

Coarse Modality

by

Enrico Flor

M.A. in General Linguistics, Universität Wien

Submitted to the Department of Linguistics and Philosophy
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

February 2025

© 2025 Enrico Flor. This work is licensed under a CC BY-NC-ND 4.0 license.

The author hereby grants to MIT a nonexclusive, worldwide, irrevocable, royalty-free license to exercise any and all rights under copyright, including to reproduce, preserve, distribute and publicly display copies of the thesis, or release the thesis under an open-access license.

Authored by: Enrico Flor
Department of Linguistics and Philosophy
2/7/2025

Certified by: Kai von Fintel
Andrew W. Mellon Professor of Linguistics, Thesis Supervisor

Certified by: Sabine Iatridou
David W. Skinner Professor of Linguistics, Thesis Supervisor

Accepted by: Danny Fox
Anshen-Chomsky Professor of Language & Thought
Linguistics Section Head

Coarse Modality

by

Enrico Flor

Submitted to the Department of Linguistics and Philosophy
on 2/7/2025 in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

ABSTRACT

One of the early successes of the application of possible worlds semantics to the analysis of natural language is Kratzer's account of modality. A large part of the subsequent literature on modals has sought to expand the crosslinguistic coverage of that framework, and, in so doing, many new generalizations and constraints have been proposed and re-examined. The present dissertation situates itself within this tradition and makes both an empirical and theoretical contribution. Using the Italian adverb *magari* as the main empirical source, it will be argued that there exists a previously unnoticed type of modality which is referred to here as "coarse". Its most evident manifestation is a special type of epistemic possibility, one that comes with an "antievidential" requirement. Antievidential possibility in assertions and questions is discussed in Chapters 1 and 3 respectively. Chapter 2 frames coarse modality as a more general phenomenon that comes about through modification of modal expressions. The theoretical argument of this dissertation is a novel corroboration of Kratzer's premise semantics approach. It will be argued that the most natural and general account of coarse modality is possible by utilizing the premise set, a powerful resource of the system, in a novel way.

Thesis supervisor: Kai von Stechow

Title: Andrew W. Mellon Professor of Linguistics

Thesis supervisor: Sabine Iatridou

Title: David W. Skinner Professor of Linguistics

Acknowledgments

To be honest, I don't know how I managed to get here: the dissertation is written and defended and, for better or for worse, my time as a student is over. I owe almost all of it to my committee: Kai von Fintel, Martin Hackl, Sabine Iatridou and Viola Schmitt. I now can see that writing a dissertation is as much about getting to know how other people think and their points of view as it is about... coming up with something to write and writing it. Whatever the outcome, I know I'm incredibly fortunate to have had the chance to engage in this process with the four members of my committee.

Kai and Sabine, the two co-chairs of the committee, picked me up when I started working on this one and a half years ago; with their encouragement, infinite patience, and great advising wisdom they were able to basically pull me to the finish line, much to my own surprise. I think I understand now why they work so well together, although it's difficult to put this feeling into words. I'd also be lying if I said I've never wished one had seen things more like the other, but now that it's over I can tell that being challenged in this way has made, if not the result better, the whole experience more fun and personally enriching. I never ceased to be amazed at how religiously they took care of reading anything I would send them, returning careful and important feedback. Kai is simply legendary for his scholarly rigor: anyone who's had any interaction with him knows what I'm talking about. Witnessing this from the point of view of an advisee has been a rare privilege. He was the one person who knew how and when to nudge me—when to use the carrot and when to use the stick (metaphorically). I don't think I ever managed to make an argument to Sabine without her immediately coming up with a problematic datapoint on the spot. Before every meeting, I would tell myself, "I won't be blindsided this time"—and yet, it always happened. Sabine's advising and teaching ingenuity is something that simply cannot be replicated; she is as persistent in believing in their students and their abilities as she is in getting to the truth of language: ultimately, that's why she is the strongest advisor I could have wished for.

I didn't get to meet with Martin often while writing this dissertation, but I'm grateful that he found the time to be a very valuable member of my committee even when he was on leave. More than anyone I know, Martin is able to squeeze ever deeper insights from any piece of data and any question, and his feedback was crucial on more than one occasion to convince me that certain things were worth pursuing. One thing that I could appreciate in my very first weeks in the program is how Martin's teaching is a form of mutual advising. Anyone who has had him as a teacher can tell

that he puts a lot of thought into how the welfare of the discipline is also rooted in effective and creative mentorship. I will try to live up to his example. When I found out Viola was going to be here for my last year, I immediately knew I needed her to be on my committee—a very good call on my part. She was the person I could go to in any mood, and be assured to leave with clearer ideas and a more positive outlook on things. The thing about meeting to discuss a project like a dissertation is that each time, you might need something different. Sometimes you need encouragement; other times, you need to be reined in. Sometimes you need someone to walk you through the details, and sometimes you just need to see the big picture. And, occasionally, you really need to talk about something else entirely. The ideal advisor is, among other things, someone who knows what it is that you need from them: Viola does, and she helped me in all of these situations (and more) with the same ingenuity and creativity—every time.

Having said all this, my committee is but a subset of the people who have been my mentors here. Since the people I'm about to mention bear even less responsibility for this thesis than my committee does (in fact they bear no responsibility at all), I'll allow myself to be more explicit in my praises. Roger Schwarzschild was my semantics teacher in my first year, and so much more than that. Having the privilege of being his TA for undergraduate Semantics, in the semester that was wrecked by the outbreak of the COVID-19 pandemic, was probably the most enriching experience I've had as a graduate student, and this should be enough to convey my feelings toward him. Donca Steriade, by teaching phonology to me and supervising my first general paper, truly opened my heart to the beauty of linguistics at large, and her dedication to the discipline, to her students, and to the truth is just symbolic of what it means to be a real scholar. Being here gave me the privilege of being taught by many other truly brilliant people, among whom I particularly want to thank Amir Anvari, Athulya Aravind, Patrick Elliott, Danny Fox, Justin Khoo. I owe a very special mention and heartfelt thanks to the teachers I had before coming to MIT: Martin Prinzhorn, Daniel Buring, Benjamin Spector, Ede Zimmermann.

And now, my former fellow students, and mentors, Filipe Hisao Kobayashi and Stanislao Zompi. It would be weird for me to say that they are among the very best linguists I know—even though it's certainly the truth—so I'll limit myself to the friend stuff. Not having them here this past year made me realize how indispensable they have been for me. And now that I have gone through dissertation writing myself, I appreciate even more the incredible amount of time they dedicated to visiting me as my only social connection for an entire semester. Even just for that, forgetting all the many other things we have done together and learned from one another, they will always be special to me.

I owe much of my happiness in the department over the past couple of years to Johanna Alstott and Zhouyi Sun. My friendship with them—forged in a deadly hot summer in Crete—has enriched my life more than they'll ever know, and what I've learned from them goes far beyond linguistics. I must also thank the following people (in alphabetical order): Rafael Abramovitz, Daniel Asherov, Neil Banerjee, Christopher Baron, Ido Benbaji, Agnes Bi, Tanya Bondarenko, Fulang Chen, Christos Christopoulos, Omri Doron, Levi Driscoll, Heidi Durresi, Naomi Francis, Boer Fu,

Peter Grishin, Nina Haslinger, Verena Hehl, Adèle Hénot-Mortier, Eunsun Jou, Ioannis Katochoritis, Hadas Kotek, Anton Kukhto, Cora Lesure, Haoming Li, Lena Lohninger, Maša Mocnik, Hani Na'eem, Keely New, Elise Newman, Patrick Niedzielski, Mitya Privoznov, Vincent Rouillard, Yash Sinha, Bergül Soykan, Frank Staniszewski, Runqi Tan, Margaret Wang, Jad Wehbe, Danfeng Wu, Chris Yang, Bingzi Yu.

