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Adjectival *as*-phrases as intensional secondary predicates *

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Abstract This paper focuses on adjectival *as*-phrases that co-occur with transitive verbs and contribute additional information on the verb's internal arguments. I claim that these *as*-phrases behave like secondary predicates, specifically object-oriented depictives, but—in contrast to object-oriented depictives—contribute intensional content, a modal property. In the course of the paper, I delimit the type of *as*-phrases that are covered in this paper, and I propose a formal analysis for these cases that builds on results by Rothstein (2003) on object-oriented depictives and the notion of information-based modality in Kratzer 2012. I show how the analysis captures the entailment patterns found with these *as*-phrases, and how it can be extended to related nominal *as*-phrases.

Keywords: adjectival *as*-phrases, modal property, secondary predicates, object-oriented

1 Introduction

In English, phrases headed by *as* come in various forms and can serve different functions. This paper focuses on a subset of English adjectival *as*-phrases, illustrated in (1). These adjectival *as*-phrases co-occur with transitive verbs and contribute additional information on the verb's internal argument.

(1) a. Peter sold the camera **as new**.
b. The Post Office returned the letter **as undeliverable**.

One characteristic of these *as*-phrases, which is immediately observable for both examples in (1), is that the property contributed by the adjective in the *as*-phrase is not claimed to hold of the internal argument. That is, if a speaker utters (1a), she does not claim that the camera was new; and similarly if a speaker utters (1b), she does not claim that the letter was undeliverable. However, both sentences in (1) convey that the circumstances of the selling and the returning were such that

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something or someone suggested that the camera was new at the time of the selling and the letter was undeliverable at the time of the returning, respectively.

The main idea to be defended in this paper is that adjectival *as*-phrases, as in (1), perform a function that is similar to that of secondary predicates, as in (2).

(2) Mary drank the tea **hot**.

In the literature, secondary predicates are claimed to have an extensional contribution (see Rothstein 2003; Pylkkänen 2008). In contrast, the additional information that adjectival *as*-phrases, as in (1), contribute to the internal argument of the verb is intensional in nature. The *as*-phrase contributes an information-based modal property. The central claim of this paper is that, in fact, these adjectival *as*-phrases are intensional secondary predicates.

The paper is structured as follows. In Section 2, I summarize the necessary background on *as*-phrases and secondary predicates. To delimit secondary-predicate-like adjectival *as*-phrases, illustrated in (1), from similar, but different phenomena, I compare them to adjectival *as*-phrases that are (optional) arguments of the matrix verb and to a well-studied subclass of secondary predicates, object-oriented depictives. Next, Section 3 discusses previous formal analyses for English *as*-phrases. My own formal analysis of secondary-predicate-like adjectival *as*-phrases is given in Section 4. In Section 5, I discuss two areas to which the analysis presented in Section 4 can be immediately extended. Section 6 concludes the paper.

I will call the type of *as*-phrase analyzed in this paper "SPLAAPs", which is meant to abbreviate "secondary-predicate-like adjectival *as*-phrases".

2 Delimiting secondary-predicate-like adjectival *as*-phrases (SPLAAPs)

2.1 The landscape of English *as*-phrases

SPLAAPs are part of a larger class of *as*-phrases which can be characterized by the restriction on possible complements of *as* to certain non-clausal property-denoting phrases (i.e., APs, DPs, NPs, and PPs).[1] In addition, this class of *as*-phrases can be distinguished from *as*-phrases in phrasal comparatives (e.g., *Peter is as tall **as Mary***) by their function. In phrasal comparatives, the *as*-phrase contributes (semantically) to an equative construction. For the class of *as*-phrases discussed in this section, no obvious link to a comparative construction exists. Henceforth, I take the term "*as*-phrases" to denote only this class of non-comparative *as*-phrases.[2]

1 "AP" stands for adjective phrase, "DP" for determiner phrase, "NP" for noun phrase, and "PP" for preposition phrase. The distinction between (determiner-less) noun phrases (NPs) and noun phrases with determiners (DPs) is meant to be purely descriptive, and nothing crucial hinges on it.

2 Apart from the use in *as*-phrases and as a comparative particle, *as* has further, diachronically related uses: it occurs as a subjunctor, as a near-synonym to *like*, in the combination *as if*, which introduces a

While *as*-phrases can be used in various, semantically distinct ways, the general morphosyntactic make-up is shared by all *as*-phrases independent of their use. They all associate with a constituent XP in the same clause, almost exclusively a DP, and provide information on the entity denoted by that constituent, the *associated entity*. The information on the associated entity is provided by another constituent YP, which *as* takes as its complement. The configuration is given schematically in (3).[3]

(3) XP (. . .) [***as* YP**]
XP . . . associated constituent
YP . . . *as*-complement

Apart from this common core, English *as*-phrases can be divided into four different usage classes, in which they perform different functions and show different syntactic and semantic behavior.[4] SPLAAPs exemplify only Class 2.[5]

Class 1 The *as*-phrase is an (optional) argument of the matrix verb; the associated constituent can be any DP argument of the verb. For a first class of verbs, the *as*-phrase intuitively contributes the content of an attitude towards or a classification of its associated entity, depending on the semantics of the matrix verb, as in (4). Possible complements of *as* are APs, DPs, and PPs.

(4) a. Peter regards Mary **as foolish**.
b. Peter characterized Mary **as a fool**.

