

# Expressing Agent Indifference in German\*

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## Abstract

The German indefinite modifier *irgend-* can give rise to agent indifference (AI) readings. We propose a novel account of AI that builds on the observation that the adverbial *einfach* ‘simply’ emphasizes the AI reading of *irgend-*. We assume that *einfach* references a simplicity order that determines, in relative terms, what is simple for the agentive subject of the host sentence. For *irgend-*, we employ the by now standard assumption that it comes with a covert domain variable and activates subdomain alternatives. To derive AI, we argue that, if an agent has options for an action and preferences about which option to realize, then realizing one of many options (e.g. buying a single book from a large domain) is more complex than realizing one of fewer options (e.g. buying a single book from a subdomain). To create a link between the simplicity order referenced by *einfach* and the preference order employed in the derivation of AI, we show that the subdomain alternatives activated by *irgend-* can be associated with decision problems, and that these decision problems are equally simple iff the decision maker doesn’t have preferences as to which of the expressed options to realize. We also compare German *irgend-* to Spanish *cualquiera* and to English *any* and discuss the consequences of our analysis for the theory of polarity sensitivity.

## 1 Introduction

If someone bought a book and did so randomly, or without any preference as to the choice of book, then we can say that the agent of this event was indifferent about the type and specimen of book she bought. Perhaps surprisingly, there are languages in which such *agent indifference* (AI) can be expressed without mentioning randomness of action or preferences about outcomes. For example, German and Spanish can express AI by means of certain indefinites that signify what the indifference is about, i.e. here the object of the book buying action. This is illustrated in (1) for German and (2) for Spanish (see [1, 2], henceforth AOMB).

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|--|---|
| (1) <i>Hans hat irgend-ein Buch gekauft.</i> | (2) <i>Juan compró un libro cualquiera.</i> |
| Hans has IRGEND-a book bought                | Juan bought a book CUALQUIERA               |
| ‘Hans bought a random book.’                 | ‘Juan bought a random book.’                |

As indicated by the glosses, the object expressions of (1) and (2) would be ordinary indefinites were it not for the modifiers *irgend-* and *cualquiera*, respectively. By means of these modifiers,

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(1) and (2) can convey that the agent bought a book (*actuality inference*), and that, as far as the agent’s preferences go, it could’ve been any book (*indifference inference*). The preceding paraphrase, which is due to [1], characterizes AI in terms of a modal statement that references the preferences of the agent.<sup>1,2</sup> AOMB argue for Spanish that the modal aspect of AI is best analyzed as being hardwired into the meaning of *cualquiera*. In this paper, we propose an analysis for German *irgend-* that is crucially different: *irgend-* doesn’t have a modal meaning component; rather, the modal inference arises through the interplay of the standard existential meaning of *irgendein Buch*, the alternatives that it activates, and an overt or covert modal operator that acts on those alternatives.<sup>3</sup>

Our approach is motivated by the observation that the AI reading of (1) can be emphasized with the help of the adverbial *einfach* ‘simply’: while (1) can be used by a speaker to convey not AI, but rather that she doesn’t know or care to tell which book Hans bought (see e.g. [13]), (3) cannot be (easily) used to this effect.<sup>4</sup>

- (3) *Hans hat einfach irgend-ein Buch gekauft.*      (4) *Hans hat Lolita einfach raubkopiert.*  
 Hans has simply IRGEND-a book bought      Hans has *Lolita* simply pirated  
 ‘Hans simply bought a random book.’      ‘Hans simply pirated *Lolita*.’

We will explicate the meaning contribution of *einfach* on the basis of an elementary case, viz. the sentence in (4). This sentence licenses a *simplicity inference*: given that buying and borrowing are alternatives of pirating, we can infer from (4) that buying or borrowing *Lolita* would not have been simpler for Hans. Simplicity is a context-sensitive relation over alternatives; here, pirating is simpler for Hans than buying or borrowing because, e.g., it requires less effort. What we claim then is that the modal inference of (1)/(3) is also a simplicity inference, and furthermore, that this simplicity inference entails AI.

We begin by detailing the denotation of *einfach* (§2). We then derive the truth conditions of (1)/(3) on the basis of our semantics for *einfach* and well-established assumptions about *irgend-* (§3). We proceed by making explicit the assumptions on which simplicity inferences entail AI. In a nutshell, we argue that an agent’s preferences regarding (the outcome of) an action determine what is simple for the agent. The simplicity inference of sentences like (1)/(3) is only compatible with a preferenceless (i.e. indifferent) agent. We give a decision-theoretic account for the link between having (no) preferences and simplicity (§4). We then present further empirical support for our analysis. We show that the analysis of German *irgend-* must be crucially different from the analysis of Spanish *cualquiera* and that we must reject the assumption that *irgend-* is a negative polarity item (pace [3]). Furthermore, we show that in NPI licensing environments English *any* can convey AI, calling into question [3]’s assumptions about NPI licensing (§5).