One (and likely the only) thing I know every MIT Linguistics graduate agrees on is that the people who actually run the department, our amazing staff, are the most helpful, hard-working, generous, skilled and simply best professionals. I owe a lot to them all, not just for making everything work for everyone, but for helping me personally many times as well: Aggie Fernandes, Valentina Gaviria, Chrissy Graham, Mary Grenham, Beatriz McGillicuddy, Chris Naylor, Doug Purdy, Jen Purdy, Matt Sikorski. They can and will solve any problem for you and truly cannot be thanked enough. To conclude on the department, I'd be remiss if I didn't thank everyone—linguists and philosophers alike—for tolerating my camping on the 8th floor couch for the past few months.

And now, to the people who made me: they deserve the most profound thank you. My parents and my brother's unconditional and loving support throughout the years has been a great source of strength—one I've done nothing to deserve. My mom Gabriella and my dad Giovanni Battista have always supported me in every way they could and taught me the value of having my own ideas and defending them. I know they have missed me just as much as I have missed them. My brother Alberto: so many years of living apart have surprisingly made our bond stronger (I'm sure that him making me a proud—albeit physically distant—uncle has played a big role). These are the people who made me by teaching me the most important and lasting things in life, along with my grandparents, whom I remember every single day, after all these years without them.

My small American family, at least for now, is as much feline as it is human. They'll never know I mentioned them (they must think I'm just an improbably lucky hunter), but my cats Lisp and Scheme made me discover a form of love I didn't know. But they have another hunter too, who happens to be the best thing I could mention about my life: my wife Chiara Masnovo, a great woman and a great scientist. I'm so lucky to have met her and to have walked, climbed and dived through life alongside her. Chiara's strength, kindness, creativity, brilliance and much more are an inspiration to everyone fortunate enough to know her.

Contents

Title page	1
Abstract	3
Acknowledgments	5
Introduction and overview	11
1 Coarse Possibilities	15
1.1 Characterizing the meaning of <i>magari</i>	16
1.1.1 The likelihood hypothesis	17
1.1.2 <i>Magari</i> conveys lack of evidence	21
1.2 Coarseness	26
1.2.1 Double context relativity and ordering sources	27
1.2.1.1 Underspecification	27
1.2.1.2 Ordering worlds	29
1.2.1.3 Ordering with epistemic modality	31
1.2.2 Quantification over premise sets	35
1.2.2.1 Antievidentiality is coarseness	35
1.2.2.2 Orders are not enough for coarseness	43
1.3 Coarseness in context	45
1.3.1 Coarseness as a presupposition	45
1.3.2 Two routes to accommodation	48
1.4 Conclusion	54
1.A Appendix: Orders and coarseness	54
1.B Appendix: Optative <i>magari</i> in exclamatives	57
2 Parasitic Coarseness	61
2.1 The exemplification reading	61
2.1.1 Weakening	66
2.1.2 Non-exclusivity and Focus	69
2.1.3 Weak modals	73
2.2 Exemplification as embedded disjunction	75
2.2.1 Alonso-Ovalle's (2006) analysis	78

2.2.2	<i>Magari</i> as a domain widener	80
2.3	Revisiting epistemic <i>magari</i>	82
2.3.1	Non-matrix epistemic reading	84
2.3.2	No distributive inference without modals	85
2.3.3	Antecedent of conditionals	87
2.4	Disjunction in imperatives	95
2.4.1	Modals or not?	98
2.4.2	A special subclass of weak imperatives	100
2.4.3	The special class of IaDs	106
2.5	Conclusion	118
3	Coarseness in Questions	121
3.1	Modifying anything?	124
3.2	Traces of antievidentiality, again	129
3.3	Questions and biases	137
3.3.1	Evidential bias	138
3.3.2	Speaker bias	141
3.3.3	Adversative questions	143
3.4	Conclusion	152
	Conclusion and outlook	155
	References	157

Introduction and overview

Modality has been one of the most fruitful areas of research in linguistic semantics. It is a virtually ubiquitous phenomenon in natural language that is not tied to any one syntactic category, and anyone who's learned a second language is well aware of the degree of crosslinguistic variation that characterizes the expression of modal meanings. Kratzer (1977) is, among the earliest works, certainly the most influential attempt to integrate the theoretical apparatus of modal logic with an adequate semantic theory of natural language. Its success is witnessed by the vast tradition it has initiated, which has demonstrated a level of generality and flexibility well-suited to analyzing such a complex and diverse domain of inquiry.

This dissertation situates itself in this tradition and intends to make two contributions. One is purely empirical: I will document the existence of yet another type of modal displacement, which I shall call coarse (a label which will be justified in the context of the analysis I will advance). The data supporting this claim will mostly come from the use of the notoriously— but, I think, only superficially— polysemous Italian adverb *magari*. Parallels with similar expressions will occasionally be drawn, especially in Chapter 3, but *magari* will be the main character throughout.

The second contribution is the argument that a simple and adequate account of coarse modality is achievable in a rather traditional theoretical setting as long as some specific assumptions are maintained. In particular, I'll argue that the existence of coarse modality is a strong argument in favor of Kratzer's (1981b) premise semantics¹ over alternative theories that might otherwise be formally equivalent to it for the purposes of the analysis of sentential and subsentential modality, because a crucial component of the analysis of coarse modality will involve exploiting a peculiar feature of Kratzer's (1981b) system in a novel way. The rest of this introduction provides very brief summaries of the three chapters of the dissertation and illustrates how they are related to one another.

One striking property of *magari* is that it is associated with a range of seemingly quite different meanings. I won't make the claim that the whole range of meanings is amenable to a unified analysis: some uses of *magari*, which §1.B touches upon briefly, require to assume ambiguity. As of the rest, one of the results of this dissertation is precisely to show that apparent polysemy can be reduced to the interaction of an

¹The core ideas of premise semantics have been first applied to the analysis of counterfactual conditionals in Veltman (1976) and Kratzer (1981a). However, the main reference throughout this thesis will be Kratzer (1981b), as this is the work that is most relevant to us given its domain of inquiry and implementation.

underspecified meaning for *magari* with other modal expressions. This way of looking at the issue is what’s behind the division in three chapters, as they each examine *magari*’s truth- and use-conditional contribution in a different environment. As we shall see with the examples below, Chapter 1 focuses on *magari* taking matrix scope in declaratives, Chapter 2 on *magari* embedded under other overt modal expressions in declaratives and modifying imperative clauses, and Chapter 3 on *magari* and *by any chance* modifying interrogative clauses. From the point of view of the analysis, Chapter 1 and 2 can be treated as a coherent whole, since Chapter 2’s analysis subsumes that of Chapter 1. While the phenomena under consideration in Chapter 3 are not straightforwardly accounted for by this analysis, coarseness (the central concept of the dissertation) will play a key role in interpreting the data.

Chapter 1 — Coarse Possibilities

We will begin with what’s arguably the simplest configuration, namely *magari* modifying declarative clauses that lack any overt expression of sentential modality themselves. Here, as (1) illustrates, *magari* acts as an epistemic possibility modal: this is also the hypothesis entertained throughout this chapter, just to get the analysis off the ground.

- (1) *Magari Anna è a casa.*
 MAGARI Ann is at home
 ‘Ann might be home.’

A central question will be how exactly sentences like (1) differ in their use conditions from other, more canonical strategies to express epistemic uncertainty. The empirical contribution of this chapter will be to show that what makes *magari* special is that it expresses “antieviential” possibilities. This means that by uttering (1), a speaker asserts that they merely think it possible that Ann is home, but they don’t know of any fact that actually supports that possibility. The question then becomes how the antieviential character of (1) should be accounted for, and the answer will be that epistemic possibility of the kind that is expressed by *magari* comes with what I call coarseness presupposition. Coarseness, a property of the conversational background (minimally, the domain of quantification of the modal and the premise set that determines an order over it) and the prejacent proposition, crucially cannot be defined on the basis of the order itself: the extra information encoded in the premise set is needed — §1.A lays out this in greater detail. While the overall analysis of *magari* as an epistemic modal will later be abandoned, the coarseness component will remain as the common thread for the rest of the thesis.