For a second class of verbs, the *as*-phrase intuitively contributes a role/function that the associated entity assumes as a result of the matrix eventuality (see Moltmann 1997). Here, *as* only takes DP-complements, as in (5).

(5) a. Peter hired Mary **as a secretary**.
b. The verb takes a DP **as an argument**.

hypothetical comparative clause, and in various idiomatic expressions.

3 Throughout this paper, *as*-phrases are rendered in bold face and their associated constituents are underlined, as in (1) and (3).

4 For reasons of space, I cannot argue for the classification to follow in more detail. Specifically, the connection between the syntactic position and the interpretation of the different classes of *as*-phrases cannot be demonstrated here, see Zobel in prep.

5 The general morphosyntactic make-up and the classification of different uses for English *as*-phrases also apply to German *als*-phrases—with the sole difference that German *als* usually takes NPs instead of DPs as a complement. German *als* and English *as* are cognates and go back to the same comparative particle. For the German counterparts of English SPLAAPs, see Section 5.

Class 2 The *as*-phrase is not an argument of the matrix verb; the associated constituent is the internal DP argument of the verb. The *as*-phrase intuitively contributes additional information on its associated entity that is related to the matrix eventuality. Potential complements of *as* in this use are APs, DPs, and PPs.

(6) a. Peter sold the camera **as new**. (SPLAAP)
b. Peter bought the ferret **as a dog**.

Class 3 The *as*-phrase is not an argument of the matrix verb; the associated constituent is predominantly the external DP argument of the verb, but association with an internal argument is also possible. The *as*-phrase intuitively contributes a role or function of the associtated entity. The central characteristic of this class is that the validity of the ascription of the property that is expressed by the matrix predicate to the associated entity is restricted to the given role/function. Furthermore, this role/function is contrasted with other roles/functions of the associated entity (see Landman 1989, Jäger 2003, Szabo 2003, Asher 2011). In this use, *as* only takes DPs as complements.

(7) a. [Context: Peter has two jobs. He is a judge and a janitor.]
As a judge, Peter earns less than 50,000 euros/year.
b. [Context: Mary helps Peter out with cleaning and babysitting.]
Peter pays Mary 10 euros/hour **as a babysitter.**

Class 4 The *as*-phrase is not an argument of the matrix verb; the associated constituent is predominantly the external DP argument of the verb. The *as*-phrase intuitively contributes a reason for the validity of the matrix clause. In this use, only DPs are potential complements of *as*.

(8) **As a good judge**, Peter knows the law by heart.
causal: ≈ Since Peter is a good judge, he knows the law by heart.

In addition, the *as*-phrase may restrict operators in the matrix clause, which can result in, for instance, temporal and hypothetical interpretations; the causal interpretation often becomes odd/dispreferred (see Jäger 2003).

(9) a. **As a little boy**, Peter loved to eat candy. (restricts PAST)
temporal: ≈ When Peter was a little boy, he loved to eat candy.
causal: ≈ Since Peter is a little boy, he loved to eat candy.

b. **As a girl**, Peter would look like his sister. (restricts *would*)
hypothetical: ≈ If Peter were a girl, he would look like his sister.
causal: ≈ ??Since Peter is a girl, he would look like his sister.

Importantly, the analysis for the semantic contribution of *as* that I propose in this paper is only designed to capture *as*-phrases of Class 2. While a unified semantics of *as* is, of course, desirable, I believe it to be a better strategy to analyze the contribution of *as* for each of the classes in detail before attempting a unified analysis.

Let me briefly discuss the distinguishing characteristics of SPLAAPs (Class 2) in contrast to *as*-phrases occurring as (optional) complements found with attitudinal or classifying verbs (first subclass of Class 1). This comparison reveals an important semantic desideratum for the analysis of SPLAAPs.

SPLAAPs and these Class 1 *as*-phrases both contribute properties that are ascribed to their associated entities but are not claimed to hold of their associated entities in the world of utterance. As illustrated in (10), neither the example involving a SPLAAP in (10a), nor the example containing a Class 1 *as*-phrase in (10b) entails that the associated entity (i.e., the camera) had the property of being new, which is denoted by the *as*-complement, at the time of the matrix eventuality.

(10) a. Peter sold the camera **as new**. ⇏ The camera was new.
b. Peter regarded the camera **as new**. ⇏ The camera was new.

A closer comparison, however, reveals semantic differences between the two types of *as*-phrases. In (10b), the verb contributes an intensional context and requires an expression that provides the attitude content; the purpose of the *as*-phrase is to give this content (see also Fabricius-Hansen & Sæbø 2011 on "behabitives"/"verbs of judging"). In contrast, the intensional context found with the *as*-phrase in (10a) cannot be provided by the matrix verb; *sell* is not intensional, and it does not require an *as*-phrase. In other words, the intensionality that blocks the entailment in (10b) is plausibly contributed by the verb, whereas in (10a) only *as* seems to be a likely candidate for the source of the intensionality.

Moreover, for Class 1 *as*-phrases like the one in (10b), the person who ascribes the property denoted by the *as*-complement to the associated entity is always the individual denoted by the external argument of the verb (e.g., *Peter* in (10b)). For SPLAAPs, this is not necessarily the case, consider (11).

(11) Peter bought the camera **as used**; but in fact, when inspecting it beforehand, Peter had realized that the camera had only been unpacked, but had never been used.