## 2 The Denotation of *einfach*

We ultimately want to analyze the AI reading of (1)/(3) as resulting from an interaction between (a possibly covert version of) the adverbial *einfach* and the indefinite *irgendein*. Thus, we first

<sup>1</sup>[2] assumes that the modal relation is determined by the agent’s goals, where the goals of a volitional agent bear a relation to decisions to act. Our analysis inherits from [2] the idea that there’s a link between an agent’s attitudes, for us her preferences, and her decision making.

<sup>2</sup>Randomness of action/agent indifference has also been analyzed in terms of counterfactualty. See [9, 5] for specific proposals and AOMB for discussion.

<sup>3</sup>See [1, 3] for analyses of this type and §5 for how and why our analysis deviates from its predecessors.

<sup>4</sup>We won’t discuss whether (3) can be used at all to convey speaker ignorance or indifference instead of AI. To be clear, (3) is certainly *compatible* with these speaker attitudes, but we doubt that it can *convey* them.

need to explicate the semantic import of *einfach* on the basis of a simpler sentence like (4). To that end, the meaning of (4), we claim, consists of the following four parts:

- (5) a. Hans pirated *Lolita*. (actuality inference)  
 b. Hans didn't buy or borrow *Lolita*. (exhaustivity inference)  
 c. Hans could've bought or borrowed *Lolita*. (circumstantial possibility inference)  
 d. Buying or borrowing *Lolita* wouldn't have been simpler for H. (simplicity inference)

We take it that *einfach* operates on alternatives, in a sense to be made precise shortly, and that the identification of the relevant alternatives is context-sensitive. In (5) we assume for concreteness that the relevant alternatives to pirating *Lolita* are buying it and borrowing it.

Evidence for these inferences comes in the form of falsity or infelicity judgments regarding (4) in contexts that don't support the relevant inference. For example, if Hans didn't acquire *Lolita* at all, then (4) is clearly false. Similarly, suppose that Hans is rich and lives next door to a bookstore (hence, buying *Lolita* would be very easy for him), and that Hans is also computer illiterate (hence, pirating *Lolita* would be very difficult for him). Suppose furthermore that Hans nevertheless decided to exert great effort in learning how to pirate *Lolita*. Then (4) is judged to be very odd.

In addition, we observe that the simplicity inference, (5d), is always relative to the agentive subject, here Hans, hence 'simpler for Hans'. To see why, consider a context where Hans has no money to buy *Lolita*, no transportation to the bookstore, etc. (and no computer to pirate it), but his friend Marie owns a copy of *Lolita*. Suppose further that Marie needs to read *Lolita* for class, but that she could easily lend Hans money to buy his own copy. In this case, to acquire *Lolita*, it's simpler for Hans that he borrow it from Marie, but simpler for Marie that she lend him money to buy it. If the simplicity inference associated with *einfach* could be relative to any contextually salient person, then (6) and (7) below could each be judged felicitous and true (or felicitous but false) depending on which person (Hans or Marie) the simplicity relation were relative to (and depending on whether Hans in fact bought or borrowed *Lolita*). However, only (7) is felicitous (and true if Hans did in fact borrow it; false otherwise); (6) is infelicitous (even if Hans did buy it).

- (6) *Hans hat Lolita einfach gekauft.* (7) *Hans hat Lolita einfach ausgeliehen.*  
 Hans has *Lolita* simply bought Hans has *Lolita* simply borrowed  
 'Hans simply bought *Lolita*.' 'Hans simply borrowed *Lolita*.'

With these remarks in mind, we turn to the meaning contribution of *einfach*. For ease of exposition, we assume that *einfach* is a sentence adverb. Then the LF structure in (8) provides a suitable basis for our analysis of (4): *einfach* is coindexed with the subject (to capture the dependence of *einfach* on the agentive subject), the main verb induces alternatives by being focus-marked, and *einfach* has an exhaustification operator, *exh*, in its immediate scope (see, e.g., [10, 4]).<sup>5</sup>

- (8)  $\text{einfach}_i [_{S_2} \text{exh} [_{S_1} \text{Hans}_i \text{Lolita raubkopiert}_F \text{hat}]]$

We propose that *einfach* denotes a modal operator that is restricted by a circumstantial modal base and an ordering source that characterizes what is simple for the (agentive) subject of the host sentence. The denotation of  $\text{einfach}_i S$  is given in (9), where  $a$  is a variable assignment function,  $f$  the modal base (conceived of as a function from  $D_s$  to  $D_{st}$ ), and  $g$  the ordering source (conceived of as a function from  $D_e \times D_s$  to  $D_{(st)t}$ ). The relation  $>_{g(x,w)}$  ('simpler for  $x$  in  $w$ ') is defined in (11) on the basis of the non-strict ordering relation in (10) (cf. [16]).