Chapter 2 — Parasitic Coarseness

The focus of this chapter is on the interaction between *magari* and modal expressions, both overt and covert. In the first part, we will see how the analysis developed in the previous chapter cannot account for occurrences of *magari* in the scope of modal operators in declarative clauses. Take (2) as an example: when *magari* is interpreted

in the scope of attitude ascriptions with a priority semantics, such as *want* and *need*, no trace of epistemic possibility is detected. What we get instead is a semantic contribution I will call “exemplification”.

- (2) *Anna vuole adottare magari un gatto.*
 Ann wants adopt MAGARI a cat
 ‘Ann wants to adopt something, a cat would do.’

I will argue that exemplification strongly suggests treating *magari* as devoid of any modal contribution of its own: *magari* is best viewed as a modifier of modal expressions, on whose conversational backgrounds it imposes coarseness. There are in fact two components to the meaning of *magari*. One is the aforementioned modal modifier meaning that imposes coarseness; the other is the introduction of an implicit disjunction: exemplification is modeled as a distributive inference of the underlying modal (Alonso-Ovalle 2006), *want* in (2), over the local implicit disjunction introduced by *magari*. A paraphrase such as (3) informally highlights the role of disjunction in delivering (2)’s exemplification meaning. Importantly, if a universal modal is assumed to always take scope at the matrix level in declarative clauses (Alonso-Ovalle 2006; Meyer 2013), this bipartite analysis of *magari* can account for, and in fact predicts, the epistemic use that was the focus of Chapter 1.

- (3) Ann wants to adopt a cat or some other pet.

The second part of the chapter moves away from declaratives and seeks confirmation for both parasitic coarseness and implicit disjunction in the meaning of *magari* by looking at imperatives. Imperatives modified by *magari* represent a very specific subclass of “weak” imperatives (the ones that don’t express a command).

- (4) a. *Prepara il tiramisù!*
 prepare.IMP the tiramisù
 ‘Prepare the tiramisù!’
 b. *Prepara il tiramisù magari!*
 prepare.IMP the tiramisù MAGARI
 ‘Why don’t you prepare the tiramisù?’

Given the bipartite analysis so far developed, if imperative clauses are taken to denote modalized propositions (a far from uncontroversial position, most prominently advocated and fleshed out in Kaufmann 2012), we know what to expect *magari*’s effect to be in (4b) and analogous examples. The argument will be that in fact coarseness and disjunction together predict the distribution of *magari*-imperatives, which makes examples like (4b) and important piece of support for the analysis.

Chapter 3 — Coarseness in Questions

The final environment in which *magari*’s meaning is investigated is matrix and embedded interrogatives. This chapter differs from the previous two in that its contribution

is purely empirical, centered around the interaction of *magari*'s antievidential contribution and independent use conditions of questions. Since a full unification with the previous two chapters is out of reach, I won't commit to any explicit compositional implementation in this chapter.

The starting point is the observation already made in §2.3.3 that the generalization of parasitic coarseness breaks down if *magari* is in the antecedent of a conditional (in which case it can be translated with English *by any chance*). The crux of the problem is that the two conditionals in (5) have identical truth conditions, which is not predicted to be the case by the analysis Chapter 2 ended up arguing for.

- (5) a. *Se Anna prepara il tiramisù, ci servono più uova.*
 if Ann prepares the tiramisù to us need more eggs
 'If Ann prepares the tiramisù, we need more eggs.'
- b. *Se Anna magari prepara il tiramisù, ci servono più uova.*
 if Ann MAGARI prepares the tiramisù to us need more eggs
 'If Ann prepares the tiramisù by any chance, we need more eggs.'

The conclusion from this was that *magari*, when in the antecedent of a conditional, only affects the use conditions of the assertion rather than interacting with other modals and thus alter the truth conditions, and contributes coarse epistemic possibility (with its resulting antievidential effect) in a separate dimension of meaning.

- (6) *Mi chiedo se magari Anna ha preparato il tiramisù.*
 myself ask whether MAGARI Ann has prepared the tiramisù
 'I wonder whether Ann prepared the tiramisù by any chance.'

As Chapter 3 argues, a very similar picture emerges from the use of *magari* and *by any chance* in interrogatives such as (6). Expressions like *by any chance* only encode antievidentiality, the natural effect of coarseness on epistemic conversational backgrounds. Interrogatives provide a very interesting testing ground for antievidentiality, because they independently come with sophisticated and still quite unclear use conditions, and can furthermore encode different types of bias. This complex backdrop will deliver a deeper understanding of the discourse properties of coarseness-induced antievidentiality.

Chapter 1

Coarse Possibilities

The goal of this chapter is to offer a preliminary description and analysis of the Italian adverb *magari* and, in so doing, to document the existence of a novel class of modal expressions in natural language. Since *magari*, as any dictionary query will reveal, exhibits what appears to be significant polysemy, we will focus in this chapter on the meaning it contributes when it takes matrix scope in a declarative clause:

- (1) a. *Anna è a casa.*
Ann is at home
'Ann is home.'
- b. *Magari Anna è a casa.*
MAGARI Ann is at home
'Ann might be home.'
- c. *Anna potrebbe essere a casa.*
Ann might be at home
'Ann might be home.'

Despite their identical translations below, (1b) and (1c) are not perfectly equivalent, and thus our first task is to find out how *magari* differs from other means of expressing epistemic possibility, such as English *might* or Italian *potere* (in its epistemic use). Figuring out this fundamental issue is the goal of §1.1.

As we said, (1b) exemplifies only one of the uses of *magari*. One meaning that is on its face quite different from the one expressed in (1b) is optative, observed when *magari* occurs in exclamative clauses such as (2).¹ Grosz (2012: 214, 151) describes *magari* in this context as an “optative specific particle” that resists embedding.

- (2) (example 515 in Grosz 2012: 214)
Magari Maria avesse ascoltato Gianni!
MAGARI Maria had listened to Gianni
'{I wish/If only} Maria had listened to Gianni!'

¹This meaning will be discussed more in §1.B on page 57.

We might say that (2) exemplifies the “etymological” meaning: *magari* is a loan from Byzantine Greek ‘μακάρι/*makári*’, itself a nominalization of an adjective meaning ‘happy’. In modern Greek it functions as an adverbial that contributes bouletic meaning, alternating between a *want* and a *wish* interpretation depending on whether the prejacent proposition bears O- or X-marking (in the terminology of von Stechow and Iatridou 2023).

Other uses of *magari* that do not straightforwardly lend themselves to an analysis along the lines of epistemic possibility emerge when *magari* is embedded in the scope of other intensional operators, or modifies imperatives or interrogative clauses: these will be set aside in this chapter. This choice is not to be understood as an implicit concession that an analysis that accounts for at least some of the different uses we just saw in a unified way is completely out of reach: it’s in the interest of clarity that I will keep the discussion focused on the “epistemic *magari*”, so that its novelty in the vast landscape of modality in natural language can be better appreciated.

In the next section, we will closely examine the difference between (1b) and (1c), critically discussing the characterization put forward in Ippolito (2020) (to my knowledge, the only existing formal work that engages with these data). The conclusion of this investigation will be that *magari* comes with an “antievidential”² inference: *magari p* conveys that the speaker deems *p* (the prejacent) possible but is not in a position to offer any positive reason to suspect that the *p* might in fact be the case.

In §1.2 we will define coarseness, a novel requirement on conversational backgrounds (Kratzer 1981b) against which modals are interpreted. What’s interesting about coarseness from a theoretical point of view is that it’s a property of conversational backgrounds that cannot be defined in terms of the order that is derived from the premise set. We will convince ourselves that it’s precisely the presence or absence of this requirement that teases apart (1b) and (1c). Thus, investigating epistemic *magari* will leave us with a new notion that implements the antievidential intuition with as little stipulation as possible and also opens the door for a more general analysis that encompasses those meanings that are going to be set aside here.