In (11), Peter is clearly not the one who ascribes being used to the camera since he had realized before buying it that it was, for all intents and purposes, new.[6] A more detailed discussion of the question who ascribes the property denoted by the adjective in SPLAAPs to the associated entity is given in Section 4.3.

2.2 Secondary predicates and SPLAAPs

Secondary predicates are predicatively used APs that apply to an argument of the matrix verb outside of a copular construction and provide additional information on this argument. In the descriptive literature, the class of secondary predicates is traditionally divided into two subclasses, depictives and resultatives. Depending on which constituent secondary predicates associate with, they are also classified as either subject-oriented or object-oriented (see Rothstein 2003; Pylkkänen 2008).

Examples (12a) and (12b) illustrate depictives; (12a) is subject-oriented, (12b) is object-oriented.

(12) a. John drove the car **drunk**. (Rothstein 2003: 555)

b. Mary drank the coffee **hot**. (Rothstein 2003: 555)

Depictives contribute a property that is claimed to hold of their associated entity at the time of the matrix eventuality. For instance, (12a) can be paraphrased as *John drove the car while he was drunk*, and (12b) can be paraphrased as *Mary drank the coffee while it was hot*.

Example (13) illustrates an object-oriented resultative. In contrast to depictives, resultatives cannot associate with subjects (see Rothstein 2003: 555).

(13) John painted the house **red**. (Rothstein 2003: 555)

Resultatives contribute a property that is claimed to hold of their associated entity as a result of the matrix eventuality. For instance, (13) can be paraphrased as *John painted the house, and, as a result, it was red*.

SPLAAPs are most similar to object-oriented depictives. Both contribute additional information on the internal argument of a transitive verb, and the property contributed by either SPLAAPs or object depictives cannot be seen as resulting from the matrix eventuality. They can also both be freely omitted *salva veritate*, as illustrated in (14).

(14) a. Peter sold the camera **as new**. ⇒ Peter sold the camera.

6 In case the speaker and/or the referent of the external argument knew that the property denoted by the adjective did not apply to the associated entity, the adjective sometimes occurs in scare quotes. For reasons of simplicity, I ignore this aspect for now.

b. Peter sold the camera **new**. ⇒ Peter sold the camera.

As shown in Section 2.1, the property expressed by the adjective in SPLAAPs does not necessarily hold of the associated entity at the time of the matrix eventuality. In this, SPLAAPs differ from regular object depictives (see Rothstein 2003). Hence, whereas the entailment that the property denoted by the adjective holds of the associated entity is blocked in (15a), the same entailment goes through in (15b).

(15) a. Peter sold the camera **as new**. ⇏ The camera was new.

b. Peter sold the camera **new**. ⇒ The camera was new.

2.3 The contribution of SPLAAPs informally

Taken together, the results of Sections 2.1 and 2.2 yield the following picture:

- As with object depictives, the *as*-phrase is optional and can be freely omitted.
- As with Class 1 *as*-phrases but unlike object depictives, the property denoted by the adjective is not claimed to hold of the associated entity in the world of utterance.
- Unlike Class 1 *as*-phrases, the individual denoted by the external argument of the transitive verb does not necessarily ascribe the property denoted by the adjective to the associated entity.

The first observation is captured by assuming that SPLAAPs are syntactically adjuncts, and that semantically, their denotation combines conjunctively with the denotation of the matrix verb. The same assumptions are made for object-oriented depictives in Rothstein 2003, Pylkkänen 2008, and Motut 2014, among others.

The second observation suggests that the contribution of *as* is intensional. The intensional context contributed by *as* blocks the entailment that the associated entity has the property denoted by the adjective in the world of evaluation, as in (10a)/(15a).

Since this entailment is blocked, sentences containing SPLAAPs are compatible with a situation in which the information that is available on the associated entity is false. In fact, the ascription of the adjectival property to the associated entity is often understood as being false. This, I argue, is an implicature and not part of the semantics of SPLAAPs. Example (16) shows that the implicature can be cancelled.

(16) Peter sold the camera **as new**, and it was in fact new.

Since (16) is not contradictory, the semantic contribution of the *as*-phrase must not convey that the associated entity does not have the adjectival property.[7]

The final, third observation suggests that the *as*-phrase does not compose with the external argument of the matrix verb. Any intuitive connection between the external argument and the ascription of the adjectival property to the associated entity must be given pragmatically.

In Section 4, I combine these results. I argue that SPLAAPs are V'-adjuncts that contribute an information-based modal property. That is, the information that is available on the associated entity at the time of the matrix eventuality suggests that it has the property denoted by the adjective.

3 Previous formal analyses of *as*-phrases

To my knowledge, no dedicated semantic analysis of SPLAAPs exists. However, analyses of Class 3 nominal *as*-phrases can be found in Landman 1989, Jäger 2003, Szabo 2003, and Asher 2011, among others.

While the accounts proposed in these works fundamentally differ in how they try to solve the particular problems presented by Class 3 *as*-phrases, two entailments are hardwired into the semantics of *as* in all of the accounts:[8] (i) the associated entity has the property contributed by the complement of *as*, and (ii) the *as*-phrase cannot be omitted *salva veritate*. For Class 3 *as*-phrases, this correctly captures their semantic behavior, as is illustrated in (17), which repeats (7a).

(17) **As a judge**, Peter earns less than 50,000 euros/year. (see Szabo 2003: 1)

⇒Peter is a judge.