<sup>5</sup>For the main argument, nothing hinges on this implementation of exhaustification. Alternatively, one could assume that exhaustification is part of the meaning of *einfach* itself.

- (9)  $\llbracket \text{einfach}_i S \rrbracket^{a,f,g}(w) = 1$  iff  $\llbracket S \rrbracket^a(w) = 1$  and  $\neg \exists p \in \text{Alt}(S) : p \cap f(w) >_{g(a(i),w)} \llbracket S \rrbracket^a \cap f(w)$
- (10)  $\forall p, q \in D_{st} : p \geq_{g(x,w)} q$  iff for every  $p$ -world  $u$ , there is a  $q$ -world  $v$  such that  $u \geq_{g(x,w)} v$   
 $\forall u, v \in D_s : u \geq_{g(x,w)} v$  iff  $\{p \in g(x,w) : p(v) = 1\} \subseteq \{p \in g(x,w) : p(u) = 1\}$
- (11)  $\forall p, q \in D_{st} : p >_{g(x,w)} q$  iff  $p \geq_{g(x,w)} q$  and  $q \not\leq_{g(x,w)} p$

We assume that in (8) *exh* and *einfach* operate on the alternatives in (12) and (13), respectively. Then the actuality inference, (5a), and the exhaustivity inference, (5b), both follow since *einfach*  $S_2$  asserts that  $S_2$  is true, where  $S_2$  denotes the exhaustified meaning of  $S_1$  relative to the alternatives in (12), viz. that Hans pirated but didn't buy or borrow *Lolita*. The circumstantial possibly inference, (5c), follows from the 'no alternative is simpler' condition in (9) since  $p \cap f(w) >_{g(x,w)} q \cap f(w)$  is trivially true (for all  $g, x, w, q$ ) if  $p \cap f(w) = \emptyset$  (i.e. if an alternative  $p$  is not circumstantially possible). The simplicity inference, (5d), follows from the 'no alternative is simpler' condition in conjunction with (13). Importantly, if  $\text{Alt}(S_2)$  were not a set of exhaustified alternatives, then this condition would be trivially satisfied: for instance, the proposition  $[\lambda w . \text{Hans bought } Lolita \text{ in } w] \cap f(w)$  contains worlds in which Hans bought, pirated, and borrowed *Lolita* (given circumstances that don't rule out the possibility of acquiring *Lolita* in several ways), and such a world cannot be any simpler than any world in which Hans pirated *Lolita* (even if he also bought and borrowed it in some such worlds). Thus, the *exh* operator in (8) is not only motivated by the truth condition in (5b), but also to prevent trivialization of the modal component of *einfach*.

- (12)  $\text{Alt}(S_1) = \{[\lambda w . \text{H pirated } L \text{ in } w], [\lambda w . \text{H bought } L \text{ in } w], [\lambda w . \text{H borrowed } L \text{ in } w]\}$
- (13)  $\text{Alt}(S_2) = \{\llbracket \text{exh} \rrbracket(\text{Alt}(S_1))(p) : p \in \text{Alt}(S_1)\}$   
 $= \{[\lambda w . \text{H pirated } L \text{ in } w \wedge \neg \text{H bought } L \text{ in } w \wedge \neg \text{H borrowed } L \text{ in } w], (= \llbracket S_2 \rrbracket)$   
 $[\lambda w . \text{H bought } L \text{ in } w \wedge \neg \text{H pirated } L \text{ in } w \wedge \neg \text{H borrowed } L \text{ in } w], \dots\}$

### 3 The Denotation of *einfach irgendein*

In line with our previous assumptions, we assume that (3) has the LF in (14).

- (14)  $\text{einfach}_i [s_2 \text{ exh } [s_1 [\text{irgendein}_D \text{ Buch}] [1 [\text{Hans}_i t_1 \text{ gekauft hat}]]]]$

We follow [3] in assuming that *irgendein* comes with a covert domain variable  $D$  and that the set assigned to  $D$  is contextually determined. Thus,  $S_1$  has the denotation in (15), where  $D^* = a(D)$ .