1.1 Characterizing the meaning of *magari*

The only thing that is self-evident about assertions of the form *magari p* is that by uttering them, a speaker expresses that for all they know, they think *p* is a possibility. In this, *magari* can be given whatever meaning we are inclined to assign to bona fide epistemic possibility modals like English *might* (the Italian counterpart *potere* has epistemic uses among others), adverbs like *possibly*, *maybe*, *perhaps*. Removal of contradiction firmly establishes this fundamental character of *magari*:

- (3) a. # *Anna è a casa e Anna è al lavoro.*
 Ann is at home and Ann is at work
 ‘Ann is home and Ann is at work.’

²The label “antievidential(ity)”, suggested to me by Sabine Iatridou (p.c.), is meant as a purely descriptive one, without any suggestion that *magari* has much to do with any of the many grammatical devices the semantic literature refers to as “evidential”.

- b. *Magari Anna è a casa e magari Anna è al lavoro.*
 MAGARI Ann is at home and MAGARI Ann is at work
 ‘*Magari Ann is home and magari Ann is at work.*’

The main question to address at this point is whether the kind of epistemic possibility introduced by *magari* is in any detectable way different from, say, *might*? The answer is yes, and the goal of this section is to persuade the reader that the difference lies in the fact that by uttering *magari p* the speaker conveys that they could not really answer the question *Why do you think p might be the case?* in an informative way—that is, *magari* acts in a somewhat antievidential way (it signals a lack of evidence supporting the truth of the prejacent). We will make the case for this thesis in §1.1.2.

However, it’s far from obvious it is this antievidential requirement that distinguishes *magari*; Ippolito (2020) has a very different take and in the next section we examine her hypothesis and its empirical shortcomings.

1.1.1 The likelihood hypothesis

Ippolito (2020) analyzes *magari* as an epistemic possibility modal that comes with a requirement on the contextual likelihood or expectedness of its prejacent in the form of a scalar presupposition: as the entries in (4) indicate, *magari p* is infelicitous in context *c* if *p* is the most expected or likely proposition among a set of salient alternatives in context *c*. These entries define a propositional operator that asserts of the prejacent that it’s a possibility from the speaker’s perspective, and requiring that it be on a certain position in a likelihood scale ($E_i(w)$ is the set of worlds compatible with what *i* believes in *w*).

- (4) Ippolito’s (2020) entries for *magari* (differing only in the presupposition)
 $\forall p, q \in \mathcal{P}(\mathcal{W}) : p <_i q$ iff *p* is subjectively less likely than *q*, given *i*’s beliefs (E_i maps worlds *w* to the set of worlds that are compatible with what *i* knows in *w*).
- a. Existential presupposition:
 $\llbracket \text{magari} \rrbracket^{w,C} := \lambda p : \exists q \in C[q \neq p \wedge p <_i q]. \exists w' \in E_i(w)[p(w') = 1]$
- b. Universal presupposition:
 $\llbracket \text{magari} \rrbracket^{w,C} := \lambda p : \forall q \in C[q \neq p \rightarrow p <_i q]. \exists w' \in E_i(w)[p(w') = 1]$

While Ippolito adopts (as I will too) an account of modality in which modal statements express propositions, and possibility is existential quantification over possible worlds, this aspect of (4) is irrelevant here. Where Ippolito’s (2020) and our analysis differ is exclusively in the additional requirements posed by *magari*. A clear prediction of both entries in (4) is the following: *magari p* should be infelicitous in a context that entails equal likelihood or expectedness of *p* being the case, as compared to its contextual alternatives. A scenario like (5), adapted from Ippolito, is precisely designed to test this prediction (the judgments in (5) are those reported in Ippolito 2020).

- (5) BOXES. Ann and Beth are playing a simple game: there are three closed boxes (A, B, and C) on the table, and in one of them there is a kitten. Nobody knows which box contains the kitten. Beth is supposed to guess, and Ann is explaining the game to her:

- a. *Potrebbe essere nella scatola A.*
 might be in the box A
 ‘It might be in box A.’
- b. # *Magari è nella scatola A.*
 MAGARI is in the box A
 ‘*Magari* it’s in box A.’

On the assertive side, (5a) and (5b) are assumed to be equivalent and, in the BOXES scenario given, true. It’s clear, on the other hand, why this contrast in acceptability supports (4): we have three salient alternatives, box A, box B and box C, and the felicity of (5b) depends on it being the case either that there is an alternative that is more likely than box A, or that box A is less likely than any other alternative (depending on whether we adopt the analysis where the scalar presupposition is existential or universal). Because of how the BOXES scenario is set up, neither requirement is met.

So far, (5) makes the case that likelihood scalarity plays a role in the use conditions of *magari* (a proposition I dispute), but not what the precise requirement is. The example in (6) is a manipulation of BOXES, adapted from an example Ippolito uses to argue that the prejacent has to be comparatively not likely:

- (6) *in BOXES scenario from (5):*
Ho visto muoversi la scatola A, però magari non è là.
 have seen move the box A but MAGARI not is there
 ‘I have seen box A move, but *magari* [the kitten] is not there.’

What (6) purportedly shows is that the use of *magari* becomes felicitous if its prejacent is made less likely than another salient alternative: box A moving presumably increases the likelihood of the kitten being in there, and thus *the kitten is not in Box A* becomes less likely in that scenario than *the kitten is in box A*.

A serious problem for (4) is that in fact we can construct examples in which the prejacent of *magari* is the most likely of the salient alternatives. One such case is STRAWBERRIES-1.

- (7) STRAWBERRIES-1. Ann and Beth are at a fair, where there are games in which you can win prizes by casting a die. In one particular game, you win a teddy bear if the face is 1, \$10 if it’s 2, and some strawberries in all other cases. Since Ann loves strawberries, Beth encourages her to play: *Ann, you should play this game...*





















- Magari vinci le fragole!*
 MAGARI you win the strawberries
 ‘*magari* you win the strawberries!’

There is no way to reconcile (7) with either (4a) or (4b): there are three salient alternatives, and strawberries is the most likely one — by stipulation. At this point we may be tempted to refine and weaken Ippolito’s intuition into something like (8), so that we attribute the infelicity of (5b) to the fact that the salient alternatives are all symmetric in their likelihood/expectedness. The requirement implemented in (8) is still scalar: in fact, it imposes that some asymmetry exists among the salient alternatives to the prejacent as far as the likelihood scale exists.

- (8) (to be revised)
 $\llbracket \text{magari} \rrbracket^{w,C} := \lambda p : \exists q \in C[p <_i q \vee q <_i p]. E_i(w) \cap p \neq \emptyset$
 where ‘ $<_i$ ’ is defined as in (4)

However, STRAWBERRIES-2 in (9) shows that again this is a dead end: in this scenario, all alternatives are entailed by the context to be equally likely and still *magari* is perfectly felicitous. To be clear, (9a) would be true and felicitous with any of the probability distributions in (10): all that’s needed is that winning the strawberries is a possibility.

- (9) STRAWBERRIES-2. Ann and Beth are at a fair, where there are games in which you can win prizes by casting a die. In one particular game, you win a teddy bear if the face is 1 or 2, \$10 if it’s 3 or 4, and some strawberries if it’s 5 or 6. Since Ann loves strawberries, Beth encourages her to play: *Ann, you should play this game...*
- a. *Magari vinci le fragole!*
 MAGARI you win the strawberries
 ‘*magari* you win the strawberries!’
- b. *Ma magari vinci l’orsacchiotto / i dieci dollari.*
 but MAGARI you win the teddy bear the ten dollars

- (10)
- | | | | | | | | |
|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |
|  | \$10 |  | \$10 |  | \$10 |  | \$10 |
|  |  |  |  |  |  |  |  |

In the scenarios we have considered, we stipulated that Ann loves strawberries — and we can imagine that she would be happiest if she happened to win some. The fact that (9b) is equally true and felicitous in a scenario that entails this personal preference of Ann and in any of the probability distributions in (10) also indicates that we cannot rescue the subjective scalar presupposition by assuming the scale is underspecified and context dependent such that it could be taken to rank the salient alternatives in terms of preference of some kind (a possibility Ippolito hints at).