⇏Peter earns less than 50,000 euros/year.
(He could earn more overall if he has another job.)

As we have seen in Section 2, SPLAAPs show the opposite entailment patterns. Hence, the behavior exhibited by Class 3 *as*-phrases should not be hardwired into a semantics that is intended to model the contribution of SPLAAPs. This means, however, that adopting or adapting any of the proposals found in the literature is not an option. My own account for SPLAAPs is introduced in the following section.

7 This implicature seems to be connected to the finding that some reportative evidentials are compatible with the speaker expressing skepticism regarding the truth of the reported content. This additional pragmatic effect is triggered by additional marking (see, for instance, Schenner 2009 on German *sollen*). I leave the exploration of the connection to reportatives for future work.

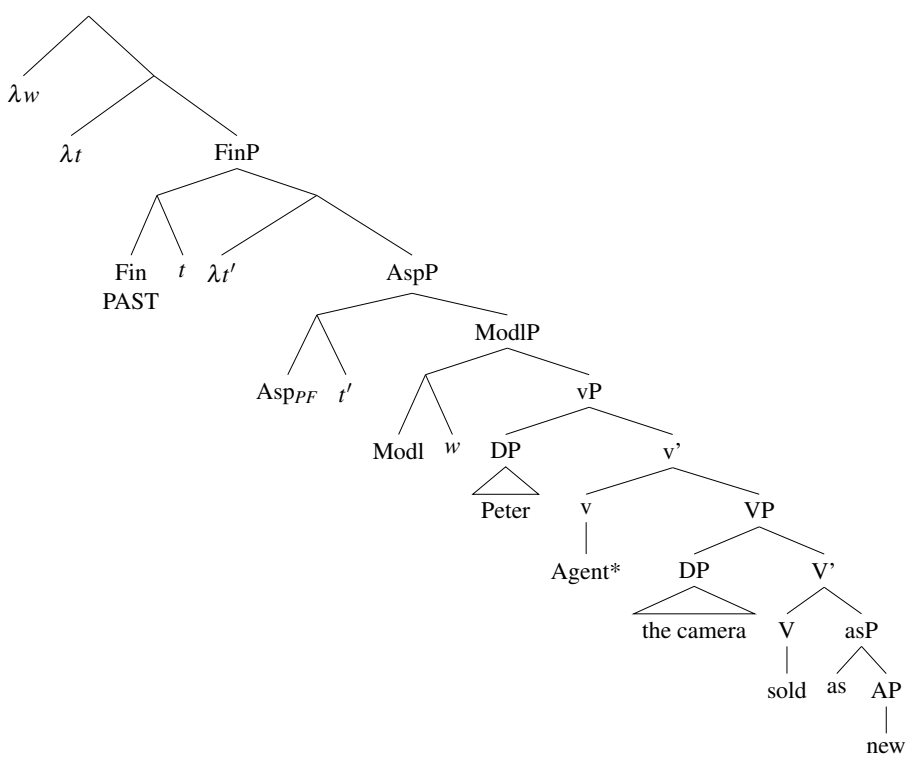
8 For reasons of space, I cannot discuss the accounts proposed in Landman 1989, Jäger 2003, Szabo 2003, and Asher 2011. The formalizations presented in these papers do not directly build on each other and are proposed in various different frameworks using a very diverse set of formal tools. I invite the interested reader to consider the original works.

4 Analyzing SPLAAPs as intensional secondary predicates

4.1 The LF and semantic preliminaries

In this section, I develop a compositional account of the semantic contribution of SPLAAPs using the example *Peter sold the camera as new*. The full interpretable structure (LF) for this sentence is given in (18). The LF is largely based on the clausal architecture proposed in Beck & von Stechow 2015 with two exceptions: (i) I assume a single phrase FinP that subsumes Beck & von Stechow's TP and IP, and (ii) I assume a split of the VP into VP and vP.

(18)



The choice to split VP into two phrases is motivated by syntactic considerations regarding the position of the *as*-phrase. These mirror observations made by Rothstein (2003) for object-oriented depictives. Rothstein argues that object-oriented depictives are V'-adjuncts based on their behavior in pseudo-clefts: object-oriented depictives must not be separated from the verb and associated constituent, as shown in (19).[9]

(19) a. What Mary did was drink the coffee **hot**. (Rothstein 2003: 556)

9 This constraint on pseudo-clefting can also be seen as a result of the observation by Müller (2008: 267) that associated DPs must "precede the depictive predicate".

b. *What Mary did **hot** was drink the coffee. (Rothstein 2003: 556)
(Intended: the coffee was hot)

Like object-oriented depictives, SPLAAPs cannot be separated from the verb and the associated internal argument, as illustrated in (20).

(20) a. What Peter did was sell the camera **as new**.
b. *What Peter did **as new** was sell the camera.

The observation in (19) is compatible with two different structures for the verb, the associated internal argument, and the object-oriented depictive: either (i) the internal argument and the object-oriented depictive form a constituent, or (ii) the object-oriented depictive is first merged with the verb.[10] Rothstein argues that option (i) is not a viable analysis for object-oriented depictives. If the internal argument and the object-oriented depictive were to form a constituent, this would amount to the claim that the matrix verb takes a small clause as its argument. Hence, we would expect the same semantic behavior for this constituent that we observe for small clause complements of verbs that uncontroversially take small clauses as arguments. This is not borne out. If a verb takes an adjectival small clause complement (SC), the adjective cannot be omitted. In contrast, object-oriented depictives are freely omissible, compare (21a) to (21b).