- (15)  $\llbracket S_1 \rrbracket^a = [\lambda w . \exists x \in D^* [x \text{ is a book in } w \wedge \text{Hans bought } x \text{ in } w]]$

We proceed by noting that (3) gives rise to the exhaustivity inference that Hans didn't buy several books.<sup>6</sup> Importantly, this inference concerns all objects in the restriction and scope of *irgendein* and not just books that Hans bought randomly. To see this, assume that Hans went to his favorite bookstore and bought a random book for Marie and a carefully selected book for himself (and no other books). To report about this situation on the following day, only the variant of (16) that includes the phrase in parentheses can be adequately used.

- (16) *Gestern hat Hans in seinem Lieblingsbuchladen einfach irgend-ein Buch # (für*  
 yesterday has Hans in his favorite bookstore simply IRGEND-a book for  
*Marie) gekauft.*  
 Marie bought

'Yesterday, Hans simply bought a random book # (for Marie) at his favorite bookstore.'

<sup>6</sup>We thank Luka Crnić for making us aware of this inference and for discussing with us how to derive it.

To account for the observed exhaustivity inference, we follow [3] and [8] in assuming that the alternative set of *irgendein* ( $\exists x \in D^*$ ) includes all of its subdomain alternatives ( $\exists x \in D$ , for all nonempty  $D \subseteq D^*$ ), a universal alternative ( $\forall x \in D^*$ ), and all subdomain alternatives of the universal alternative ( $\forall x \in D$ , for all nonempty  $D \subseteq D^*$ ), as shown in (17).<sup>7</sup>

$$(17) \quad \begin{aligned} \text{Alt}(S_1) &= \{[\lambda w. \exists x \in D[x \text{ is a book in } w \wedge \text{Hans bought } x \text{ in } w]] : \emptyset \subset D \subseteq D^*\} \\ &\quad \cup \{[\lambda w. \forall x \in D[x \text{ is a book in } w \wedge \text{Hans bought } x \text{ in } w]] : \emptyset \subset D \subseteq D^*\} \\ &= \{[\text{H bought a book from } D] : \emptyset \subset D \subseteq D^*\} \\ &\quad \cup \{[\text{H bought every book from } D] : \emptyset \subset D \subseteq D^*\} \quad (\text{abbrev.}) \end{aligned}$$

Next, departing from [3], we assume that *exh* respects the innocent excludability of the alternatives in its domain ([10, 8]).<sup>8</sup> Hence, the denotation of  $S_2$  entails that Hans didn't buy several books:<sup>9</sup>

$$(18) \quad \begin{aligned} \llbracket S_2 \rrbracket^a &= [\lambda w. \exists x \in D^*[x \text{ is a book in } w \wedge \text{Hans bought } x \text{ in } w \\ &\quad \wedge \neg \exists y \in D^*[x \neq y \wedge y \text{ is a book in } w \wedge \text{Hans bought } y \text{ in } w]]] \\ &= [\text{H bought a book from } D^* \text{ and no other book from } D^*] \quad (\text{abbrev.}) \end{aligned}$$

Furthermore, these assumptions yield that  $\text{Alt}(S_2)$  is the set given in (19).

$$(19) \quad \begin{aligned} \text{Alt}(S_2) &= \{[\llbracket \text{exh} \rrbracket(\text{Alt}(S_1))(p) : p \in \text{Alt}(S_1)]\} \\ &= \{[\lambda w. \exists x \in D[x \text{ is a book in } w \wedge \text{Hans bought } x \text{ in } w \\ &\quad \wedge \neg \exists y \in D^*[x \neq y \wedge y \text{ is a book in } w \wedge \text{Hans bought } y \text{ in } w]]] : \emptyset \subset D \subseteq D^*\} \\ &\quad \cup \{[\lambda w. \forall x \in D[x \text{ is a book in } w \rightarrow \text{Hans bought } x \text{ in } w] \\ &\quad \wedge \neg \exists x \in D^* \setminus D[x \text{ is a book in } w \wedge \text{Hans bought } x \text{ in } w]] : \emptyset \subset D \subseteq D^*\} \\ &= \{[\text{H bought a book from } D \text{ and no other book from } D^*] : \emptyset \subset D \subseteq D^*\} \\ &\quad \cup \{[\text{H bought every book from } D \text{ and no book from } D^* \setminus D] : \emptyset \subset D \subseteq D^*\} \quad (\text{abbrev.}) \end{aligned}$$

Henceforth, we ignore the universal alternatives in  $\text{Alt}(S_2)$  since they are irrelevant for the validity of the arguments that follow. Thus, given the semantics of *einfach* in §2, we end up with the following truth conditions for (3):

