

# Epistemic Indefinites

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*Exploring Modality Beyond the Verbal Domain*

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# Epistemic indefinites: An overview

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## 1.1 Introduction

Modal expressions in natural language allow us to talk about possible scenarios and unrealized possibilities. For instance, the sentence in (1a), with the modal auxiliary *might*, describes a possible scenario compatible with the available evidence; the one in (1b), with *must*, evokes possible situations in which John does what his parents want him to do.

- (1) a. Given what we know, John might be the murderer.
- b. Given his parents' orders, John must be in bed by ten o'clock.

Modality has been extensively studied, both in linguistics and in philosophy (see Portner 2009 and Hacquard 2011 for recent overviews.) Until recently, the study of modality had focused mostly on verbal expressions: modal auxiliaries like *must* or *might*, and attitude verbs like *want* or *believe*. However, the expression of modal notions is not limited to the verbal domain (see, e.g., Kratzer 1981). The sentences in (2) provide some examples of nominal expressions that convey modality.

- (2) a. John bought at least four books.
- b. Whatever book John bought was very expensive.
- c. John's books were too expensive.
- d. John bought the wrong books.
- e. John is the man to fix the sink.
- f. The price if you pay now is reasonable.

In (2a), the modified numeral *at least four* triggers the inference that the speaker is uncertain about how many books John bought—he *might* have bought four, or he *might* have bought more. In (2b), *whatever* also conveys speaker's ignorance—the speaker does not know what book John bought. In (2c), *too* adds the implication that John's books *should have been* less expensive. The use of the adjective *wrong* in (2d)

indicates that John *should not* have bought the books that he actually bought. The infinitival relative clause in (2e) conveys that John is *supposed to* fix the sink. Finally, the adnominal conditional in (2f) evokes possible scenarios in which you pay now.

Over the last few years, a body of work on non-verbal modality has emerged. In the recent literature, we find work on modified numerals like *at least n* or *at most n* (see, e.g., Geurts and Nouwen 2007; Büring 2008; Nouwen 2010a; Schwarz 2011a; Coppock and Brochhagen 2013), free relatives of the *whatever*-type (for instance, Dayal 1997; von Stechow 2000; Condoravdi 2005; Tredinnick 2005; Rawlins 2008; Heller and Wolter 2011), *too* constructions (Heim 2000; Hacquard 2000; Meier 2003), infinitival relative clauses as in *the man to fix the sink* (Bhatt 1999; Hackl and Nissebaum 2012), modal adjectives (e.g. Abusch and Rooth 1997; Larson 2000; Schwarz 2006), adnominal conditionals of the form *the price if you pay now* (Laserson 1996; Frana forthcoming), and modal indefinites (see references in the next section).

A substantial part of the research on modal indefinites focuses on epistemic indefinites. These are indefinite determiners or indefinite pronouns that signal ignorance on the part of the speaker, thereby conveying information about her epistemic state.<sup>1</sup> German *irgendein* and Spanish *algún* are two cases in point. By using *irgendein* in (3a) and *algún* in (3b), the speaker signals that she cannot identify the doctor that María married. Hence, it would be odd to add a *namely* continuation that explicitly identifies the individual in question, as in (4). Likewise, it would be pragmatically inadequate for the addressee to ask who the doctor is.

- (3) a. Maria hat irgendeinen Arzt geheiratet.  
 Maria has IRGENDEINEN doctor married  
 ‘Maria married some doctor or other.’
- b. María se casó con algún médico.  
 María SE married with ALGÚN doctor  
 ‘María married some doctor or other.’
- (4) a. Maria hat irgendeinen Arzt geheiratet (#und zwar Dr. Smith.)  
 Maria has IRGENDEINEN doctor married and indeed Dr. Smith  
 ‘Maria married some doctor or other, namely Dr. Smith.’
- b. María se casó con algún médico (#en concreto con el Dr. Smith.)  
 María SE married with ALGÚN doctor, in particular with the Dr. Smith.  
 Smith  
 ‘María married some doctor or other, namely Dr. Smith.’

<sup>1</sup> Following the use in Alonso-Ovalle and Menéndez-Benito (2003) and adopted, e.g., in Aloni and Port (2013), we will take the term ‘epistemic indefinites’ to exclude indefinites that convey speaker’s knowledge, such as English *a certain*, German *ein bestimmt*, or French *un certain* (see, e.g., Hintikka 1986; Kratzer 1998; Farkas 2002b; Jayez and Tovena 2006; Hinterwimmer et al. 2013; Martin 2013; among many others). In contrast, Jayez and Tovena (2006) use ‘epistemic determiners’ as a general term covering both ignorance and knowledge items.

Although the analysis of indefinite phrases has been at the forefront of research in formal semantics for the last three decades, epistemic indefinites did not receive attention until quite recently. In the early 1980s, the study of indefinites motivated the development of radically new theories of natural language interpretation (Kamp 1981; Heim 1982). At that time, and over the following two decades, the literature on the topic focused mostly on the anaphoric and scopal properties that set indefinites apart from other natural language quantifiers. (See, among others, Farkas 1981; Fodor and Sag 1982; King 1988; Ruys 1992; Abusch 1994; Cresti 1995; Reinhart 1997; Winter 1997; Kratzer 1998; Matthewson 1999).

In 1974, however, Strawson had already called attention to another puzzling property displayed by some indefinites, by briefly discussing the behaviour of English singular *some*. Strawson (1974) considers, among others, the examples in (5) and suggests

that the choice of ‘some’ rather than ‘a’ embodies what might be called an acknowledgement or recognition of the fact that the identification supplied, though perhaps the best the speaker can do, might be regarded as inadequate to the circumstances of the case; and that the kind of identification which the choice of ‘some’ rather than ‘a’ indicates or suggests inability to provide (though perhaps sometimes accompanied by indifference to or unconcern about) may be either further kind-identification or individual identification. (Strawson 1974: 92)

- (5) a. Some general has been shot.  
 b. Some cabinet minister has been shot.  
 c. Some V.I.P. has been shot. (Strawson 1974: 92)

Despite Strawson’s remarks, epistemic indefinites remained largely ignored in the semantic literature until the late 1990s. In 1997, Martin Haspelmath published an influential typological survey (Haspelmath 1997) that included ‘(lack of) knowledge of the speaker’ as one of the possible dimensions of variation within the class of indefinites. He noted that this dimension had not received much attention in the literature, even though it is cross-linguistically widespread:

the semantic distinction of (lack of) knowledge of the speaker is not nearly as important as the two factors discussed in the previous sections, negative polarity and (non-) specificity. It has received very little attention in the theoretical literature. However, it can be found in quite a few languages. In my 40-language sample, I found evidence for such a distinction in ten languages. (Haspelmath 1997: 46)

Since 1997, a substantial body of work on epistemic indefinites has emerged. Some epistemic indefinites that have been discussed in the semantics literature are English singular *some* (Becker 1999; Farkas 2002b; Weir 2012), German *irgendein* (Kratzer and Shimoyama 2002; Aloni 2007a; Lauer 2010; Port 2010; Aloni and Port 2013,<sup>2</sup> Chierchia

<sup>2</sup> While Aloni and Port’s paper was published in 2013, it has been available on-line since 2010.

2013a), Spanish *algún* (Alonso-Ovalle and Menéndez-Benito 2003, 2008, 2010, 2011a, Giannakidou and Quer 2013), Catalan *algun* (Giannakidou and Quer 2013), Greek *kajjos* (Giannakidou and Quer 2013), French *quelque* (Jayez and Tovena 2007, 2013), *un NP quelconque* (Jayez and Tovena 2002, 2006) and the *n'importe qu-* series (Jayez and Tovena 2002, 2006; Zabbal 2004), Italian (*un*) *qualche* (Zamparelli 2007; Aloni and Port 2013; Chierchia 2013a), Romanian *vreun* (Farkas 2002a, 2006, Fălăuș 2009, 2011a, 2011b, 2012, 2014), the *-to* series in Russian (Yanovich 2005; Geist 2008), the *-nibud* series in Russian (Geist 2008), the *vola-* and *si-* series in Slovak (Richtarcikova 2013), the *-kin* series in Finnish, Malayalam *wh- oo* (Slade 2011), the Japanese *wh- ka* indeterminates (Sudo 2010; Kaneko 2011; Alonso-Ovalle and Shimoyama 2014), and the Czech *-si* indefinites (Šimík forthcoming).