(21) a. Mary considers [$_{SC}$ John foolish]. $\not\Rightarrow$ Mary considers John.
b. Mary drank the coffee hot. $\Rightarrow$ Mary drank the coffee.
(Rothstein 2003: 557)

From the result in (21), Rothstein concludes that the object-oriented depictive should be first merged with the verb. Moreover, the composition of the verbal meaning with the contribution of the object-oriented depictive has to capture that the object-oriented depictive can be freely omitted.

Again, SPLAAPs behave in a parallel fashion. While *as*-phrases that are subcategorized for by the matrix verb (Class 1) cannot be omitted, SPLAAPs are optional, compare (22a) to (22b).[11]

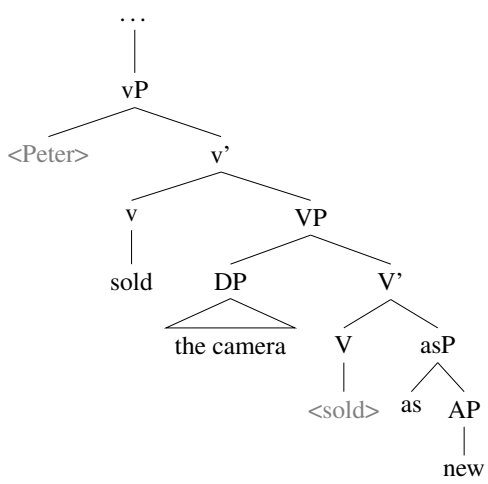
(22) a. Peter regards John as foolish. $\not\Rightarrow$ Peter regards John.
b. Peter sold the camera as new. $\Rightarrow$ Peter sold the camera.

10 The third possible structure, in which the internal argument first merges with the verb, is not a viable alternative since the semantic contribution of the internal argument would cease to be accessible to the object depictive.

11 The entailment pattern in (22a) can be seen as evidence that Class 1 *as*-phrases form small clause-like constituents with their associated constituents (see Flaate 2007 for German *als*-phrases).

In sum, the comparison to object-oriented depictives suggests that SPLAAPs first merge with the verb and occur after the direct object in the surface string. If we assume a vP/VP split, the implementation of this proposal is straightforward. The vP/VP structure for the surface string *Peter sold the camera as new* is given in (23).

(23)



The matrix verb is moved from the V-head to v, and the external argument is moved from the specifier position of vP to the specifier of FinP (not shown in (23)); "<sold>" and "<Peter>" (in gray) are the traces/copies left by the moved expressions. For reasons of interpretability, the external argument and the verb are later reconstructed into their base positions, which results in the vP/VP subtree in the LF in (18) (see Beck & von Stechow 2015).

Regarding the interpretation of the LF, I make the following assumptions. I assume the basic ontology presented in Beck & von Stechow 2015: individuals (type e), truth values (type t), eventualities (type v), times/temporal intervals (type i), and worlds (type s). Verbs may take arguments of type v and e. Worlds and temporal intervals are introduced and related to the eventualities described by the matrix verb by the functional structure, specifically Modl and Asp/Fin, respectively.

Regarding the basic verb semantics, I assume that verbs take one eventuality argument and one or more individual arguments; that is, all participants of the eventuality—except for the agent. Following Kratzer (1996), I assume that the "external argument"/agent is not an argument of the verb but is introduced by the functional expression Agent*, which is located in the v-head at LF. The denotation of the transitive verb *sell* and Agent* are as given in (24).

(24) a. $[\![\textit{sell}]\!]^c = \lambda x_e.\lambda e_v.\text{sell'}(x)(e)$

b. $[\![\text{Agent*}]\!]^c = \lambda P_{vt}.\lambda x_e.\lambda e_v.\text{AGENT}(x)(e)\ \&\ P(x)(e)$

Furthermore, I follow Beck & von Stechow (2015) regarding the interpretation of the functional heads above vP, as well as the use of overt world and time variables

and λ-binders at LF. Modl locates the eventualities described by the matrix verb in the world of evaluation. Asp existentially closes the predicate of eventualities denoted by the ModlP node, and locates the runtime of the eventuality ($\tau(e)$) relative to a reference time. Asp_{PF} stands for perfective aspect. Lastly, PAST locates the reference time relative to the time of evaluation.[12]

(25) $[\![\text{Modl}]\!]^c = \lambda w_s.\lambda e_v.e \text{ in } w$ (Beck & von Stechow 2015: 10)

(26) $[\![\text{Asp}_{PF}]\!]^c = \lambda t_i.\lambda P_{vt}.\exists e[\tau(e) \subseteq t \ \& \ P(e)]$ (Beck & von Stechow 2015: 5)

(27) $[\![\text{PAST}]\!]^c = \lambda t_i.\lambda I_{it}.\exists t' \in C[t' < t \ \& \ I(t')]$ ($\approx$ Beck & von Stechow 2015: 6)

The result of the composition for the full sentence in (18) is of type $\langle s, it \rangle$. When the sentence is asserted, the denotation is applied to t_c and w_c, the time and world of the utterance context c, to give the truth value of the sentence with respect of the utterance world (see Beck & von Stechow 2015).