- (20) a. Hans bought a book from  $D^*$  and no other book from  $D^*$ .  
(*actuality & exhaustivity inference*)
- b. For every nonempty  $D \subseteq D^*$ , there is a possible world, compatible with the circumstances of the actual world, in which Hans buys a book from  $D$  and no other book from  $D^*$ .  
(*circumstantial possibly inference*)
- c. There is no  $D \subseteq D^*$  such that [H bought a book from  $D$  and no other book from  $D^*$ ] is simpler for Hans than [H bought a book from  $D^*$  and no other book from  $D^*$ ].  
(*simplicity inference*)

The actuality and exhaustivity inferences thus follow without further ado. What remains to be shown is that the circumstantial possibility inference and the simplicity inference effectively equate to (or entail) AI.

<sup>7</sup>According to [3], *irgendein* induces (i) subdomain alternatives by its lexical specification, and (ii) a universal alternative by being an indefinite. From [8], we can deduce the assumption that the alternative generation mechanism yields the Cartesian product of (i) and (ii).

<sup>8</sup>See §5, where we discuss this crucial departure from [3].

<sup>9</sup>To see this, note that none of the existential alternatives in (17) are innocently excludable, and neither are any of the universal alternatives with a singleton domain. However, all of the universal alternatives with a non-singleton domain are innocently excludable, which leads to the inference that Hans didn't buy several books.

## 4 Deriving Indifference

We now argue that, if an agent has options for action (e.g. buying this (kind of) book or that) and preferences about which option to realize, then realizing one of many options is more complex than realizing one of fewer options — intuitively, since realizing one of many options requires considering more options. From the truth of (3), we can infer that Hans has more book buying options if he’s buying a book from  $D^*$  than if he’s buying a book from  $D \subset D^*$ , since the circumstantial possibility inference (20b) entails that each book in  $D^*$  is buyable for Hans. Since, furthermore, the simplicity inference (20c) entails that Hans buying a book from  $D^*$  (many options) is no more complex than Hans buying a book from  $D \subset D^*$  (fewer options), it follows that Hans has no preference about which (kind of) book to buy (*indifference inference*).

We continue using ‘ $\text{Alt}(S_2)$ ’ to refer to the domain of alternatives of *einfach* as given in (19) and proceed in two steps: (I) we show that the propositions in  $\text{Alt}(S_2)$  can be associated with decision problems; (II) we show that book buying preferences have an impact on the complexity of these decision problems: for every (nonempty)  $D \subset D^*$ , the decision problem for [H bought a book from  $D$  and no other book from  $D^*$ ] is simpler for Hans than the decision problem for [H bought a book from  $D^*$  and no other book from  $D^*$ ] iff Hans has book buying preferences.

**Step I.** Assume that  $k(x, w)$  is an ordering source that characterizes  $x$ ’s preferences in  $w$  and that  $>_{k(x, w)}$  is the corresponding (strict) ordering relation between propositions. For example, assume that Hans has book buying preferences that lead to the orderings in (21) and to no other orderings of logically independent propositions (where  $b_1, \dots, b_4$  are four arbitrary books from  $D^*$ ).

- (21) a. [H bought  $b_1$  and no other book from  $D^*$ ]  
 $>_{k(\text{Hans}, w)}$  [H bought  $b_2$  and no other book from  $D^*$ ]  
 b. [H bought  $b_3$  and no other book from  $D^*$ ]  
 $>_{k(\text{Hans}, w)}$  [H bought  $b_4$  and no other book from  $D^*$ ]

Let  $\text{Alt}(S_2)_{\Rightarrow p}$  be the set  $\{q \in \text{Alt}(S_2) : q \Rightarrow p\}$ . Then every  $p \in \text{Alt}(S_2)$  defines a decision problem relative to  $\text{Alt}(S_2)_{\Rightarrow p}$ , namely the problem of identifying the weakest propositions  $q \in \text{Alt}(S_2)_{\Rightarrow p}$  such that  $\neg \exists r \in \text{Alt}(S_2)_{\Rightarrow p}$  with  $r >_{k(\text{Hans}, w)} q$ . This problem corresponds to the problem of identifying the maximal subsets  $E$  of  $D^*$  (or one of its subsets) that satisfy Hans’s book buying preferences in  $w$  no worse than any other subset (e.g. the problem of identifying the subset  $\{b_1, b_3\}$  of  $\{b_1, \dots, b_4\}$  given (21)). To see this, consider the decision problem for

$$p_{\{b_1, \dots, b_4\}} = [\text{H bought a book from } \{b_1, \dots, b_4\} \text{ and no other book from } D^*]$$