While the research listed in the previous paragraph has considerably improved our understanding of epistemic indefinites, we are still very far from having a full grasp of the phenomenon. This is so for at least two reasons: first, we still lack enough data to develop a semantic typology of these items, since only a few epistemic indefinites in a few languages have been investigated; second, there is currently no agreement as to what the source of the ignorance effect is. On top of this, the parallelisms and differences with other items that convey epistemic modality, both in the nominal and the verbal domain, have not been sufficiently explored. This situation calls for a research agenda that aims to provide an explanatory semantic typology of epistemic indefinites and to place them within a general typology of modal expressions.

The articles collected in this book bring us one step closer to achieving this goal. In this volume, the reader will find novel empirical observations and important theoretical insights on epistemic indefinites, together with discussions of neighbouring topics (indefinites that convey knowledge, modal free relatives, modified numerals, and epistemic modals), which we think will be ultimately crucial for our understanding of how modality is expressed across categories.

The purpose of this introduction is to contextualize the chapters included in this volume by (i) providing a descriptive overview of the topic and (ii) situating the contributions of the individual chapters against the backdrop of research on epistemic indefinites. Section 1.2 surveys the empirical landscape—it presents and illustrates the parameters of variation that have been identified in the literature on epistemic indefinites. Section 1.3 discusses the role that the articles collected here play on some of the core debates concerning epistemic indefinites. Due to space constraints, we will not attempt to do justice to the rich theoretical literature on the subject, but will focus exclusively on the topics that are closely connected to the contributions to this volume.

## 1.2 The phenomenon

As noted above, only a handful of epistemic indefinites have been investigated in detail. Furthermore, the available studies on epistemic indefinites have been carried

out within different theoretical frameworks, and therefore a direct comparison of their results is not always possible. Despite being fragmentary, however, the research on epistemic indefinites to date has already identified a number of parameters along which these items can vary. Sections 1.2.1 to 1.2.5 briefly present and illustrate these dimensions of variation. We should note that not all the epistemic indefinites discussed in the literature have been described with respect to all these parameters, and, therefore, we will not be able to present a complete classification of these items.

### 1.2.1 Types of ignorance

All epistemic indefinites convey ignorance—they make an existential claim and signal that the speaker (or some other agent<sup>3</sup>) does not know who (or what) the witness of this claim is<sup>4</sup>. But these items can express different types of ignorance: on the one hand, epistemic indefinites may vary with respect to how much knowledge about the witness counts as knowing who the witness is (Section 1.2.1.1); on the other, some epistemic indefinites can impose restrictions on what types of entities (types vs. tokens) the ignorance component targets (Section 1.2.1.2).

**1.2.1.1 What counts as not knowing** Alonso-Ovalle and Menéndez-Benito (2003) observe a contrast between English *some* and Spanish *algún* that shows that these items are sensitive to different types of knowledge. A speaker that sees a professor dancing in front of her, and has never seen the professor before, can felicitously utter the sentence in (6). In this context, the speaker cannot name the dancing professor, but there is a sense in which she knows who the professor is—she can point at him. This way of knowing is compatible with the use of *some*. In contrast, (7), with *algún*, is odd in that situation, suggesting that being able to point at the witness is enough to block the use of *algún*.

(6) Look! Some professor is dancing on the table!

(Alonso-Ovalle and Menéndez-Benito 2003: 4)

<sup>3</sup> Many epistemic indefinites can express ignorance on the part of the some individual other than the speaker. See, e.g., Jayez and Tovena (2007) on French *quelque*, Jayez and Tovena (2002) on French *un quelconque*, and Fălăuș (2009, 2014) on Romanian *vreun*. In contrast, Šimik (forthcoming) claims that Czech *-si* indefinites can only convey speaker's ignorance. In the description that follows, we will focus on the default case, where the ignorance component targets the speaker.

<sup>4</sup> Richtarcikova (2013) notes that there are some contexts where Slovak epistemic indefinites are compatible with speaker's knowledge. A speaker who is able to identify the witness can use one of these indefinites (i) to signal that the identity of the witness is irrelevant, (ii) to indicate that the *hearer* is unable to identify the witness, and (iii) to create 'a sense of suspense', after which the speaker proceeds to identify the witness. The irrelevance component—a 'don't care' effect—has also been reported for indefinites such as *irgendein* (e.g. Kratzer and Shimoyama 2002; Aloni 2007b), *un quelconque* (Jayez and Tovena 2006 and references therein), and *some* and *some or other* (Becker 1999; Farkas 2002b).



- (7) # Mira! Algún profesor está bailando encima de la mesa!  
 Look! ALGÚN professor is dancing on of the table.  
 ‘Look! Some professor is dancing on the table!’

(Alonso-Ovalle and Menéndez-Benito 2003: 4)

Aloni and Port (2013) note that the same contrast holds between *irgendein* (which behaves like *some*) and Italian *un qualche* (which behaves like *algún*), and identify a number of further contrasts involving different methods of identifying the individual that satisfies the existential claim. Richtarcikova (2013) observes that the *-vola* and *-si* indefinites in Slovak pattern with *some* in the examples above.

1.2.1.2 *Types vs. tokens* Epistemic indefinites like *some* or *algún* can express both token-ignorance and kind-ignorance. For instance, (8a) says that the speaker cannot identify the kind of plant that is growing through his wall, while (8b) conveys that the speaker cannot identify the individual file that is infected (Weir 2012). The examples in (9a) and (9b) illustrate these two uses for *algún*.

- (8) a. There’s some plant growing through the wall of my room. (Weir 2012: 201)  
 b. The hackers implanted a virus into some file on this computer.  
 (Weir 2012: 196)

- (9) a. En la pared de mi habitación está creciendo alguna planta.  
 In the wall of my room is growing ALGUNA plant  
 ‘Some plant is growing through the wall of my room.’  
 b. Algún fichero está infectado.  
 ALGÚN file is infected  
 ‘Some file is infected’

In contrast, Alonso-Ovalle and Shimoyama (2014) discuss a contrast between two epistemic indefinites in Japanese—*dore-ka* (‘which-ka’) and *nani-ka* (‘what-ka’)—which differ with respect to the type vs. token dimension. In a context where the speaker can point to the mushroom that she touched but doesn’t know which type of mushroom it is, the sentence in (10b) below, with *nani-ka*, is fine, but its counterpart in (10a), with *dore-ka*, is not.

- (10) a. Dore-ka kinoko-ki sawat-ta!  
 which.one-KA mushroom-DAT touch-PAST  
 ‘I touched some mushroom!’  
 b. Nani-ka kinoko-ni sawat-ta!  
 what-KA mushroom-DAT touch-PAST  
 ‘I touched some mushroom!’

(Alonso-Ovalle and Shimoyama 2014: 17)

## 1.2.2 Interaction with modals

Epistemic indefinites also differ with respect to the way in which they interact with modal auxiliaries—they can impose various restrictions on the types of modals that they can combine with (Section 1.2.2.1) and on the range of interpretations they give rise to when they are in the scope of a modal operator (Section 1.2.2.2).

1.2.2.1 *Distribution* Some epistemic indefinites have a restricted distribution with respect to modal operators. Aloni and Port (2013) note that Italian *un qualche* (which conveys speakers' ignorance in sentences like (11)) cannot be interpreted under deontic modals. According to these authors, the sentence in (12) can only mean that there is a particular doctor that Maria has to marry (i.e. it can only be interpreted with the indefinite scoping over the modal.)

