make sure that the presuppositions associated with them are licensed either by a PF form in a previous sentence or justifiable (deductible) from the context (possibly involving bridging). Finally, we have to be more precise about the marked word order as part of the larger topic 'information structure', which we have not dealt with so far.

In the long-run I plan to investigate cross-Slavic variation in the expression of passives and aspectual restrictions on the formation of past passive participles and event nominalisations. For example, the received view for Russian that past passive participles can be derived productively only from perfective verbs (as outlined in the beginning of this section, even though, as we show, this does not hold across the board) has been stated for Russian only. Czech, on the other hand, regularly derives such participles from both perfective and imperfective verbs. A similar difference in the presence vs. absence of aspectual restrictions has been reported for the derivation of event nominals (of the type Russian *razrušenie* 'destruction', as related to the verb *razrušit* 'destroy.PF'): Russian regularly derives such nominals only from one aspect form (e.g. there is no *razrušanie* from *razrušat* 'destroy.IPF') and the corresponding nominalisations have been described as 'aspectually neutral', whereas in Czech we find regular such derivations from both imperfective and perfective verbs, with the predictable aspectual meaning differences (cf. Dickey, 2000).

Such restrictions raise several issues: Is the verbal syntactic structure inside such participles and nominals smaller in Russian than in Czech, in the sense that in Czech Asp(ect) is part of it but in Russian it is not? Alternatively, is Russian Asp higher than Czech Asp? More importantly for my research interest, what does that mean from a semantic point of view? For example, if the event in nominalisations remains in the kind domain, does that mean that Czech event kinds can come in both kinds of grammatical aspect and thus event realisation should be tied to Tense, rather than Aspect, whereas in Russian they cannot, and Asp is responsible for event realisation? Furthermore, is there a deeper semantic difference in grammatical aspect between Russian and Czech?

Returning to the domain of passives, unlike the Russian imperfective past passive participles that we encountered in our corpus study, which seem to be restricted to non-process readings of the imperfective aspect (and past passive participles in general to events that have reached their result), the corresponding Czech participles can also re-

fer to passive ‘events in process’ (Radek Šimák, p.c.). Like many Romance languages, most Slavic languages also have a reflexive synthetic form to express a passive meaning. However, unlike Russian, Czech reflexive passives are not full-fledged verbal passives (cf. Schäfer, 2016): *By*-phrases are possible in Russian (34) (from Babby and Brecht, 1975) (see also (30-b)) but not in Czech (35) (from Fehrmann et al., 2010).<sup>4</sup>

- (34) Kalitka otkryvalas’ Olegom. RUSSIAN  
 gate.NOM opened.IPF.RFL Oleg.INSTR  
 ‘The gate was (being) opened (IPF) by Oleg.’
- (35) Šaty se právě šijí (\*babičkou). CZECH  
 dress.NOM.PL RFL right-now sew.3PL grandmother.INSTR  
 ‘The dress is being made right now.’ (*by*-phrase impossible)

Judging from the literature and the data, then, it does not seem to be possible in Russian (unlike what we find in Czech) to have a passive event-in-process reading with periphrastic passives; this can only be expressed by the reflexive passive. There are several possible explanations for these differences, which I would like to explore in the future.

For example, it is possible that languages with ‘productive’ IPF/PF PPPs (e.g. Czech) form regular periphrastic verbal passives with all IPF/PF meanings. This leaves the status of the reflexive passive open, but see Fehrmann et al. (2010); Schäfer (2016) for suggestions, and this could be another subtopic for investigation. For other languages like Russian there are two options. One could be that periphrastic passives (BE+PPP) are always adjectival, and only reflexive passives are verbal; however this option leaves unexplained why we get the whole range of event-related modifiers with such passives (on which see also Borik, 2013, 2014).<sup>5</sup>

The second option, which I find more plausible at the moment, is that BE+PPP can express both verbal and adjectival passives, but can only express result states (Kratzer’s 2000 ‘target states’). Reflexive passives, then, (which are always verbal) fill the gap, i.e. for verbs that do not have ‘target states’, which seems to be an input requirement for Russian PPPs, as well as for passive event-in-process readings. Under this option, it is still unclear though why Russian periphrastic passives cannot have a process meaning in the first place, not even with the IPF. It is not clear whether this restriction is due to the wide-held assumption that Russian IPF PPPs do not form passives (in that case this is a chicken-and-egg problem), or due to an actual ban on process readings of periphrastic passives. There might also be a split in ‘imperfective meanings’ conveyed by different passives, in the sense that the (more canonical) process meaning (and possibly also the habitual meaning) can only be expressed by re-

<sup>4</sup>Fehrmann et al. (2010) show that *by*-phrases with reflexive passives are possible in East Slavic (Russian, Belorussian, Ukrainian), Bulgarian and Upper Sorbian, but not in the other Slavic languages.

<sup>5</sup>A similar issue arises with some Greek passive participles which allow all kinds of event-related modifiers, even those that spatiotemporally locate the event and referential *by*-phrases, unlike what we find with German adjectival participles (recall chapter 3). Nevertheless, the literature on such participles (e.g. Anagnostopoulou, 2003; Alexiadou and Anagnostopoulou, 2008; Alexiadou et al., 2015) unanimously treats these participles as adjectival rather than verbal, and claims that verbal passives are always expressed by the so-called mediopassive, which is similar to the Slavic reflexive passives in the example above. These approaches argue that the modifiers are licensed by Voice; however, I do not see how Voice alone can also be responsible for the verbal properties of these participles that correspond to spatiotemporally located event tokens.

flexive passives and other (sometimes called ‘peripheral’) IPF meanings, specifically the iterative and (all types of) general-factual ones, are expressed with periphrastic passives (usually with PF PPPs). Even if this turns out to be the right description, it still calls for an explanation.

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