relative to  $\text{Alt}(S_2)_{\Rightarrow p_{\{b_1, \dots, b_4\}}}$  and the preference ordering in (21). We will show that

$$p_{\{b_1, b_3\}} = [\text{H bought a book from } \{b_1, b_3\} \text{ and no other book from } D^*]$$

is the solution to the decision problem for  $p_{\{b_1, \dots, b_4\}}$ . First, consider the alternative  $p_{\{b_1\}}$ . We note that it’s not the case that  $p_{\{b_1\}} >_{k(\text{Hans}, w)} p_{\{b_1, b_3\}}$ :  $p_{\{b_1, b_3\}}$ -worlds in which Hans bought  $b_3$  are unordered relative to worlds in which he bought  $b_1$  and no other book from  $D^*$ . Since, furthermore,  $p_{\{b_1, b_3\}}$  is weaker than  $p_{\{b_1\}}$ ,  $p_{\{b_1\}}$  is not the solution to the decision problem for  $p_{\{b_1, \dots, b_4\}}$ . By the same reasoning,  $p_{\{b_3\}}$  is not the solution to the decision problem for  $p_{\{b_1, \dots, b_4\}}$ , either. Next, consider  $p_{\{b_1, b_2, b_3\}}$ . We find that  $p_{\{b_1, b_3\}} >_{k(\text{Hans}, w)} p_{\{b_1, b_2, b_3\}}$  since worlds in which Hans bought  $b_2$  and no other book from  $D^*$  are less preferred than  $p_{\{b_1, b_3\}}$ -worlds in which Hans bought  $b_1$ , and unordered relative to  $p_{\{b_1, b_3\}}$ -worlds in which Hans bought  $b_3$ . By the same reasoning,  $p_{\{b_1, b_3, b_4\}}$  and  $p_{\{b_1, \dots, b_4\}}$  are less preferred than  $p_{\{b_1, b_3\}}$ , too. Thus,  $p_{\{b_1, b_3\}}$  is the solution to the decision problem for  $p_{\{b_1, \dots, b_4\}}$ .

**Step II.** If Hans has book buying preferences, then for all (nonempty) sets  $D \subset D^*$  the decision problem for  $p_D = [\text{H bought a book from } D \text{ and no other book from } D^*]$  is simpler than that for  $p_{D^*} = [\text{H bought a book from } D^* \text{ and no other book from } D^*]$ :  $\text{Alt}(S_2)_{\Rightarrow p_D}$  is a proper subset of  $\text{Alt}(S_2)_{\Rightarrow p_{D^*}}$ , since  $p_D$  asymmetrically entails  $p_{D^*}$ ; consequently, the decision problem for  $p_D$  relative to the former set requires considering less alternatives than the decision problem for  $p_{D^*}$  relative to the latter set. If Hans has no book buying preferences, then the decision problem is trivial for all  $D \subseteq D^*$ : the proposition sought after is  $[\text{H bought a book from } D \text{ and no other book from } D^*]$ .

**Putting everything together.** We assume that the complexity of the decision problems associated with the members of  $\text{Alt}(S_2)$  determines how simple the members of  $\text{Alt}(S_2)$  are for Hans: for all  $p, q \in \text{Alt}(S_2)$ ,  $p$  is simpler for Hans than  $q$  iff the decision problem for  $p$  is simpler for Hans than the decision problem for  $q$ . Then, (I) and (II) show that the simplicity inference (20c), in conjunction with the circumstantial possibility inference (20b), entails that Hans didn't have book buying preferences, and hence that (3) entails that Hans was indifferent about the type and specimen of book he bought.

## 5 Discussion

We end with a discussion of how our analysis captures several interesting differences between German *irgend-*, on the one hand, and Spanish *cualquiera* and English *any*, on the other hand. We also describe a new puzzle arising from our proposal that AI is the result of an interaction between a modal operator (*einfach*) and subdomain alternatives.

**Comparison with Spanish *cualquiera*.** As we mentioned in §1, AOMB argue that Spanish *un NP cualquiera*, which, like *irgendein NP*, triggers an AI reading (cf. (2)), is best analyzed as having a modal component hardwired into the meaning of *cualquiera*. Their motivation is that the AI reading easily persists even when the indefinite occurs in a downward-entailing (DE) environment, as in (22), which would be unexpected if AI were merely conversationally implicated, for instance.

- (22) *Juan no compró un libro cualquiera para María.*  
 Juan not bought a book CUALQUIERA for María  
 'Juan didn't buy a random book for María.'