- (11) Maria ha sposato un qualche professore (# cioè Vito).  
 Maria has married UN QUALCHE professor (# namely Vito)  
 'Maria married some professor, I don't know who.' (Aloni and Port 2013: 2)
- (12) Maria deve sposare un qualche dottore.  
 Maria must marry UN QUALCHE doctor  
 'There is some doctor Mary must marry, I don't know who.'  
 (Aloni and Port 2013: 4)

Farkas (2002a) and Fălăuș (2009, 2011a,b, 2012, 2014) discuss an indefinite—Romanian *vreun*—that displays further restrictions. This item is only licensed under (some) epistemic modal operators<sup>5</sup> (13), or in downward entailing contexts (14). Positive episodic sentences such as (15) and (16) or deontic statements like (17) are ungrammatical. Fălăuș still considers *vreun* an epistemic indefinite because sentences like (13) convey speaker's ignorance ((13) signals that the speaker does not know what room Juan is in).<sup>6</sup>

- (13) Juan trebuie să fie în vreo cameră din casă.  
 Juan must SUBJ be in VREUN room of-the house  
 'Juan must be in some room of the house.' (Fălăuș 2014: 152)
- (14) Mă îndoiesc că Paul a obținut vreun rezultat interesant.  
 REF doubt.1SG that Paul has obtained VREUN result interesting  
 'I doubt that Paul has obtained any interesting result.' (Fălăuș 2014: 137)

<sup>5</sup> Not every epistemic modal can license *vreun*: *vreun* is ruled out under *know* but is acceptable under non-factive doxastics like *believe* or *suppose*. See Fălăuș (2009, 2012, 2014) for discussion.

<sup>6</sup> See Farkas (2002a) for other properties of *vreun*.

- (15) \*Lisa a citit vreo carte.  
 Lisa has read VREUN book  
 ‘Lisa has read some book’ (Fălăuș 2012: 24)
- (16) \*Am vreo prietenă la Utrecht  
 have-I VREUN friend in Utrecht  
 ‘I have a friend in Utrecht’ (Farkas 2002a: 10)
- (17) Ținând cont de norme editoriale, \*poți scrie vreun articol  
 taking account of norms.DEF editorial can.2C write VREUN article  
 despre albine, publicăm orice  
 about bees, publish.1PL anything  
 ‘(According to the editorial policy), you can write some paper on bees, we  
 publish anything.’ (Fălăuș 2009: 54)

Finally, Šimík (forthcoming) shows that *-si* indefinites, on their ignorance reading,<sup>7</sup> cannot occur with epistemic modals. He illustrates this with the examples in (18) below.

- (18) a. \*Musí / může spát na jakémsi gauči.  
 Must / might sleep.inf on some.EI couch  
 Intended: ‘He must / might be sleeping on some couch (but I don’t know which)’
- b. \*Určitě / možná spí na jakémsi gauči.  
 surely / maybe sleeps on some.EI couch  
 Intended: ‘Surely / Maybe he is sleeping on some couch (but I don’t know which)’

*1.2.2.2 Interpretation* Epistemic indefinites have also been shown to differ in the range of interpretations that they give rise to when in the scope of a modal operator. The differences have to do with the extent to which the indefinite requires the worlds introduced by the modal to vary with respect to the identity of the individual satisfying the existential claim.

Let us focus on epistemic modals first. As noted by Alonso-Ovalle and Menéndez-Benito (2008, 2010), sentences such as (19), where *algún* combines with an epistemic modal, express only *partial* ignorance.

- (19) Juan tiene que estar en alguna habitación de la casa.  
 Juan has that be in ALGUNA room of the house  
 ‘Juan must be in a room of the house.’

<sup>7</sup> See Šimík (forthcoming) for other readings of these items.

The sentence in (19) can be felicitously uttered as long as the speaker does not know exactly what room Juan is in, even if she is sure that Juan is not, say, in the bedroom. This same interpretation has been reported for the German counterpart of (19) with *irgendein*, in (20) below (see Port 2010; Lauer 2010; Aloni and Port 2013) and for examples like (21), with *un qualche* (Aloni and Port 2013). We see the same partial ignorance effect in non-modalized sentences like the ones in (22) below.<sup>8</sup>

- (20) Juan muss in irgendeinem Zimmer im Haus sein.  
 Juan must in IRGENDEINEM room in-the house be  
 ‘Juan must be in a room of the house.’ (Aloni and Port 2013: 3)
- (21) Juan deve essere in una qualche stanza della casa.  
 Juan must be in UNA QUALCHE room of-the house  
 ‘Juan must be in some room of the house.’ (Aloni and Port 2013: 3)
- (22) a. Juan está en alguna habitación de la casa.  
 Juan is in ALGUNA room of the house  
 ‘Juan is in a room of the house.’  
 b. Juan ist in irgendeinem Zimmer im Haus.  
 Juan is in IRGENDEINEM room in-the house  
 ‘Juan is in a room of the house.’  
 c. Juan è in una qualche stanza della casa.  
 Juan is in UNA QUALCHE room of-the house  
 ‘Juan is in a room of the house.’

While *algún* and *irgendein* do not require total ignorance, they are compatible with it—the sentence in (20), for instance, would be fine in a situation where, as far as the speaker knows, Juan might be in *any* room. According to Fălăuș (2012), Romanian *vreun* behaves differently in that it blocks total ignorance. For instance, the example in (23) would be deviant if, for all the speaker knows, Juan might be in *any* room of the house.

- (23) Juan trebuie să fie în vreo cameră din casă  
 Juan must SUBJ be in VREUN room of-the house  
 ‘Juan must be in some room of the house.’ (Fălăuș 2012: 33)

Epistemic indefinites can also differ with respect to the degree of variation they give rise to under deontic modals. Spanish *algún*, for instance, only requires partial variation in that context. On the narrow scope reading of *algún*, the sentence in (24) simply says that María is under the obligation to marry a doctor—not a particular

<sup>8</sup> Some accounts of epistemic indefinites (e.g. Chierchia 2006, 2013a; Alonso-Ovalle and Menéndez-Benito 2008, 2010) assume that sentences like the ones in (22) contain a *covert* modal operator, but this assumption is not universally accepted. See Section 1.3.2.

one. In contrast, *irgendein* under deontic modals gives rise to a free choice effect: the sentence in (25) signals that María is allowed to marry *any* doctor (Kratzer and Shimoyama 2002). Richtarcikova (2013) also reports that Slovak epistemic indefinites have a free choice reading under deontic modals (as well as imperatives).

- (24) María tiene que casarse con algún médico.  
 Maria has to marry with ALGÚN doctor  
 ‘Maria has to marry a doctor.’
- (25) Maria muss irgendeinen Arzt heiraten.  
 Maria must IRGENDEINEN doctor marry  
 ‘Maria must marry a doctor.’

### 1.2.3 Downward entailing contexts

Moving beyond their interaction with modals, we see that epistemic indefinites also vary with respect to their behaviour in negative environments.

German *irgendein* cannot combine with sentential negation, unless stressed. The presence of *nicht* rules out *irgendein* in (26) below (Kratzer and Shimoyama 2002).<sup>9</sup>

- (26) Ich hab’ nicht irgendwas gelesen.  
 I have not IRGEND-WHAT read  
 Intended: ‘I didn’t read anything’. (Kratzer and Shimoyama 2002: 25)

Other epistemic indefinites have been reported to be positive polarity items (PPIs) because they cannot be interpreted in the direct scope of clausemate negation. A well known case is *some*. The example below, from Farkas (2002b), can only be interpreted as talking about a particular apartment that Mary didn’t buy.<sup>10</sup> The same pattern obtains for *algún*, and Jayez and Tovená (2007, 2011, 2013) discuss in detail the PPI-like behaviour of French *quelche*.

- (27) Mary didn’t buy some apartment in San Francisco when she could have afforded it and now it is too late. (Farkas 2002b: 65)

<sup>9</sup> If *irgend* is stressed, (26) is interpreted as ‘I didn’t read just anything’ (Kratzer and Shimoyama 2002). See Section 1.2.5 for a brief discussion of this interpretation.

<sup>10</sup> PPIs become acceptable in the scope of clausemate negation when the clause they are in is in a downward entailing context (i), or in cases involving denial (ii).