4.2 The contribution of *as* in SPLAAPs

Now, we are in the position to address the denotation of *as* occurring in SPLAAPs, and the semantic contribution of the entire *as*-phrase. Recall the desiderata for the semantic analysis of SPLAAPs as summarized in Section 2.3:

- The contribution of *as* is intensional.
- SPLAAPs combine conjunctively with the denotation of the matrix verb.
- SPLAAPs do not compose with the external argument of the matrix verb.

Given the considerations above, I propose that English *as* in SPLAAPs has the denotation in (28).

(28) $[\![as]\!]^c = \lambda P_{\langle e,st \rangle}.\lambda x_e.\lambda e_v.\forall w' \in \text{info}(e)[P(x)(w') = 1]$

The arguments of *as* are (i) a property P, the content contributed by the adjective, (ii) an individual x, the associated entity, and (iii) an eventuality e. The content contributed by *as* can be paraphrased as: in all worlds w' that are accessible given a source of information associated with the eventuality e, the associated entity x has the property P denoted by the adjective in w'.

The expression "info(e)" denotes the set of accessible worlds that conform to the content contributed by some source of information associated with the eventuality e (see Hacquard 2006 and Kratzer 2012 for eventuality dependence of modal

12 For a detailed discussion of these denotations, I refer the reader to Beck & von Stechow 2015.

accessibility relations). That is, *as* is interpreted with respect to an *informational conversational background*. Informational conversational backgrounds occur with epistemic modals, as in (29), and provide a set of accessible worlds that conform to the content of some salient body of information (Kratzer 2012).

(29) According to the rumor, Roger must have been elected chief.
(Kratzer 2012: 35)

In (29), the universal modal *must* is interpreted epistemically relative to an informational conversational background that provides the set of worlds conforming to the content of the rumor. The possible sources of information in the case of *as* are discussed in more detail in the following subsection.

Given the denotation of *as* in (28) and the denotation of *new* in (30), the denotation of *as new* can be derived straightforwardly, as illustrated in (31).[13]

(30) $[\![new]\!]^c = \lambda x_e.\lambda w_s.\ \text{new'}(x)(w)$

(31) $[\![as\ new]\!]^c =$
$[\lambda P_{\langle e,st\rangle}.\lambda x_e.\lambda e_v.\forall w' \in \text{info}(e)[P(x)(w') = 1]]([\lambda x_e.\lambda w_s.\ \text{new'}(x)(w)])$
$= \lambda x_e.\lambda e_v.\forall w' \in \text{info}(e)[\text{new'}(x)(w') = 1]$

In line with the structure in (18), the denotation of the verb first combines with the *as*-phrase before the result of this combination combines with the internal argument. Given the background assumptions on the contribution of transitive verbs presented in the previous subsection and the denotation of the *as*-phrase in (31), we need to combine two expressions of type $\langle e, vt\rangle$ resulting in another expressions of type $\langle e, vt\rangle$. In addition, the descriptive content of the verb and the *as*-phrase are to be combined conjunctively. To do this, I assume MOD, a generalized version of predicate modification (Heim & Kratzer 1998) inspired in part by Maienborn 2001.

(32) **MOD:** For α and β, two n-place functions of the same type, the result of combining α and β via MOD is an n-place function that identifies the

13 In contrast to Rothstein (2003), Maienborn (to appear), and others, I do not assume that adjectives have an eventuality-like argument of some kind. That is, adjectives are not of type $\langle e, \langle v, st\rangle\rangle$. This step is motivated by the following consideration: The assumption that *as* takes arguments of type $\langle e, \langle v, st\rangle\rangle$ would imply that all other phrases that can act as a complement of *as* in SPLAAPs (i.e., DPs and PPs) are also of type $\langle e, \langle v, st\rangle\rangle$. This seems problematic. To my knowledge, DPs have not been argued to have an eventuality argument if the noun is not an event noun. However: Even though the assumption that adjectives are of type $\langle e, st\rangle$ allows for a straightforward extension of the present analysis to DP and PP cases, it is not fully satisfying. The immediate connection to analyses of secondary predicates is lost since adjectives functioning as secondary predicates are usually analyzed as taking an eventuality-like argument (see Rothstein 2003; Pylkkänen 2008; Motut 2014). The connection could be restored if one assumes, for instance, that the eventuality argument that is required in predicative uses of adjectives is the result of additional modification of the adjective's denotation. For reasons of space, I leave these questions for further investigation.

arguments of β with the arguments of α, and conjoins the descriptive contents of α and β.

After MOD is applied to the denotations of the transitive verb *sell* in (33a) and the *as*-phrase derived in (31), we obtain the result in (33b).

(33) a. $[\![\textit{sell}]\!] = \lambda x_e.\lambda e_v.\ \text{sell'}(x)(e)$ (= 24a)

b. $[\![\textit{sell as new}]\!] \overset{\text{MOD}}{=} \lambda x_e.\lambda e.\ \text{sell'}(x)(e)\ \&\ \forall w' \in \text{info}(e)[\text{new'}(x)(w') = 1]$

The denotation of the entire vP is given in (34).[14]

(34) $[\![\textit{Peter Agent* the camera sell as new}]\!] =$
$\lambda e.\ \text{sell'}(\text{the-camera'})(e)\ \&\ \text{AGENT}(\text{Peter'})(e)\ \&$
$\forall w' \in \text{info}(e)[\text{new'}(\text{the-camera'})(w') = 1]$

The result in (34) describes an eventuality in which Peter sells the camera, and the camera is further described by a modal property, namely, that according to a source of information associated with the selling, the camera is new.