If the likelihood/expectedness, and in general the scalar approach is a dead end, what explains the contrast in (5)? We will have to go back to it once we have understood better what *magari* really does and we have worked out an analysis accordingly, but for now I would like to offer the sketch of an explanation that doesn’t resort to the comparative status of the likelihood of the prejacent (that is, an explanation that doesn’t run into the problems posed by WATERMELONS-1 and WATERMELONS-2).

The reason why (5b) is slightly degraded if compared to (5a) is that the conversational scenario the two utterances are judged against is quite artificial in some important way. My personal judgment is that neither the *might* nor the *magari* assertions are very natural in (5). The scenario prompts us to imagine that Ann is explaining the rules of the game: how natural is it to just assert a bare epistemic possibility modal statement without any context, when by stipulation the entire space of possibilities is in front of every participant in the conversation? This is to say that (5a), which is reported as more acceptable than the *magari* assertion, is somewhat degraded too: why is Ann singling out box A as a possibility, instead of saying something like *The kitten could be in any of these boxes?* An important evidence to this effect is that in BOXES Ann’s replying with (11b) to Beth’s question in (11a) is a completely unmarked assertion, even though the asking of (11a) hasn’t affected the comparative likelihood of the box A option.³ Beth makes box A salient by asking (11a), and as a consequence *magari* becomes perfectly felicitous.

- (11) a. *Potrebbe essere nella scatola A?*
 could be in the box A
 ‘Could it be in box A?’
 b. *Sì, magari è nella scatola A?*
 yes MAGARI is in the box A
 ‘Yes, *magari* it’s in box A.’

Furthermore, even without having Beth making box A salient, the already weak contrast in (5) disappears if we “enrich” Ann’s assertion ever so slightly, even just adding “for example” (to better act out a scenario where Ann explains the rules of the guessing game):

- (12) *In scenario BOXES.*
 a. *Per esempio, potrebbe essere nella scatola A.*
 for example might be in the box A
 ‘For instance, it might be in box A.’
 b. *Per esempio, magari è nella scatola A.*
 for example MAGARI is in the box A
 ‘For instance, *magari* it’s in box A.’

One could conjecture that the weak contrast in acceptability in (5) is due to the fact that the *magari* assertion is not as easy to interpret in “logic speak” as is (5a) that features a modal verb. Such “logic speak” interpretation is forced by the very fact that Ann is singling out a possibility without either justification or need to make it salient in case her interlocutor might be overlooking it — needs that stem from the fundamental unnaturalness of the example.

³I thank Martin Hackl for pointing out to me the test in (11).

1.1.2 *Magari* conveys lack of evidence

In ordinary conversations, a cooperative, truthful speaker is expected to assert things as confidently as they are in a position to. If they are confident that p is the case, and assuming all other conversational requirements are met (among which, relevance), they are expected to just assert p . If they are not, but they deem that p is not impossible, epistemic modality comes to the rescue. Under the most pre-theoretical take, bare epistemic possibility such as the one expressed by *might* conveys that the state of affairs denoted by the prejacent is not incompatible with some body of information (in the simplest idealized case, the speaker's).⁴

Imagine that Ann, who is recounting what happened on a particular day, utters *I might have left home at 7pm*:⁵ hearing this, we are not to conclude that she has some concrete evidence to offer that would exclude, for instance, that the time of her leaving was 6pm instead. She might have that evidence, but her bare epistemic assertion doesn't convey this: it really only conveys that she cannot exclude the time of her leaving being 7pm. However weak her commitment is, even if it's basically just a guess, her utterance is still intuitively informative, and as such felicitously assertable.

If we move away from ordinary conversations, things start to be different. A type of non-ordinary conversation is the one that takes place between an eyewitness and an attorney at trial, in front of a jury. As common knowledge has it, a witness in

⁴Two disclaimers are due at this point. Much of the discussion here will involve contrasting *magari* with other expressions of epistemic possibility — most notably, the verb *potere*, which, like English 'can', is compatible with the epistemic flavor. Our focus, however, is solely on *magari*: I will make little to no assumptions as to what these other expressions denote exactly. Most generally, and in line with the Kratzerian framework, I will take all modalized declaratives to express propositions and possibility to be existential quantification over a domain of accessible indices of evaluation. The second disclaimer concerns the crosslinguistic and typological picture, which is here completely ignored. It's useful to bear in mind that, at least for most of the data seen throughout this chapter, *magari*'s antievidentiality can be approximated in English through the phrase *for all x know(s)* (Martin Hackl, p.c.). Other languages where *magari*'s antievidential character seems to be lexicalized are German, with the adverb *vielleicht* 'maybe' (Viola Schmitt, p.c.), and Portuguese, with the expression *vai que* 'will that' (Filipe Hisao Kobayashi, p.c.). At least as far as what's discussed in this dissertation (excluding the optative use addressed in §1.B), we find that German *vielleicht* is quite close to *magari* in general, whereas Portuguese *vai que* has a much more restricted distribution and seems to be subject to slightly different use conditions, as the quasi obligatory addition of *I don't know* in (iii) suggests.

(i) For all I know, she might have won the strawberries.

(ii) *Vielleicht hat sie die Erdbeeren gewonnen.* German
perhaps has she the strawberries won
'Maybe she won the strawberries.'

(iii) *(Não sei,) Vai que ela ganhou os morangos.* Portuguese
not know will that she won the strawberries
'I don't know, what if/maybe she won the strawberries.'

If our suspicion is correct and the phenomenon of antievidentiality we are about to investigate indeed plays a role in the semantics of these expressions, the task of constructing a typology of antievidentiality is well beyond the scope of this preliminary work.

⁵It's important that no stress is placed on *might*, as otherwise an inference arises that in fact Ann thinks it more likely that she left at some time other than 7pm.

court is bound by law to the obligation of saying “the truth, the whole truth, and nothing but the truth” (and so far, that’s how we would like all our interlocutors to be). But additionally, they are not supposed to venture guesses about things they are meant to inform the jury about. The witness is allowed (in fact, supposed) to express uncertainty about some facts if they are uncertain, but the possibilities they bring up in front of the jury have to be more than just guesses. Minimally, they have to be able to offer some objective substantiation. Interestingly, we see that in such a scenario it’s infelicitous for the eyewitness to use *magari* in order to express uncertainty about facts about which they are supposed to report as a material witness. The contrast in WITNESS-1 shows exactly this:

(13) WITNESS-1. Ann is testifying at trial as an eyewitness. She’s supposed to tell the jury when she left home on a particular day.

- a. *Potevano essere le sette.*
might.IMPERF be the seven
‘It might have been 7pm.’
- b. *Forse erano le sette.*
perhaps were.IMPERF the seven
‘Perhaps it was 7pm.’
- c. # *Magari erano le sette.*
MAGARI were.IMPERF the seven
‘*Magari* it was 7pm.’

There is a solid intuition as to why (13c) is markedly infelicitous in this scenario. What (13c) conveys is precisely that Ann has no particular reason to suspect it was in fact at 7pm (as opposed to, say, 6pm) that she left home — she just knows it’s not impossible. Ann’s interlocutors will interpret (13c) as her venturing a guess that she cannot substantiate. In other words, it’s a sort of antievidential inference that makes (13c) dispreferred over the alternative utterances in this pragmatically highly regulated conversational scenario.