(i) If we don’t call some neighbour to help, we are doomed. (Farkas 2002b: 68)

(ii) a. A: He found some mistake.  
 b. B: Wrong! He DIDN’T / DID NOT find some mistake. (Farkas 2002b: 68)

The examples above are from Farkas (2002b), who in turn adapts examples from Szabolcsi (2004). See Szabolcsi (2004) for discussion.

Matters seem more complicated in the case of Romanian *vreun*. Fălăuș claims that *vreun* is generally ungrammatical in the scope of clausemate sentential negation (28) (see also Farkas 2002a) but can be used in that environment if preceded by a negative concord item (29) or when it gets an ‘emphatic’ interpretation (see Fălăuș, this volume, for discussion).

- (28) \*Nu cunosc vreun candidat.  
 NEG know VREUN candidate  
 ‘I didn’t know any candidate.’ (Fălăuș, this volume)
- (29) Nimeni nu a avut vreo informație despre crimă.  
 Nobody NEG have had VREUN information about murder.  
 ‘Nobody had any information on the murder.’ (Fălăuș, this volume)

Other epistemic indefinites pose additional restrictions. Aloni and Port (2013) claim that *un qualche* is ungrammatical in negative contexts more generally. As illustration, they provide the example in (30), where *un qualche* is in the scope of a negative quantifier.

- (30) ?? Nessuno ha risposto a una qualche domanda.  
 Nobody has answered to a QUALCHE domanda  
 Intended: ‘Nobody has answered any question.’ (Aloni and Port 2013: 4)

It is worthwhile noting that the epistemic effect has often been reported to disappear in downward entailing environments. For instance, while the sentence in (31) signals that the speaker does not know who María married, the one in (32) just means that Hans doubts that María married any doctor at all (and not that he doubts whether the speaker knows what doctor María married) (see Kratzer and Shimoyama 2002).

- (31) Maria hat irgendeinen Arzt geheiratet.  
 Maria has IRGENDEINEN doctor married  
 ‘Maria married some doctor or other.’
- (32) Hans bezweiflet, dass Maria irgendeinen Arzt geheiratet hat.  
 Hans doubts that Maria IRGENDEINEN doctor married has.  
 ‘Hans doubts that Maria married a doctor.’

The same behaviour has been reported for Spanish *algún* (Alonso-Ovalle and Menéndez-Benito 2003, 2008, 2010), Romanian *vreun* (Fălăuș 2009, 2011a, 2011b, 2014), Japanese *wh-ka* indeterminates (Alonso-Ovalle and Shimoyama 2014) and French *un quelconque* (Jayez and Tovena 2006).

We do not know of any epistemic indefinite whose ignorance component does *not* disappear in the scope of downward entailing operator—this might be a property that characterizes the class as a whole.

## 1.2.4 Interaction with plurality

Another parameter of variation within the class of epistemic indefinites has to do with the interaction of the epistemic effect and plural morphology.

Some epistemic indefinites convey ignorance only in their singular form. For instance, Alonso-Ovalle and Menéndez-Benito (2011a) note that *algunos*, the plural form of *algún*, does not trigger an epistemic effect: the sentence in (34) can be felicitous in situations where the speaker knows which students María is living with. As a result, a *namely* continuation that identifies the students is felicitous (as in (34)).

- (33) María vive con algunos estudiantes.  
 María lives with ALGUNOS students  
 ‘María lives with some students.’  
 (Alonso-Ovalle and Menéndez-Benito 2011a: 213)

- (34) María vive con algunos estudiantes, en concreto con Pedro y  
 María lives with ALGUNOS students, namely with Pedro and  
 con Juan.  
 with Juan.  
 ‘María lives with some students, namely Pedro and Juan.’  
 (Alonso-Ovalle and Menéndez-Benito 2011a: 213)

In contrast, *irgendwelche*, the plural of *irgendein* signals ignorance, as (35) illustrates.

- (35) Maria wohnt mit irgendwelchen Studenten zusammen, ‡ und zwar  
 Maria lives with IRGENDWELCHEN students together, namely  
 mit Pedro und Juan.  
 with Pedro and Juan  
 ‘Maria lives with some students, namely Pedro and Juan.’  
 (Alonso-Ovalle and Menéndez-Benito 2011a: 235)

English *some* patterns with *algún* in this respect (unlike singular *some*, plural *some* does not convey ignorance). Slovak *-si* and *-vola* behave like *irgendein*—they trigger an ignorance effect in both the singular and their plural form (Richtarcikova 2013).

## 1.2.5 Non-epistemic modal readings

Epistemic modality is not the only flavour of modality that indefinites can express. There is a class of indefinites (e.g. Spanish *uno cualquiera*, Italian *uno qualsiasi*, or the Korean *-na* indeterminates) that convey agent-oriented modality (see, for instance, Kratzer and Shimoyama 2002; Choi 2007; Choi and Romero 2008; Alonso-Ovalle and Menéndez-Benito 2011b, 2013c; Rivero 2011a, 2011b; Chierchia 2013a). The sentence in (36) gives an illustration with Spanish *uno cualquiera*.

- (36) Juan compró un libro cualquiera.  
 Juan bought un book CUALQUIERA  
 ‘Juan bought a random book.’

This sentence compares what Juan did (say, buying book *a*) with other alternative actions (for example buying book *b*, buying book *c*), and conveys that, for the agent, all those potential actions ‘count as equivalent’ to the actual action. There is currently no consensus with respect to the exact nature of this agent-oriented modality. For instance, Choi (2007), building on the analysis of *whatever* put forward in von Stechow (2000), contends that the agent-oriented reading of *na* indeterminates boils down to counterfactual modality. Choi and Romero (2008) extend this to *uno cualquiera*. Chierchia (2013a) suggests that the modality associated with *uno qualsiasi* might be bouletic. Alonso-Ovalle and Menéndez-Benito (2013c) put forward the hypothesis that the modality expressed by *uno cualquiera* is linked to the agent’s decision (rather than to her preferences or desires).

Epistemic indefinites differ with respect to whether they can have this agent-oriented reading. German *irgendein*, can have both an epistemic and an ‘agent indifference’ reading in the absence of an overt modal. For instance, the sentence in (37) can be interpreted as saying that Hans bought a book, and, roughly speaking, that he picked it indiscriminately.<sup>11</sup> In contrast, in Spanish, the epistemic and the agent-oriented reading are conveyed by two different items (*algún* and *uno cualquiera*, respectively).

- (37) Hans hat irgendeinen Buch gekauft.  
 Hans has IRGENDEINEN book bought  
 ‘Hans bought a random book.’

We conclude here our overview of the properties that characterize the sample of epistemic indefinites investigated in the previous literature. As the reader will have noticed, we only have a rather fragmentary view of how epistemic indefinites behave. This raises the question of how indefinites not represented in the sample above fare with respect to the parameters that we have mentioned, and calls for an investigation of whether other parameters of variation exist.

### 1.3 The contributions to this volume

We turn next to discussing the articles collected in this volume against the backdrop of current work on epistemic indefinites.

#### 1.3.1 Extending the empirical landscape

As noted above, the research on epistemic indefinites to date has focused on a small sample of languages. A number of chapters in this volume contribute to extending

<sup>11</sup> As noted above, the agent indifference reading can be brought out by stress. On the role of stress in the interpretation of epistemic indefinites see Fălăuș (2013) and Aloni and Port (2011).



our empirical coverage, and hence get us a step closer to being able to develop an explanatory typology of epistemic indefinites.

Building on her previous work (see Fălăuș 2009, 2011a, and other references quoted in her chapter), Fălăuș contrasts two epistemic indefinites in Romanian, *vreun* and *un oarecare*. These items have been previously discussed in the literature but are here systematically contrasted for the first time. Fălăuș examines the behaviour of these two indefinites with respect to many of the parameters of variation identified in the literature. She shows that *vreun* and *un oarecare* differ with respect to (i) whether they require a modal licenser (Section 1.2.2.1), (ii) whether they can appear in downward entailing contexts (Section 1.2.3), (iii) whether they can appear under epistemic modals (Section 1.2.2.1), (iv) whether they can appear under deontic modals (Section 1.2.2.1), and (v) the degree of variation they require (Section 1.2.2.2). In the last section, she briefly discusses how these items differ with respect with their interaction with plurality (Section 1.2.4) and focus.