Adding the content provided in the functional structure of (18), we derive the proposition in (35) for *Peter sold the camera as new*.

(35) $\lambda w.\lambda t.\ \exists t'[t' < t\ \&\ \exists e[\tau(e) \subseteq t'\ \&\ e \text{ in } w\ \&\ \text{sell'}(\text{the-camera'})(e)\ \&$
$\text{AGENT}(\text{Peter'})(e)\ \&\ \forall w' \in \text{info}(e)[\text{new'}(\text{the-camera'})(w') = 1]]]$

In words: There is a temporal interval t' before the time of evaluation t that contains the runtime of an eventuality e in the world of evaluation w such that e is a selling of the camera by Peter, and in all worlds conforming to a source of information associated with the selling, the camera is new.

4.3 The source of information

At this point, more needs to be said about the informational conversational background associated with the matrix eventuality that, I argue, is part of the semantic contribution of *as* in SPLAAPs.

According to Kratzer (2012: 33), sources of information that form the basis of informational conversational backgrounds can be, among others, "words, stories, books, reports, maps, testimony, mental states, [and] perceptual experiences". Informational conversational backgrounds need not be realistic, that is, the set of worlds

14 For reasons of space no further step-by-step derivations can be provided. The reader is invited to check the results given in this section using the structure and denotations given above and in the previous subsection. The denotations of *Peter* and *the camera* are assumed to be Peter' and the-camera', respectively. Both are of type e.

that is provided by the conversational background need not contain the world of utterance. For instance, if the content of a book or report is false in the world of utterance, the world of utterance will not be a member of the set of accessible worlds based on these contents. Hence, for a proposition that is evaluated with respect to this set of accessible worlds, any entailment regarding its truth in the world of utterance is blocked.

In the case of SPLAAPs, reports and claims seem to be the most frequent sources. For instance, a context in which our standard example, *Peter sold the camera as new*, comes out as true is (36).

(36) Peter wants to sell a camera that he owns via an online platform. When asked about the condition of the camera, he chooses "new" from a list of options. Soon after he put his offer online, someone bought the camera.

In (36), the source of information is Peter's claim on the condition of the camera.

The individual denoted by the external argument of the transitive verb does not have to be the one that provides the source of information picked up by *as*. As shown in Section 2.1, this individual does not have to believe that the adjectival property provided by the *as*-phrase holds of the associated entity. The context in (37) shows, that they also need not be the one with whom the source of information originates; here, the source of information is a claim made by the unnamed seller.

(37) Peter wants to buy a new camera online. He finds an attractive offer at an online market place, and since the seller claims that the camera is new, Peter closes the deal. So: Peter bought the camera **as new**.

Can we make a generalization about who provides the source of information for *as*, at all? In many cases, the source of the information seems to be a claim by the individual with the most knowledge about the associated entity; when talking about a selling or a buying, the person with the most knowledge is arguably the seller.

This generalization does not cover all cases, though. Consider the context in (38).

(38) Peter wants to buy a new camera and visits a shop that deals in new and used cameras. Peter browses the shop and finds a camera that is presented in its original packaging. Assuming that the camera is new, he decides to buy it. So: Peter bought the camera **as new**.

In (38), the source of information is the state of the camera as perceived and interpreted by the buyer, Peter. It is not a claim made by the seller.

The following, final example provides a potentially marginal context, which is, however, revealing since the source of information is not a claim made by any conscious individual.

(39) An online market place for clothing was programmed to recognize the color of an item of clothing from the picture uploaded by the seller and to categorize it as having one of a few basic colors. Peter buys a jacket that the color recognition software categorized as red, but for which it is obvious from the picture that it is maroon. So: Peter bought this jacket **as red**.

In (39), neither the buyer nor the seller believed that the jacket is red, and neither claimed that this is the case, either. Hence, the tentative generalization given above does not cover this case. I leave the necessary further considerations for future work.

Importantly, though, example (39) shows that the contribution of a SPLAAP is indeed a modal property rather than an attitude-based property. If SPLAAPs can be used in contexts where no conscious individual believes or claims that the associated entity has the property denoted by the adjective, an attitude based analysis is problematic (who would be the attitude holder?). For the modal analysis proposed in this paper, this example poses no problem at all; the source of information picked up by *as* is the output of the color recognition software.

4.4 Capturing the entailments

Let us now come back to the entailment facts discussed for SPLAAPs in the course of this paper and recapitulate how the semantics proposed above captures them.

The first observation was that by uttering a sentence containing a SPLAAP, the speaker does not claim that the associated entity has the property denoted by the adjective. This is captured since the proposition which is built from the associated individual x and the property P denoted by the adjective (i.e., $\lambda w'.P(x)(w')$) is evaluated in the scope of the modal quantifier contributed by *as*. As stated in the previous subsection, informational conversational backgrounds are not realistic. This means that the world of utterance is not necessarily a member of the set of accessible worlds in which the proposition is said to hold. Hence, it is not inferable that $P(x)(w_c)$ is true (see Kratzer 2012).