On our proposal for German, by contrast, AI arises via the interaction of *irgend-*, which triggers subdomain alternatives, and *einfach*, which may have *exh* in its immediate scope. Consider now (23), in which *irgendein Buch* occurs in the scope of the DE operator *nie* 'never'. Our proposal predicts that, without any *einfach*, (23) simply means that Hans didn't buy any book, and indeed this a natural reading of the sentence (see [3]). If, however, *einfach* (overt or otherwise) is inserted, then, in order to avoid a contradiction, *exh* must also occur in its scope (hence, in the scope of *nie*).<sup>10</sup> It's well known, however, that the distribution of *exh* is rather limited, in particular that it isn't happy in DE contexts, unless special stress is added to the item that triggers the alternatives in the domain of *exh* (see, e.g., [11]). As such, we predict that embedded AI readings of (*einfach*) *irgend-* can occur in German, but only if special stress is added to the indefinite, and this appears to be exactly right (cf. [13]).

<sup>10</sup>Recall from §2 that without *exh*, the modal component of *einfach* is trivially satisfied. As such, in DE contexts, without *exh*, the reverse occurs; namely, the modal component is contradictory (unsatisfiable). The same prediction arises if we assume that exhaustification is part of the meaning of *einfach* itself.

- (23) *Hans hat nie irgend-ein Buch gekauft.*  
 Hans has never IRGEND-a book bought  
 With stress on *irgendein*: ‘Hans has never bought a random book.’  
 Without stress on *irgendein*: ‘Hans has never bought any book.’

**Comparison with English *any*.** In §3, we derived the AI reading of (3) from what we assumed to be the LF structure underlying this reading, viz. (14). Assuming this LF structure, however, is not innocuous since (14) contains a substructure that has a peculiar status in the theory of polarity sensitivity of [3]. The substructure in question is the complement of *einfach*, which is of the form in (24). Recall that by our assumptions *irgendein* is an indefinite that activates subdomain alternatives and that these subdomain alternatives are contained in the domain of *exh*. Moreover, the complement of *exh* is an upward-entailing (UE) environment for *irgendein*, as indicated by the subscript.

- (24)  $\text{exh}_{[\text{UE}]} \dots \text{irgendein} \dots$ , where *exh* ranges over the subdomain alternatives of *irgendein*

What is peculiar about the structure in (24) is that it denotes the contradiction if, as is assumed in [3], *exh* doesn’t respect the condition of innocent excludability of the alternatives in its domain. Since we assume, in contrast, that *exh* does respect this condition (see §3), we derive a contingent proposition from (24) which, together with its alternative propositions and the meaning of *einfach*, entails AI. Thus, we disagree with [3] on the polarity sensitivity of *irgendein*, in particular, and on the definition of *exh* and, hence, its role in explaining the distribution of polarity sensitive items, in general. As for the former disagreement, we note that, unlike English *any*, *irgendein* can occur in what appears to be an unembedded position in a plain declarative sentence, as illustrated by (25a) vs. (25b). [3] takes the modal implicature triggered by *irgendein* in such sentences (see the paraphrase of (25b)) to show that *irgendein* is separated from *exh* by a covert modal operator (which prevents a contradictory meaning from emerging). That is, [3] assumes that (25b) has an LF structure of the form  $\text{exh} [\diamond [\text{irgendwer} \dots]]$ , where  $\diamond$  is a covert modal operator. We submit that at least the reading of (25b) on which it implicates speaker ignorance does not provide evidence for a covert modal. Rather, the speaker ignorance implicature follows straightforwardly from the Gricean maxim of quantity if (25b) has the form  $\text{exh} [\text{irgendwer} \dots]$  (where *exh* is the operator of [10], which respects innocent excludability) and *irgend-* activates subdomain alternatives as assumed in §3 (following [3]).<sup>11</sup> That is, we hold that the best explanation for the paradigm in (25) and (26) is that English *any* differs from German *irgend-* and from the English and German disjunctive particles in that it is a polarity sensitive item, while the other items, which trigger speaker ignorance inferences, are not.

- |  |   |
|--|---|
| (25) a. *Anyone called.  | (26) a. Ann or Bill called.   |
| b. <i>Irgend-wer hat angerufen.</i><br>IRGEND-who has called<br>‘Someone called (and the speaker doesn’t know or care to tell who).’ | b. <i>Anne oder Willi hat angerufen.</i><br>Anne or Willi has called<br>‘Anne or Willi called (and the speaker doesn’t know which one of the two).’ |

We are not yet in a position to say if our analysis of the AI reading of *einfach*  $\dots$  *irgend-* is compatible with any of the existing theories of polarity sensitivity.<sup>12</sup> However, provided that

<sup>11</sup>If, alternatively, the speaker ignorance reading of (25b) is caused by a syntactically represented modal operator as argued in [14], *irgendwer* may still be immediately c-commanded by an occurrence of *exh*. If we follow [14], we are led to assume that the relevant reading of (25b) is due to an LF structure of the form  $\text{exh} [K [\text{exh} [\text{irgendwer} \dots]]]$ , where the lower occurrence of *exh* ranges over the subdomain alternatives of *irgendwer*.