Slade's paper on Sinhala also looks at two epistemic indefinites (*wh-də* and *wh-hari*). The chapter discusses (i) the type of knowledge that these items are sensitive to (see Section 1.2.1.1), and (ii) their scopal behaviour. Regarding the first issue, Slade concludes that these epistemic indefinites do not seem sensitive to what method of identification is relevant in the context (as claimed for Germanic and Romance indefinites by Aloni and Port (2013)) but rather rule out specific identification methods. When the witness of the existential claim can be visually identified, *wh-hari* is disallowed. In contrast, *wh-də* is ruled out when the speaker can identify the referent by name or description. Regarding the second issue, Slade claims that *wh-də* is obligatorily specific. The chapter also compares these indefinites with English *some* and *some or other* (thus making a link with Slade's second chapter in the volume), and provides a discussion of the morphological make-up of epistemic indefinites in a number of South East Asian languages.

Slade's chapter on English provides a synchronic and diachronic comparison of English *some* and *some or other*. While previous work on *some* provides some remarks regarding the differences between *some* and *some or other* (see Farkas 2002b and Becker 1999), this is to our knowledge the first paper that attempts an explicit comparison. On the synchronic side, Slade argues that these two items, like the Sinhala indefinites, differ with respect to (i) type of knowledge (*some or other*, but not *some*, is ruled out when the speaker knows the name of the witness or can point at him), and (ii) scopal behaviour (*some or other* is obligatorily specific). On the diachronic side, Slade provides some evidence regarding the development of these uses, and briefly discusses another epistemic indefinite, *nathw-*, found in Old English, as well as the phrases *I know not / I wot not / I don't know what*, documented from the sixteenth century.<sup>12</sup>

<sup>12</sup> For other work on the historical development of epistemic indefinites, see Jayez and Tovena (2011, 2013), on French *quelque*.

In their chapter, **Chierchia and Liao** focus on Chinese *wh*-expressions, which can have interrogative, negative, universal, and existential readings, and which trigger an epistemic effect when understood existentially. They analyse these items within the framework developed in Chierchia (2013a). An important empirical contribution of the chapter is the observation that these items—unlike other epistemic indefinites analysed to date—behave differently in the antecedent of conditionals and in the restriction of universal quantifiers. As illustrated in (38) below, these items are grammatical in the antecedent of conditionals, but ungrammatical in the restriction of quantifiers like *every*. This shows that the behaviour of epistemic indefinites in downward entailing contexts is more intricate than our brief summary in Section 1.2.3 suggests.

- (38) a. Ruguo ta gen shenme laoshi miantan-le, ta yinggai yijing  
 If he with what teacher meet-PFV, he should already  
 dedao-le bu-cuo de jianyi  
 get-PFV not-bad of advice  
 ‘If he met with a teacher, he should have already gotten nice suggestions.’
- b. \*Meige gen shenme laoshi miantan de xuesheng dou dedao-le  
 Every with what teacher meet of student DUO get-PFV  
 bu-cuo de jianyi  
 not-bad of suggestion  
 Intended: ‘Every student who met with a teacher got good suggestions.’  
 (Chierchia and Liao, this volume)

### 1.3.2 The source of the epistemic effect

There is currently no agreement with respect to how the ignorance effect triggered by epistemic indefinites comes about. Two types of approaches are represented in this collection: **Chierchia and Liao**’s contribution analyses Chinese epistemic indefinites using the implicature-based framework presented in Chierchia (2013a); **Aloni and Port**’s chapter presents a conceptual cover approach of the type first developed in Aloni and Port (2013; circulated since 2010).

A number of accounts of epistemic indefinites derive the ignorance effect as a quantity implicature (see, for instance, Chierchia 2006, 2013a; Alonso-Ovalle and Menéndez-Benito 2008, 2010; Fălăuș 2009<sup>13</sup>). This approach provides a natural explanation for the fact that the effect vanishes in downward entailing contexts (see Section 1.2.3) since, as is well known, disappearance in downward entailing contexts is one of the hallmarks of quantity-based implicatures (Gazdar 1979; Horn 1989). For instance, the sentence in (39a) triggers the scalar implicature that John didn’t eat all

<sup>13</sup> For discussion of this kind of approach, and a more comprehensive list of references, see Alonso-Ovalle and Menéndez-Benito (2013d).

of the cookies under consideration. This implicature is absent in (39b), which simply says that John didn't eat cookies.

- (39) a. John ate some of the cookies.  
b. It is not true that John ate some cookies.

Discussing in detail the different versions of the implicature approach is beyond the scope of this chapter. The main claim that underlies this family of accounts is that the ignorance component arises because the assertion competes with a number of alternative propositions. Where do these alternatives come from? Scalar alternatives result from replacing the scalar term in the assertion by its scale-mates. In the case of epistemic indefinites, the idea (first proposed by Kratzer and Shimoyama (2002)) is that alternatives are generated by replacing the domain of quantification involved in the assertion by (all or some of) its subdomains.<sup>14</sup>

We can illustrate this with the account of Spanish *algún* put forward by Alonso-Ovalle and Menéndez-Benito (2008, 2010), who build on Kratzer and Shimoyama's seminal work on German *irgendein* (Kratzer and Shimoyama 2002). Alonso-Ovalle and Menéndez-Benito assume that sentences like (40) contain a covert epistemic operator.<sup>15</sup> Given this, and assuming that the domain of rooms is {a, b, c}, (40) will express the proposition in (41) (where  $\square$  stands for 'the speaker believes that').

- (40) Juan está en alguna habitación de la casa.  
Juan is in ALGUNA room of the house.  
'Juan is some room of the house.'

- (41)  $\square$  Juan is in a room in {a, b, c}

Alonso-Ovalle and Menéndez-Benito propose that *algún* requires that its domain not be a singleton. This triggers a competition with the singleton domains {a}, {b} and {c}. As a result, (41) will compete with the alternatives in (42). Upon hearing (40), the hearer will wonder why the speaker didn't utter the alternatives in (42), which are stronger and, hence, more informative. One likely reason is that all these alternatives are false. This yields a (partial) ignorance implication: that the speaker does not know which room Juan is in.

- (42) a.  $\square$  Juan is in a.  
b.  $\square$  Juan is in b.  
c.  $\square$  Juan is in c.

<sup>14</sup> In Chierchia's version of the implicature approach, epistemic indefinites compete both with scalar alternatives and with domain alternatives. See Chierchia (2013a) and Chierchia and Liao (this volume) for details.

<sup>15</sup> Chierchia (2006, 2013a) makes the same assumption.

Different types of alternatives can potentially give rise to different epistemic effects, and proponents of the implicature account have exploited this to capture some of the parameters of variation presented above. Alonso-Ovalle and Menéndez-Benito (2008, 2010) note that considering only singleton alternatives yields partial variation<sup>16</sup> (see Section 1.2.2.2) while considering the full set of subdomains would result in total variation (as in Kratzer and Shimoyama's account of the free choice effect of *irgendein* in deontic contexts (Kratzer and Shimoyama 2002)). Alonso-Ovalle and Menéndez-Benito (2011a) discuss how the interaction of different types of alternatives with plural morphology might yield different effects for plural epistemic indefinites (see Section 1.2.4). Weir (2012) argues that, within the implicature approach, considering a domain containing objects gives rise to token-ignorance, while a domain that contains kinds gives rise to type-ignorance (see Section 1.2.1.2).

Chierchia (2013a) (see also Chierchia 2006) embeds an implicature account of the epistemic effect within a general theory of polarity and scalar implicatures. In this system, (i) implicatures arise through the interaction of alternatives with syntactic operators, (ii) all indefinites introduce alternatives, and (iii) 'marked' indefinites force these alternatives to be active, rendering the implicatures obligatory. These obligatory implicatures can lead to a restricted distribution (e.g. NPIs are not licensed in contexts where their implicatures contradict the assertion (see Lahiri 1998 and Krifka 1995), and to a number of modal effects (e.g. epistemic effects in non-modal contexts, free choice effects in modal contexts)). Different types of indefinites result from manipulating (i) the type of operators that indefinites can interact with and (ii) the types of alternatives that they generate. Chierchia and Liao's contribution in this volume present an account of Chinese indeterminates within this framework.