The counsel conducting the examination in WITNESS-1 has every right — in fact, the duty — to probe Ann’s memory with a question like *What makes you think that it might have been 7pm?* Ann could answer this question, for example, with *On Tuesdays I usually go to the grocery store shortly before it closes because I like it crowded, and normally that means that I leave at around 7pm.* But by using *magari* as in (13c) Ann is signaling that she would not be able to informatively answer that question. In (13c) Ann is venturing a guess and she’s not supposed to do that as an eyewitness in front of the jury.

It’s important to stress two things with respect to (13). First, (13c) cannot be saved by making it explicit that 7pm is among the lesser likely times — in other words, making (13c) explicitly compliant with the definedness conditions of *magari* proposed by Ippolito (2020) doesn’t save it:

- (14) *Magari erano le sette, ma probabilmente sono uscita prima.*
MAGARI were.IMPERF the seven but probably am left earlier
‘*Magari* it was 7pm, but probably I left earlier.’ # in WITNESS-1

The second thing to note is that there is no absolute ban of *magari* in eyewitness testimony. If that had been the case, we would have liked to attribute the infelicity of (13c) and (14) to some kind of register issue. The very particular conversational rules that make up for a court deposition cannot be suspended, but in certain cases a witness is called upon answering a question that inquires about a state of affairs for which no “evidence” is expected to exist. For example, if Ann in WITNESS-1 is asked (15a), her use of *magari* in replying with (15b) is judged as markedly more acceptable.

- (15) a. *È possibile che fossero le sette?*
 is possible that it were the seven
 ‘Is it possible it was 7pm?’
 b. *(Sì), magari erano le sette.*
 yes MAGARI were.IMPERF the seven
 ‘(Yes), magari it was 7pm.’

Another case in which the use of *magari* by the eyewitness is acceptable is WITNESS-2. In this scenario, Ann is not expected to have any objective knowledge of facts that would make the preadjacent being the case.

- (16) WITNESS-2. Ann is testifying at trial as an eyewitness. She has described a person she saw with great detail. The attorney asks her: *How come you looked at that person with such great attention?* She replies: *I had never seen that person in the neighborhood...*
 a. *poteva essersi perso.*
 might.IMPERF be himself lost
 ‘he might have been lost.’
 b. *magari si era perso.*
 MAGARI himself was lost
 ‘magari he was lost.’

The possibility that the person in question be lost need not be supported by any evidence whatsoever — Ann’s point is precisely that she’s naturally inclined to be mindful that people might get lost in places they have never been before, and so she was ready to help. The fact that, as far as Ann knows, nothing supports the suspicion that the person was lost is uncontroversial and does not conflict with what is expected of her as a witness. Removing the requirement that some form of reasoning behind the suspicion expressed exist is thus enough to make *magari* and *might* indistinguishable again.

Let’s now move away from trials: we want to test whether our hunch about (14) persists in conversations that are not subject to any special conditions of use.

- (17) CREDIT CARD-1. Ann is trying to pay at a coffee shop with her credit card, but the payment doesn’t go through. This could be because the card was blocked, or because the reading device is faulty. She pays with the little cash she has and after leaving the shop she bumps into a friend and asks her where the closest ATM is. The friend asks *Why do you need cash?*

- a. *Potrebbero avermi bloccato la carta di credito.*
they might have to me blocked the card of credit
'They might have blocked my credit card.'
- b. *Forse mi hanno bloccato la carta di credito.*
perhaps to me they have blocked the card of credit
'Perhaps they blocked my credit card.'
- c. # *Magari mi hanno bloccato la carta di credito.*
MAGARI to me they have blocked the card of credit
'Magari they blocked my credit card.'

Why would (17c) be infelicitous here? Let's take the antievidential hypothesis seriously and imagine that instead of (17c), Ann uttered an explicit antievidential assertion:

- (18) Beth: *Why do you need cash?*
Ann: *They might have stolen my card, although I have no reason to suspect that that might be the case.*

What Ann makes explicit here is a very odd behavior: at any given time, our credit card could have been blocked unbeknownst to us—but this is normally not considered sufficient reason to run to the closest ATM to get cash. So in effect we might say that by uttering (17c) Ann is compelling Beth to accommodate (in a non-technical sense) that she's acting in an irrational way. All things considered, Ann could have replied expressing epistemic non-commitment through different strategies that don't carry the (here problematic) antievidential inference, such as (17a) or (17b).

We don't want to claim that *might* in (17a) carries an evidential inference (that is, the opposite inference we are discovering *magari* to carry): what's crucial is *might p*, unlike *magari p*, is compatible with a state of affairs where Ann does have some objective reason to suspect that her card has in fact being blocked. Most likely, this is what Beth would conclude upon interpreting (17a) or (17b).

Now compare CREDIT CARD-1 with CREDIT CARD-2: in the latter, *magari* is the perfect option for Ann to use, because she's just guessing that the card might have been blocked but it's understood that she has no reason to suspect that being the case.

- (19) CREDIT CARD-2. Ann and Beth are waiting outside for Cora to leave a store. They observe her leaving and going directly to an ATM nearby. Beth asks *Why is she going to the ATM?*, and Ann replies:
- a. *Potrebbero averle bloccato la carta di credito.*
they might have to her blocked the card of credit
'They might have blocked her credit card.'
 - b. *Forse le hanno bloccato la carta di credito.*
perhaps to her they have blocked the card of credit
'Perhaps they blocked her credit card.'

- c. *Magari le hanno bloccato la carta di credito.*
 MAGARI to her they have blocked the card of credit
 ‘*Magari* they blocked her credit card.’

Let us consider another scenario in which, the absence of an evidential requirement associated with *might* notwithstanding, a participant in the conversation cannot help but infer that objective evidence supporting the prejacent of *might* must exist. It shouldn’t be surprise us, by now, that (20c) is degraded in this kind of scenarios.

- (20) BIKE. Beth enters Ann’s office and she finds her looking quite distressed. *Ann, what’s going on? Is everything OK?*
- a. *Potrebbero avermi rubato la bici.*
 they might have to me stolen the bike
 ‘They might have stolen my bike.’
- b. *Forse mi hanno rubato la bici.*
 perhaps to me they have stolen the bike
 ‘Perhaps they stole my bike.’
- c. # *Magari mi hanno rubato la bici.*
 MAGARI to me they have stolen the bike
 ‘*Magari* they stole my bike.’

When can someone be unsure whether their bike was stolen or not? Let’s stipulate a somewhat plausible state of affairs that would bring about this epistemic state. Ann often bikes to work: on the afternoon when BIKE happens, she looks down the window and doesn’t see her bike where she expected her to see it. Now she doesn’t quite know what to think: perhaps she has a wrong memory about biking instead of walking that morning? Perhaps she’s misremembering where she parked the bike? Be it as it may, she’s now considering it possible that her property was stolen.

Thus, if Ann replies with (20a) or (20b) it’s almost impossible to imagine a continuation where Beth doesn’t follow up with something like *Oh no, what makes you think that?* — she’s friend with Ann and wants to reassure her, or help her find the bike. But such question cannot follow (20c) — by uttering (20c), Ann signals that she has no evidence that the bike was in fact stolen. But then why even be distressed? What’s informative about (20c)? It’s uncontroversial that at any given time, movable property that we don’t have under our eyes at the very moment we speak could be stolen without us being aware of it: (20c) doesn’t settle the implicit question *Why are you distressed* in any way, and is as a consequence strongly degraded compared to the other two possible answers in (20).

As a final example, let’s stay in the realm of ordinary conversations and consider as states of affairs about which people can have a wide range of degrees of confidence (from impossibility, the merest of possibilities to certainty and everything in between), but knowledge of which is to a certain degree privileged. In both (21) and (22) the possibility that is being considered is that the speaker and a third person respectively are pregnant. The effect of expressing *magari* is quite different in the two scenarios.