<sup>12</sup>The theory defended in [7, 6], which is not based on subdomain alternatives being associated with *exh* but rather with a covert variant of *even* ([12]), may be a suitable candidate.



such a theory exists, our analysis makes the following prediction: if English has a counterpart of German *einfach*, then *any* can give rise to AI readings in environments in which it can occur as a polarity sensitive item, e.g. in the immediate scope of a sentence negation. We submit that English *just* is the relevant counterpart of *einfach* and that our prediction is borne out (if the proviso can be satisfied): the sentence in (27a) has a reading on which it implies AI (where small capitals indicate that *any* must be stressed for the AI reading to arise, for reasons discussed in the previous subsection). Furthermore, there is evidence that *just*, like its German counterpart, has a covert variant, as is evidenced by the sentence in (27b), which has an AI reading.<sup>13</sup>

- (27) a. John didn't buy just ANY book.  
 b. Don't buy ANY data plan. (Buy ours!)

**New puzzle: Disjunction and the lack of agent indifference.** There is an intuitively close connection between indefinites and disjunction, in the sense that a sentence with an indefinite can be thought of as disjunctive in meaning: if the set of all (relevant) books is just  $\{Faust, Lolita\}$ , then *Hans bought a book* is semantically equivalent to *Hans bought Faust or Lolita*. Within semantic theory, it's also common to assume that disjunctions, like indefinites, trigger (what we might call) subdomain alternatives: the alternatives of *Hans bought Faust or Lolita* include not just the conjunctive alternative *Hans bought Faust and Lolita*, but also the individual disjunct alternatives, *Hans bought Faust* and *Hans bought Lolita* (see [15]). If this is correct, however, then we appear to predict that disjunctive sentences can have AI readings: Hans arbitrarily bought one of *Faust* or *Lolita*, without any preference. Unfortunately, this prediction is not borne out, as neither the English sentence nor its German equivalent (with or without overt *einfach*) can be understood in that way. That being said, we stress that this appears to be a general puzzle that arises for any straightforward account of the AI effects of *irgend-*, together with standard assumptions about subdomain alternatives: whatever mechanism results in universal inferences about subdomain alternatives for *irgend-* seems to likewise result in universal inferences about sub-disjunction alternatives for plain disjunctions. We of course must leave a solution to this puzzle for a future occasion.

## 6 Conclusion

The German indefinite modifier *irgend-* can license the inference that the agent of an action was in some sense indifferent as to the outcome of the action. We proposed a novel and intuitive analysis of agent indifference by building on well-established assumptions about the semantics of indefinites and on new observations about the role of the adverbial *einfach* 'simply'. *Irgend-* activates subdomain alternatives, while *einfach* licenses a simplicity inference. In *einfach irgend-*sentences, the simplicity inference is, roughly, that doing an action relative to a large domain  $D^*$  is no more complex for the agent than doing that action relative to a subdomain  $D$ , and this, we argued, can only be the case if the agent has no preferences about the outcome of the action, i.e. is indifferent. Our proposal correctly predicts that AI readings of *irgend-* embedded in a DE context can arise, but only if the indefinite is stressed, hence captures an important difference between *irgend-* and Spanish *cualquiera*. In addition, to the extent that our proposal can be

<sup>13</sup>An anonymous reviewer pointed out to us that for them sentences like in (27b) cannot imply AI (though we aren't sure whether the reviewer controlled for stress). We are confident that our empirical claim is correct for at least some speakers of English, since our example is a simplified version of an actual advertisement that is meant to convince listeners to buy a mobile data plan in a non-random way, and not to refrain from buying a data plan altogether. More to the point, if the first sentence in (27b) couldn't imply AI, then the sequence as a whole would sound contradictory, and yet it doesn't.

supplemented by a theory of the polarity sensitivity differences between *irgend-* and English *any*, it correctly predicts that AI readings of *any* can arise, but only in DE contexts, hence captures an important difference between *irgend-* and English *any*.

While we find our account to be both intuitive and plausible, we've only sketched a proof-of-concept of how the simplicity relation over propositional alternatives that *einfach* references can yield agent indifference—namely, by assuming that it's determined by associated decision problems. A fully explicit theory needs to not only make this link precise, but also explain why the simplicity order can't be provided by some other metric than the one suggested here.

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