Several challenges for the implicature approach have been posed in the literature. First of all, a number of authors have remarked that the epistemic effect is not cancellable (see, e.g., Jayez and Tovena (2005) on *un quelconque* or Port (2010) on German *irgendein*). Second, Alonso-Ovalle and Menéndez-Benito (2013b) note that, unlike scalar implicatures, the epistemic effect of *algún* is not sensitive to relevance. Third, Lauer (2010) and Port (2010) have pointed out that *irgendein* triggers total variation in deontic sentences (Kratzer and Shimoyama 2002) but partial variation in epistemic ones. This is unexpected under an account like the one presented above, which is blind to modal flavour, and therefore predicts the same degree of variation under any type of modal.<sup>17</sup> It should be noted that the first two issues can be accommodated in Chierchia's framework. As mentioned above, in this system, epistemic indefinites force the alternatives they trigger to be active, thereby making the implicatures that these alternatives generate obligatory. Hence, these implicatures are—as opposed to

<sup>16</sup> This insight is adopted by Fălăuş (2009, 2011a, 2014) in her account of *vreun*.

<sup>17</sup> See Aloni and Port (2013) and Alonso-Ovalle and Menéndez-Benito (2013d) for a detailed presentation of these challenges.

‘regular’ scalar implicatures—not cancellable and not sensitive to relevance. As far as the third issue goes, Chierchia (2013a) argues that deontic modals impose free choice when combining with any indefinite.<sup>18</sup>

While implicature accounts aim to capture many of the parameters of variation listed in Section 1.2, they remain silent with respect to the one discussed in Section 1.2.1.1—that epistemic indefinites can be sensitive to different types of knowledge. In contrast, Aloni and Port’s contribution to this volume, which builds on and extends Aloni and Port (2013), presents an alternative to the implicature account that specifically targets this parameter. Aloni and Port build on Aloni’s observation that knowledge is sensitive to methods of identification (Aloni 2001). The sentence in (44) can be judged as true or false in the scenario in (43) depending on the method of identification chosen. It is true if cards are identified by their suit and false if they are identified by their position.

- (43) In front of you lie two face-down cards, one is the Ace of Hearts, the other is the Ace of Spades. You know that the winning card is the Ace of Hearts, but you don’t know whether it’s the card on the left or the card on the right.

(Aloni and Port 2013, following Aloni 2001: 16)

- (44) You know which card is the winning card. (Aloni and Port 2013: 6)

Methods of identification are modelled as conceptual covers. A conceptual cover is a set of individual concepts (functions from worlds to individuals) which exclusively and exhaustively cover the domain of individuals. In the case in (43) and (44), that means that in any  $w$ , each card is picked out by exactly one concept, and in any  $w$ , each concept is true of exactly one card. The salient covers in this example are those in (45), which illustrate the three methods of identification considered by Aloni and Port: ostension, naming, and description.

- (45) a.  $\left\{ \begin{array}{l} \lambda w. \lambda x. \text{ON-THE-LEFT}_w(x), \\ \lambda w. \lambda x. \text{ON-THE-RIGHT}_w(x) \end{array} \right\}$  (Ostension)
- b.  $\left\{ \begin{array}{l} \lambda w. A_{\spadesuit}, \\ \lambda w. A_{\heartsuit} \end{array} \right\}$  (Naming)
- c.  $\left\{ \begin{array}{l} \lambda w. \lambda x. \text{WINNING-CARD}_w(x), \\ \lambda w. \lambda x. \text{LOSING-CARD}_w(x) \end{array} \right\}$  (Description)

Aloni and Port assume that the context always provides a relevant conceptual cover, and claim that epistemic indefinites trigger a conceptual cover shift. That is, they signal that the speaker cannot identify the witness of the existential claim *using the contextually relevant cover*. Suppose that the relevant cover is naming. Then, a sentence

<sup>18</sup> For a detailed analysis of this contrast, see Section 4 of Fălăuș (2014). See also Franke and Aloni (2013).

like (46) conveys that the speaker does not know the student's name (even though she might be able to identify him by ostension or description).<sup>19</sup>

(46) Mary is dating some student in the department.

To account for the contrast between (47) and (48) (and a parallel contrast between German and Italian), Aloni and Port assume the ranking of methods of identification in (49) (Aloni 2001) and put forward the hypothesis in (50). One of the predictions this makes is that Romance epistemic indefinites are incompatible with pointing (as ostension is the highest method in (50)). This rules out (48).<sup>20</sup>

(47) Look! Some professor is dancing on the table!

(Alonso-Ovalle and Menéndez-Benito 2003: 4)

(48) # ¡Mira! ¡Algún profesor está bailando encima de la mesa!

Look! ALGÚN professor is dancing on of the table.

'Look! Some professor is dancing on the table!'

(Alonso-Ovalle and Menéndez-Benito 2003: 4)

(49) Ostension > naming > description

(50) In Romance, but not in Germanic, the identification method required for knowledge must be higher in order than the identification method required for specific uses of epistemic indefinites. (Aloni and Port 2013: 9)

Slade's contributions to this volume presents some empirical challenges for Aloni and Port's proposal. As noted above, Slade argues that epistemic indefinites in Sinhala rule out particular methods of identification regardless of which methods the context might make relevant. The example in (51), for instance, is systematically bad in situations where the speaker can identify the dancer visually. Similarly, Slade notes that *some or other* is incompatible with naming and with visual identification, and does not seem sensitive to what the context makes relevant. These data challenge the claim that epistemic indefinites signal a conceptual cover shift.<sup>21</sup>

<sup>19</sup> Aloni and Port's proposal is cast in a dynamic semantics with conceptual covers (Aloni 2001). This is a condensed presentation of one of the main components of their theory that abstracts away from the dynamic setup without compromising the spirit of the proposal. The reader is referred to Aloni and Port (2013) for details.

<sup>20</sup> To account for cross-linguistic differences with respect to downward entailing contexts (Section 1.2.3) and deontic modals (Section 1.2.2), Aloni and Port claim that, in addition to signalling a conceptual cover shift, some epistemic indefinites (but not others) widen the domain (Kadmon and Landman 1993). See their paper for the role that the parameter of variation plays in their account.

<sup>21</sup> Alonso-Ovalle and Shimoyama (2014) and Alonso-Ovalle and Menéndez-Benito (2013a) observe the same lack of context sensitivity for *algún*. See also Giannakidou and Quer (2013) on *algún* and Greek *kapjos*, as well as Alonso-Ovalle and Menéndez-Benito's (2013a) discussion of Giannakidou and Quer (2013).

- (51) Kauru hari mese uda natanava.  
who HARI table on dance.PRES.  
'Someone is dancing on the table.' (Slade, this volume)

Furthermore, as we have seen, Slade notes that ostension does not seem to be the relevant factor in cases like (51). This sentence is infelicitous when the person dancing is in full view of the speaker, but would be fine in a context where the speaker can see a figure dancing on the table (and thus could point at it) but cannot make out any distinguishing features. Alonso-Ovalle and Menéndez-Benito (2013a) make a parallel observation for *algún*. They note that while the example in (52) is odd in the context in (53), where the speaker can see the witness clearly, it becomes fine in a context like (54), where the speaker can still point at the witness but cannot see him clearly.<sup>22</sup> This is at odds with the prediction that epistemic indefinites are incompatible with ostension.