- (21) PREGNANT-1. Ann and Beth are at a party. Ann is not known to be teetotaler, so Beth offers her some wine. She refuses, so Beth asks her *do you not feel well?*; to which Ann replies:
- (22) PREGNANT-2. Ann and Beth are at a party. Ann points out to Beth that Cora, who they don't know well but who is known not to be a teetotaler, is the only person not drinking. *I wonder whether she's not well or she just doesn't like the wine.* Ann replies:
- (23) a. *Potrei / potrebbe essere incinta.*
 I might she might be pregnant
 'I / she might be pregnant.'
- b. *Forse sono / è incinta.*
 perhaps am is pregnant
 'Perhaps {I am / she's} pregnant.'
- c. *Magari sono / è incinta.*
 MAGARI am is pregnant
 'Magari {I am / she's} pregnant.'

If Ann responds in PREGNANT-1 with (23a) or (23b) she's perceived as being completely serious: she's expressing that she has reason to suspect she's pregnant and to be cautious she won't drink. While we are not claiming that *potere* 'might' or *forse* 'perhaps' are the mirror image of *magari* in that they indicate the existence of evidence, their use in PREGNANT-1 comes with such an invited inference, presumably because one would not just put it out there as a guess that they might be pregnant. In other words, it would be not surprising, if perhaps a bit nosy, for Beth to ask whether she has already taken a test or not. Things are very different if Ann's reply is (23c): the only way in which that is acceptable is if it interpreted as somewhat facetious. What Beth would understand from (23c) in PREGNANT-1 is that Ann just isn't in the mood of drinking—or has other reasons she wants to keep for herself—and instead of saying that she jokes that for all she knows, she might be pregnant. Unsurprisingly, *magari* is perfect in PREGNANT-2, for obvious reasons at this point. Beth would not respond to (23c) with *What do you know that I don't?* (after all Ann just signaled that it was just a guess) but she could do it if Ann had instead uttered (23a) or (23b).

1.2 Coarseness

We now want to define an entry for *magari* that predicts the contrasts observed in §1.1.2—that is, one that delivers the antievidential effect. To paraphrase von Stechow and Gillies (2010: 371), we don't want to derive antievidentiality through some sort of labeling of the prejacent with a tag like NO-EVIDENCE, as this would be both wildly stipulative and unconstrained: we want antievidentiality to “emerge from combining the basic ingredients of the semantics of modals”. In the next section we will explore some of the basic ingredients so that we can find the right one to work with.

Just like Ippolito, I will assume that from the assertive point of view, *magari* lexicalizes epistemic possibility, which I will analyze as existential quantification over a domain of epistemically accessible worlds. Unlike Ippolito’s entry, the presuppositional component I will argue for won’t refer to subjective comparative notions such as likelihood or expectedness: it will impose a specific condition, coarseness, on the preadjacent proposition and the conversational backgrounds against which the modal statement is interpreted — these are the crucial ingredients Kratzer’s (1981b) analysis introduced that will allow us to define coarseness in terms of quantification over subsets of the premise sets.

The result to come out of this section is that certain possible worlds approaches to natural language modality — notably the one introduced in Kratzer (1981b, 1991) — already come with the theoretical tools that allow us to define coarseness. In fact, coarseness is nothing but a novel way of making use of the rich structure that doubly relative modality à la Kratzer (1981b) provides us with.

1.2.1 Double context relativity and ordering sources

This section contains nothing original and only gives an overview of Kratzer (1981b, 1991) theory of modality. What’s important about it, for our purposes, is the role of the ordering source, since *magari* will be claimed to be distinct from other expressions of epistemic modality in that it imposes some specific requirement on the ordering source.

1.2.1.1 Underspecification

If we say that (24) can express either an obligation or a conclusion based on knowledge of some facts, we are saying — using well-entrenched terminology from modal logic — that *must* in (24) can have either a deontic or an epistemic “modal flavor”.

(24) Ann’s car must be parked in the driveway.

It’s not *prima facie* implausible to assume that the seeming polysemy of (24) constitutes evidence for *must* being ambiguous: the epistemic and the deontic readings of (24) are after all truly distinct, in that there exist scenarios in which one is true and the other one is false.

The most characteristic and enduring claim of Kratzer’s (1977; 1981) seminal account of modality is precisely that any ambiguity account along these lines is to be dispreferred over one in which the lexical meaning of modal expressions (such as *must*) is dissociated from what makes a modal flavor — that is, an account in which the lexical meaning itself is underspecified with respect to the meaning distinctions tracked by modal flavors. One issue of ambiguity approaches is that the number of *musts* one needs to assume quickly increases once we try to find examples that are, for instance, clearly neither deontic nor epistemic statements, such as:

- (25) a. The oven must be set at 300 degrees (for this recipe).
 b. The cat must be fed twice a day.

In these examples, the necessity expressed by *must* is clearly related to what has to be the case in order for some requirements to be satisfied, but these requirements are unrelated to obligations of law or states of knowledge of whoever is asserting these sentences. Furthermore, and more forcefully, “whoever wants to keep billions of *musts* would be forced [...] to accept still another verb *must*: a neutral *must*” (Kratzer 1977: 431) such as the *must* we see in (26).

- (26) a. In view of the parking regulations, Ann’s car must be parked in the driveway.
 b. Given what I know about her preferences, Ann’s car must be parked in the driveway.
 c. Given the parking regulations and what I know about her preferences, Ann’s car must be parked in the driveway.

Whatever the correct analysis of these *in view of* phrases is, it’s clear that they “disambiguate” the modal flavor of the associated modal (of course, they can be used with modal expressions other than *must*). But then, as (26c) illustrates, we can disambiguate in ever finer ways so much so that it becomes hard to justify the existence of such a thing as modal flavors as primitive notions in our theory that have lexical correlates in homophone modal verbs. It seems more promising to isolate the meaning of the “neutral *must*” and then leave open the possibility that it’s the context of conversation that, absent an overt *in view of* phrase, supplies what’s needed to “make” a modal flavor.

The information that is lexically encoded in a modal expression according to Kratzer (1977) is whether it’s an expression of necessity (as is the case with *must*) or of possibility (e.g. *might*), the two being duals of one another. These two notions are defined in relation to two arguments of the modal: a prejacent proposition (in the examples above, the one denoted by *Ann’s car is parked in the driveway*) and a certain set of propositions, or premises, called the conversational background — which is itself either supplied by the context or explicitly provided by a *in view of*-type phrase. Any given modal verb asserts either that the prejacent follows logically from the conversational background, or that the prejacent and the conversational background are compatible (in the case of necessity and possibility respectively).

Conversational backgrounds represent the body of information that matters for the interpretation of the modal statement: the premises it contains will be laws and rules in the case of deontic modality, facts held to be true in the case of epistemic modality, and so on. All of this is of course world dependent, so that conversational backgrounds are actually functions that map possible worlds to sets of propositions. In the terminology of Cariani et al. (2013), a useful derived notion is that of a modal background — the grand intersection of the premises contained in a conversational background. We can think of the modal background so defined as the equivalent of the worlds made accessible by a given accessibility relation in the standard semantics of modal logic, and necessity and possibility as the relations of subsethood and non-disjointness of the modal background and the prejacent proposition.⁶

⁶All this of course only makes sense if we are dealing with consistent conversational backgrounds (that is, non-empty modal backgrounds). If the conversational background is inconsistent, as long as

1.2.1.2 Ordering worlds

A crucial issue with this account can be most easily observed with paradoxes such as the Good Samaritan one, first discussed in Prior (1958). One variant of this paradox can be illustrated with (27).

- (27) In view of what the law provides, it is obligatory that Ann who jaywalked be sanctioned.

In a world like the one we all live in, the law will provide that no jaywalking occurs, which intuitively makes (27) true in our world. However, that *Ann who jaywalked is sanctioned* does not follow from the body of laws we are considering: if we collect all the worlds that comply with the laws in the deontic modal background, we will not find a world in which Ann jaywalked. This is to say, the prejacent of (27) and the deontic modal background that supports our intuition about the truth of (27) are disjoint—but in Kratzer’s (1977) analysis, the truth of (27) should derive from the fact that the modal background entails the prejacent.