The second observation that needs to be captured is that SPLAAPs are freely omissible. As shown in Section 4.2, the combination rule MOD combines the property denoted by the *as*-phrase and the denotation of the matrix verb conjunctively. Since a conjunction entails any of its conjuncts, the resulting representation entails the representation without the contribution of the *as*-phrase, as illustrated in (40).

(40) $\exists t'[t' < t_c \;\&\; \exists e[\tau(e) \subseteq t' \;\&\; e \text{ in } w_c \;\&\; \text{sell'}(\text{the-camera'})(e) \;\&\; \text{AGENT}(\text{Peter'})(e) \;\&\; \forall w' \in \text{info}(e)[\text{new'}(\text{the-camera'})(w') = 1]]]$

entails:

$\exists t'[t' < t_c \;\&\; \exists e[\tau(e) \subseteq t' \;\&\; e \text{ in } w_c \;\&\; \text{sell'}(\text{the-camera'})(e) \;\&\; \text{AGENT}(\text{Peter'})(e)]]$

As a result, it is captured that the adjectival *as*-phrase can be omitted *salva veritate*.

5 Extensions of the account

5.1 Secondary-predicate-like nominal *as*-phrases

The analysis presented in Section 4 can be extended straightforwardly to nominal *as*-phrases of Class 2 (see Section 2.1), as in (41).

(41) What do you do with a ferret you bought **as a dog**?! (web example)[15]

Example (41) is ambiguous. The first reading is that the speaker wonders what to do with a ferret that was bought to fill the role or function that is usually played by a dog. In this interpretation, the *as*-phrase is most plausibly classified as a member of the resultative subclass of Class 1. The second reading is the one intended in the context from which this example was taken. The speaker wonders what to do with a ferret that was bought under the misinformation that it was a dog. In this interpretation, the *as*-phrase is a nominal version of the Class 2 SPLAAPs.

The analysis given in Section 4 can be directly adopted for these cases if one assumes that the indefinite singular DP, the *as*-complement, is used predicatively as in copular sentences (see Heim & Kratzer 1998). Predicatively used indefinite DPs contribute properties, as illustrated in (42a). The full *as*-phrase thus has the denotation in (42b).

(42) a. $[\![a\ dog]\!]^c = \lambda x_e.\lambda w_s.\ \text{dog'}(x)(w)$
b. $[\![as\ a\ dog]\!]^c = \lambda x_e.\lambda e_v.\forall w' \in \text{info}(e)[\text{dog'}(x)(w') = 1]$

5.2 German adjectival and nominal *als*-phrases

The results of this paper are not restricted to English *as*-phrases. The same use is available for some German adjectival and nominal *als*-phrases, as in (43) and (44).[16]

(43) Peter hat die Kamera **als neu** verkauft.
Peter has the camera as new sold
'Peter sold the camera as new.' (= 1a)

(44) Was macht man mit einem Frettchen, das man **als Hund** gekauft hat?
what does one with a ferret that one as dog bought has
'What does one do with a ferret that one bought as a dog?' (≈ 41)

15 `http://gawker.com/what-do-you-do-with-a-ferret-you-bought-as-a-dog-i-me-471476757` (last accessed: Sept. 30, 2016)

16 Note that for these German *als*-phrases, no semantic analysis exists either. They are occasionally mentioned in the literature (e.g., Flaate 2007), but are never analyzed in detail.

Whether expressions in other languages correspond to English *as* and German *als*, and whether the phrases headed by these expressions have all of the functions that were listed for *as* (and *als*) in Section 2.1 has to be left for further work.

6 Conclusion

In this paper, I argued that certain occurrences of English *as*-phrases that co-occur with transitive verbs and contribute information on the internal argument have to be analyzed as intensional secondary predicates. These *as*-phrases, SPLAAPs, exemplify one of several usage classes of English *as*-phrases and need to be especially distinguished from *as*-phrases that are optional complements of certain attitude-like verbs. SPLAAPs also need to be distinguished from regular object-oriented depictives, as discussed by Rothstein (2003) and Pylkkänen (2008) among others, and certain nominal *as*-phrases that are discussed by Landman (1989), Jäger (2003), Szabo (2003), and Asher (2011), among others.

I provided a formal analysis of SPLAAPs that builds on the architecture in Beck & von Stechow 2015, on results on object-oriented depictives in Rothstein 2003, and on the notion of information-based modality in Kratzer 2012.

Many open issues remain that need to be left for further work, some of which were given in the course of the paper. The biggest issue, which I have not discussed at all, is under which conditions SPLAAPs can be used. Their use seems to be quite strongly restricted since pairing any transitive verb with any adjectival *as*-phrase is not an option, as illustrated in (45) and (46).[17]

(45) a. Paul bought the bread as healthy.
b. ??Paul bought the bread as tasty.
c. ??Paul ate the bread as healthy.

(46) a. Paul sold the book as new.
b. ??Paul stole the book as new.

Intuitively, SPLAAPs seem to be usable in case their complements express a potential property of the internal argument that affects the details of the action associated with the matrix eventuality. For instance, for a book, newness has an effect on price. Hence, whether the book is new or old affects for how much money a book is sold. In this case, (46a) is fine. If a book is stolen, however, it does not matter whether the book is new or old; the stealing action is not affected. Hence, (46b) is odd. Whether this is on the right track or not has to be left for further work.[18]

17 I thank an anonymous reviewer for these examples and judgments.
18 See Motut 2014 for an analysis of the restrictions found with object-oriented depictives.

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