- (52) ¡Mira! ¡María está besando a algún chico!  
Look! María is kissing A ALGÚN boy!  
'Look! María is kissing some boy!'
- (53) The speaker looks out of the window and sees María kissing a boy. The speaker hasn't seen the boy before, but she can see him very clearly now.
- (54) The speaker looks out of the window and sees María kissing a boy. María and the boy are far away, and P cannot make out the boy's features.  
(Alonso-Ovalle and Menéndez-Benito 2013a: 38)

In this section, we have limited ourselves to discussing the two types of accounts of the epistemic effect represented in this volume.<sup>23</sup> But, of course, other strategies have been pursued. For instance, Farkas (2002b) assumes a Discourse Representation Theory framework where indefinites introduce variables into the representation, and may impose constraints on those variables. In her account, the epistemic effect triggered by singular *some* arises because this item requires the variable it introduces to obey a variation constraint. Jayez and Tovena (2007, 2013) argue that the epistemic effect of French *quelque* is a conventional implicature. Jayez and Tovena (2005) further formalize the effect of *un quelconque* as a constraint that this item imposes on the interpretation function. Giannakidou and Quer (2013) propose that epistemic indefinites (which they label 'referentially vague indefinites') impose a felicity condition (they are only felicitous in a context *c* if the speaker of *c* does not intend to refer exactly to one individual in *c*).

<sup>22</sup> Interestingly, the generalizations reported in Slade's chapters and the ones in Alonso-Ovalle and Menéndez-Benito (2013a) were made independently of each other. At the time when Slade submitted his chapters to this volume, Alonso-Ovalle and Menéndez-Benito had only discussed this material in presentations in local reading groups at their respective universities.

<sup>23</sup> For further discussion of Aloni and Port's account see Giannakidou and Quer (2013) and Alonso-Ovalle and Menéndez-Benito (2013d).

### 1.3.3 A connection with epistemic modals?

We have seen that epistemic indefinites may differ in what type of identifying information rules them out (see Sections 1.2.1.1 and 1.3.2). As discussed in the previous section, Aloni and Port develop a theory of epistemic indefinites that explicitly targets this property, which they relate to the contextual dependency of *knowing who*. An alternative route might be to explore the possibility that contrasts like the one exemplified in Section 1.2.1.1 are *evidential* in nature (i.e. that they can be traced back to constraints on the evidence available to the speaker), and to investigate potential connections with epistemic modals, which have been argued to impose evidential requirements (see, e.g., von Fintel and Gillies 2010; Matthewson 2011b, 2012).

In recent work, von Fintel and Gillies (2010) argue that the English epistemic modal *must* imposes an evidential restriction, which they characterize as a requirement for ‘indirect evidence’. The example in (55), for instance, is infelicitous if the speaker sees the pouring rain but felicitous when she has only indirect evidence for the rain (e.g. she sees people coming in with wet rain gear and is certain that this can only be caused by rain).

(55) It must be raining.

Matthewson’s contribution to this volume builds on and extends von Fintel and Gillies’s proposal. Matthewson argues that *must* does make the evidential contribution discussed by von Fintel and Gillies, and shows that these authors’ claims are supported by a wider range of data than they provide. However, she argues that the evidential contribution of *must* should not be characterized as an indirect evidence requirement. Instead, she proposes that this modal is ruled out by evidence that reaches a certain level of trustworthiness. Moreover, she shows that, cross-linguistically, there are other elements whose primary function have been argued to be evidential and that target the trustworthiness dimension. This parallelism supports the claim that epistemic modals have an evidential component. Matthewson argues, furthermore, that all epistemic modals impose evidential constraints, and that these constraints come in different kinds (for instance, while *must* requires that the speaker’s evidence for the embedded proposition not be trustworthy, Cuzco Quechua *mi* requires that the speaker have the most trustworthy kind of evidence). In the final part of the paper, Matthewson raises the question of whether epistemic indefinites might trigger evidential constraints, hence opening up an interesting area of research.

### 1.3.4 The other side of the coin: indefinites that convey knowledge

Alongside indefinites that convey speakers’ ignorance, we find indefinites that encode that the speaker (or some other salient agent) *can* identify the individual that satisfies the existential claim. For instance, German *ein gewiss* in (56) signals that the speaker



is able to identify the CD that Peter is looking for (and therefore the continuation ‘I have no idea why’ is odd).<sup>24</sup>

- (56) Peter sucht schon seit Stunden nach einer gewissen CD—keine  
 Peter searches already since hours after a GEWISS CD—no  
 Ahnung, welche genau er sucht.  
 idea which.one exactly he searches  
 ‘Peter has been looking for a certain CD for hours now—I have no idea which  
 one exactly he is looking for.’ (Hinterwimmer et al. 2013: 38)

In the literature on indefinites, the marking of speakers’ knowledge has often been discussed in connection with specificity. A substantial number of works relate the use of a specific indefinite to the referential intentions of the speaker and the fact that the speaker has a particular individual in mind (see, e.g., Karttunen 1968: 14).<sup>25</sup> In the context of the present volume, a natural question is whether the same mechanisms give rise to both ignorance and knowledge effects in the domain of indefinites. To the best of our knowledge, all accounts of the identifiability component imposed by indefinites hard-wire it into the lexical entry of these items: we know of no account that aims to derive this component as an implicature. For instance, Farkas (2002b) proposes that *a certain* introduces a variable that is subject to an identifiability constraint. Hinterwimmer et al. (2013) describe and analyse the behaviour of the two German indefinites *ein gewiss* (see (56) above) and *ein bestimmt* and argue that the knowledge component contributed by these items is part of the at-issue content in the case of *ein bestimmt* and a conventional implicature in the case of *ein gewiss*. Jayez and Tovena (2002, 2006) investigate French *un certain* and propose that this item imposes an identification constraint (see their papers for the particular notion of identification they assume, and for the differences between Jayez and Tovena 2002 and Jayez and Tovena 2006).

Hinterwimmer et al. (2013) explicitly make a link with Aloni and Port’s work on epistemic indefinites—their characterization of the knowledge component makes crucial use of conceptual covers. On their view, *ein gewiss* and *ein bestimmt* require that some salient individual can identify the witness of the existential claim by means of some salient (and non-trivial) conceptual cover.<sup>26</sup> However, unlike Aloni and Port, Hinterwimmer et al. (2013) do not assume that the indefinites at issue impose a conceptual cover shift—these items are felicitous as long as there is some method of

<sup>24</sup> For a collection of recent works on the topic, see Ebert and Hinterwimmer (2013).

<sup>25</sup> See von Heusinger (2013) for an in-depth overview of the literature on specificity and a detailed discussion of the way in which this literature makes reference to the epistemic state of the speaker. Among the works that link specificity to the epistemic state of the speaker, we find Karttunen (1968), Fodor and Sag (1982), and Kratzer (1998).

<sup>26</sup> They argue that the fact that *ein gewiss* requires *speaker* identifiability follows because the identifiability component is a conventional implicature, and hence, speaker-oriented. See their chapter for details.

identification available to the speaker (or a salient agent, in the case of *ein bestimmt*). In their contribution to this volume, **Hinterwimmer and Umbach** follow up on Hinterwimmer et al. (2013) by discussing cases where *ein gewiss* combines with proper names (as in (57)) and abstract nouns (as in (58)).

- (57) (Ein gewisser) Peter wollte dich sprechen.  
 EIN GEWISS Peter wanted to-you talk  
 '(A certain) Peter wanted to talk to you.'  
 (Hinterwimmer and Umbach, this volume)
- (58) Kein Kind verlässt diese Schule ohne (ein gewisses) Verständnis  
 No child leaves this school without (EIN GEWISS) understanding  
 der Mathematik.  
 of-the mathematics  
 'No child leaves this school without (a certain) understanding of mathematics.'  
 (Hinterwimmer and Umbach, this volume)

In (57), the use of *gewiss* signals that the speaker takes it not to be common knowledge who the name *Peter* refers to. In (58), *gewiss* conveys that the degree of understanding at issue is probably not very high. Both English *a certain* and French *un certain* display a similar pattern (see Houghton 2000; Jayez and Tovena 2002, 2006, 2013 and Martin 2013). While these uses of *gewiss* seem quite different from the one exemplified in (56), Hinterwimmer and Umbach argue for a unified account of all three uses. In their account, the effects displayed by (57) and (58) fall out by putting together the proposal developed in Hinterwimmer et al. (2013) with (i) the predicational analysis of proper names (according to which a proper name like *Peter* consists of a covert definite article that combines with the property of being called Peter (plus suitable domain restrictions)), and (ii) a degree-based analysis of abstract nouns (see Hinterwimmer and Umbach, this volume, for relevant references).

One of the properties of specific indefinites that has received most attention in the literature is their ability to receive exceptional scope. A case in point is English *a certain*, which has been shown to facilitate long-distance scope readings in island configurations such as (59) (see, e.g., Fodor and Sag 1982; Kratzer 1998), and that has been argued to impose some sort of identifiability condition (see, e.g., Abusch and Rooth 1997; Kratzer 1998; Farkas 2002b; Breheny 2003, among others). According to some authors (e.g. Breheny 2003) a sentence like (60) conveys that the speaker has access to some identifying property of the woman in question. (Farkas (2002b) proposes that *a certain* indefinites trigger a weaker condition, namely that the witness of the existential claim be identifiable in principle).

- (59) Every student read every book that a certain reviewer recommended.
- (60) A certain woman came to see you.

In her contribution to the volume, **Ionin** investigates experimentally the scope patterns displayed by the indefinites *a certain* and *a*. Following up on some of her previous work (Ionin 2010), Ionin aims to determine to what extent these indefinites allow for functional and non-functional intermediate scope readings. This kind of investigation bears on the question of whether the intermediate scope reading of a sentence like (59) (paraphrased in (61a)) should be derived as involving a functional relationship between students and reviewers, as in (61b).

- (61) a. For every student  $x$ , there is a (potentially different) reviewer  $y$  such that  $x$  read every book that  $y$  recommended.  
b. For every student  $x$ , there is a reviewer  $y$  such that  $x$  is in a particular relationship with  $y$  (e.g.  $y$  is  $x$ 's favourite reviewer) and  $x$  read every book that  $y$  recommended

This work establishes that intermediate scope readings are more readily available for *a certain* than for *a* (see Ionin 2010 for previous experimental support for this generalization) but does not conclusively tease apart functional and non-functional interpretations. The study concludes with some directions for further research, including a possible way of addressing the question of whether the availability of functional readings correlates with epistemic specificity.

### 1.3.5 *Beyond indefinites: modal DPs*

As we saw in Section 1.1, indefinites are not the only nominal elements that can convey modal content. Among the nominal expressions that can express ignorance on the part of the speaker, we find modified numerals like *at least n* or *at most n*, and free relatives with *-ever*. Both examples in (62) indicate that the speaker does not know exactly how many cars John has, and the sentence in (63) conveys that the speaker does not know what John is cooking. Additionally, *-ever* free relatives have an 'agent indifference reading' parallel to the one described in Section 1.2.5 for indefinites: the sentence in (64) indicates that Juan's choice of tool was indiscriminate (von Fintel 2000).

- (62) a. John has at least three cars.  
b. John has at most two cars.
- (63) Whatever John is cooking has a lot of garlic.
- (64) I grabbed whatever tool was handy. (von Fintel 2000: 32)

The parallelism between indefinites and the types of expressions above raises the issue of whether epistemic (and, more generally, modal) effects can be given a unified account across categories. While this issue has not been systematically addressed

in the literature, some of the contributions to this volume can help to establish some connections between modal indefinites and other nominal expressions that also convey modality.

A number of analyses of modified numerals, starting with Büring (2008), treat the ignorance effect of these items as a quantity implicature (see, for instance, Cummins and Katsos 2010; Cohen and Krifka 2011, 2014; Schwarz 2013). While these analyses were developed independently from implicature accounts of the epistemic effect, the overall architecture is parallel. Büring (2008) analyses *at least n* as the disjunction *n or more*. On this view, the sentence in (65) asserts (66). Assuming that the set of pragmatic competitors to a disjunctive sentence of the form  $\lceil A \text{ or } B \rceil$  includes the atomic disjuncts *A* and *B* (Sauerland 2004), (65) will invoke the two competitors in (67). This yields the (primary) implicature that the speaker is not certain that either of these competitors obtain—an ignorance effect.

(65) Juan bought at least two books.

(66) Juan bought exactly two books or he bought more than two books.

- (67) a. Juan bought exactly two books.  
b. Juan bought more than two books.

In his contribution to this volume, **Rick Nouwen** explores the possibility of deriving the modal component of *at least n* as an implicature, but without stipulating that this item is formally equivalent to a disjunction. He considers the effect of assuming that *at least n* triggers a pragmatic competition with *exactly n*, *exactly n + 1* . . . and with *at least n + 1*, *at least n + 2* . . . (see also Schwarz (2013) for a related discussion). He motivates the *exactly* competitors by extending to *at least n* the account of *algún* presented in Alonso-Ovalle and Menéndez-Benito (2010). Under Nouwen's analysis, *at least three NP VP* makes the claim that the cardinality of NPs that are VPs is a number *n* in a non-singleton subset of the set of numbers equal to or larger than three. This claim competes with the stronger claims that result from restricting the domain of quantification to the singleton subsets of that set (that the number of NPs that are VPs is exactly three, exactly four, etc . . .). Nouwen concludes that this kind of analysis requires us to stipulate additional alternatives, and, more importantly, makes wrong predictions for *at most*.

Both **Rawlins's** and **Condoravdi's** contributions analyse the modal effects triggered by English *-ever* free relatives. **Rawlins's** chapter focuses on the agent indifference reading that we see in (64) above. The chapter argues that this reading arises with all kinds of definite descriptions. For instance, all the examples in (68) invite the inference that if another tool had been handy, Alfonso would have taken that tool. The difference between (68a), on the one hand, and (68b) and (68c), on the other, is that only in the first case is the inference obligatory.

- (68) a. Alfonso grabbed whatever tool is handy.  
 b. Alfonso grabbed what tools were handy.  
 c. Alfonso grabbed the tool that was handy. (Rawlins, this volume)

Rawlins develops a pragmatic account on which the agent indifference effect arises because the hearer compares the description given with other alternative ways of describing the referent. He tentatively suggests that the role of *-ever* is to force consideration of alternative descriptions. As Rawlins notes, this is in line with Chierchia's approach to modal indefinites (see references in Section 1.3.2), where indefinites in general can evoke alternatives that give rise to implicatures, and specialized morphology on indefinites obligatorily activates those alternatives, rendering the implicatures mandatory.

Condoravdi's chapter on *whatever* also makes crucial use of alternative descriptions. Condoravdi argues that saying that the individual that a *whatever* phrase picks up varies across the speaker's epistemic alternatives does not suffice to capture the ignorance reading of this item. This can be illustrated with the sentence in (69).

- (69) # Whoever entered the house first, (namely) a monk, saw what happened.  
 (Condoravdi, this volume)

The *namely* appositive is compatible with the individual who entered the house first being different across the speaker's epistemic alternatives. Yet, the sentence is deviant. What causes the oddity is the fact that the individual that *whoever* denotes has the property of being a monk in all the accessible worlds. This property of *wh-ever* phrases is reminiscent of those epistemic indefinites that convey type, rather than token, ignorance (see Section 1.2.1.2).

Condoravdi captures both the ignorance and indifference readings of *wh-ever* free relatives by making reference, not to potential individuals that the description can pick up, but rather to alternative descriptions of that individual that are more specific than the one provided by the *wh-ever* phrase.

Condoravdi's chapter discusses another set of data that have its parallel in the area of epistemic indefinites. We have seen above that some epistemic indefinites do not trigger ignorance implications in their plural form (see Section 1.2.4). Condoravdi shows that modal implications can also disappear with plural *wh-ever* phrases too, as the discourse in (70) shows. She also traces back the availability of these non-modal readings to descriptive alternatives that *wh-ever* phrases involve.

- (70) I've already returned whatever book you lent me. There was *Moby Dick*, *La Modification*, *Europa*, and I've returned them all. (Condoravdi, this volume)

These investigations of modal free relatives and superlative numerals bring us one step closer to understanding how modal notions are expressed across the nominal domain. But of course, there are many other nominal expressions that convey modal

content. At the beginning of this chapter, we mentioned, for instance, modal adjectives (like *wrong*), modal degree modifiers (*too*), and modal infinitival modifiers (as in *the man to fix the sink*). We hope that the research collected in this volume will fuel further work dealing with the expression of modality in the nominal domain.

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