More abstractly, if we only look at worlds that comply with the law, by definition we will never find one where anyone is deserving of punishment. What’s worse, we cannot explain why in the actual world (27) is true and (28) false. The set of worlds w' that comply with the actual laws and in which Ann jaywalks, being the empty set, by definition entails any proposition.

- (28) In view of what the law provides, it is obligatory that Ann who jaywalked be commended.

A paraphrase of (27) that does justice to its intuitive truth value at w (while maintaining a possible world semantics of the deontic modal) would be something like (29).

- (29) Paraphrase of (27):
All the worlds w' in which Ann jaywalked and in which the laws in force in w are applied are worlds in which Ann is sanctioned.

A crucial aspect of (29) is that there are two very distinct types of considerations made to select which worlds *it is obligatory that* universally quantifies over. On the one hand, we look at what the law is (because we are making a deontic statement), on the other we look at what the facts are—in this case, we will deal only with worlds in which Ann jaywalked.

If we do that, taking (29) as our inspiration, we can easily see that when we express considerations such as (28) we are really talking about those worlds that match the actual one (with all the people who jaywalk and possibly commit worse

the prejacent is a contingent proposition, any necessity statement will come out as true, and any possibility one as false—a certainly undesired outcome. In the case of epistemic modality, it’s a reasonable assumption that what’s known to be the case in any given world will never be inconsistent; but this assumption cannot be generalized. Kratzer (1977) addresses how to derive contingent modal statements even in the case of inconsistent modal bases, but I will ignore that solution in the interest of the conciseness of the presentation.

deeds) and also are the most ideal with respect to what the law mandates: about those worlds (28) says that they are all worlds in which the jaywalker is punished. What the facts are and what the law mandates are two completely independent things, but somehow they both enter into the picture if we try to interpret modal statements like (27).

The paraphrase in (29) highlights the need to separate, when reasoning about deontic statements, what the facts are and what the law mandates; and the universal modal ascribes the property expressed by the prejacent to all the worlds that match with the facts and are in some way closest to the deontic ideal. If the facts are such that some law or the other has been violated, we still want to be able to refer to those worlds among the factual ones that are better than all others in that they are most compliant with the laws — of those worlds, (28) says that they are worlds in which Ann is punished.

It is, among other things, to address this problem that Kratzer (1981b) abandons the idea that a single conversational background determines the modal flavor in favor of a separation between, in Kratzer’s (1981b) now standard terminology, the modal base and the ordering source. The Samaritan Paradox is thus, in a possible worlds framework, taken to be evidence for an interpretation of modals that is doubly relative: in the case of deontic modality, it’s relative to the facts represented in the modal base — a conversational background that cannot be inconsistent — and to the laws and regulations represented in the ordering source. Jointly, these two conversational backgrounds determine the selection of a subset of the modal base which will serve as the domain of quantification of the modal expression.

To reconstruct the intuition that sometimes we want to quantify over the “most ideal” worlds, we need to be clear on what it means for one world to be more ideal than another one with respect to some requirement. The requirements (which is what the ordering source represents) being propositions, we will say that one world w is better than another u only if w verifies all the propositions in the ordering source that u verifies, and some more. If the sets of premises verified by w and u are not in a relation of subsethood with one another, the ordering source doesn’t rank the two worlds. So we will indicate with $\lceil w \preceq_o u \rceil$ that w is at least as close to the ideal determined by the ordering source o as u is: w ’s distance from the ideal is “equal” to or “smaller” than u ’s.

(30) For any set of propositions o and possible worlds w, u :

$$\begin{aligned} w \preceq_o u &\leftrightarrow \{p \mid p \in o \wedge w \in p\} \supseteq \{p \mid p \in o \wedge u \in p\} \\ w \prec_o u &\leftrightarrow w \preceq_o u \wedge \neg[u \preceq_o w] \\ w \approx_o u &\leftrightarrow w \preceq_o u \wedge u \preceq_o w \end{aligned}$$

Imagine that p and q denote the set of worlds where no person jaywalks and where if there are jaywalkers, they are fined respectively. The ordering source $\{p, q\}$ thus represents a portion of the laws that we are familiar with. We can now give a precise meaning to the intuition that a world where there are no jaywalkers in the first place is as good as it gets: a world like that verifies both p and q . But what if we don’t have such a world? No world that verifies (27) is ideal in this sense, because it

will have Ann jaywalking in it, and thus falsifies the premise p . The ordering source $\{p, q\}$ in this case will still rank worlds that verify q (that is, worlds in which Ann, the jaywalker, is punished) as closer to the ideal than those that do not.

We now can reconcile our intuition about the truth of (27) and the analysis based on universal quantification over worlds that match the facts and comply with the law. What (27) asserts is that in all the deontologically most ideal worlds, Ann is punished. The modal base doesn't contain deontologically perfect worlds (after all, Ann did jaywalk), but the modal in that sentence only cares about the best worlds we have. We may assume that we can always, given an ordering source O and a set of worlds B , find a non empty subset of B that is made out of the “best” worlds given O (in the words of Lewis 1973, we are making the Limit Assumption contra Kratzer 1981b, 1991), and define the predicate in (31) that will return such a subset.

$$(31) \quad \text{Best}(b, o) := \{w \mid w \in b \wedge \neg \exists u \in b [w \neq u \wedge u \prec_o w]\}$$

Ideally, we want modals like *allowed to*, which express deontic possibilities instead of necessity, to be analyzable in a completely parallel way, only changing the quantificational force: that is, we don't want to lose the intuition that deontic *have to* and *allowed to* are duals of one another. We have two edge cases when it comes to ordering sources. If the ordering source o is consistent, then $\text{Best}(b, o) = \bigcap(\{b\} \cup o)$ for any o, b ; and if o is empty, then $\text{Best}(b, o) = b$. We can confirm that the latter point is intuitively welcome sticking to the deontic case: if there are no relevant laws in place—the deontic ordering source is empty—nothing is obligatory, and everything is allowed.

While we can distinguish a variety of modal flavors by selecting different combinations of modal base and ordering source, nothing prevents us from assuming that in certain cases modals can be interpreted against more than one ordering source, which results in a finer restriction of the domain of quantification. This is precisely what von Stechow and Iatridou (2008, 2023) claim is the nature of the distinction between so called “weak” (e.g. *ought*) and “strong” (e.g. *have to*) necessity modals, while maintaining (with Kratzer and the traditional semantics of modal logic) that the choice of quantificational force is a categorical one (either necessity or possibility).

- (32) a. You ought to do the dishes but you don't have to.
 b. # You have to do the dishes but you don't have to.

Sticking with the deontic case, if *ought* requires a secondary ordering source in addition to the “regular” deontic one associated with *have to*, the universal quantification will end up being over a more restricted subset of the worlds returned by the modal base, hence the truth-conditional comparative weakness.

1.2.1.3 Ordering with epistemic modality

One of Kratzer's (1981b) goals was of course to maintain that a correct analysis of natural language modality treats the variety of modal flavors as the result of lexical underspecification. This was already achieved in Kratzer (1977) but now that

conversational background consists of (at least) two distinct contextual parameters, we have an even more general theory where it's the specific combination of these two (in principle independent) parameters that will determine the modal flavor. We thus want to explore the advantages of the double context relativity with ordering in domains beyond the deontic one.

Since our own interest is about the adverb *magari*, let's see what the distinction between modal bases and ordering sources has to offer when it comes to epistemic modality (as established in §1.1, matrix-scope *magari* contributes the truth conditions of epistemic possibility). The modal base of an epistemic modal maps worlds of evaluation to premises that are known to be true in the worlds of evaluation, according to some relevant information state.⁷ This is what Kratzer (1981b) calls an epistemic modal base. Kratzer (1981b, 1991) assumes that the ordering source that, in conjunction with the epistemic modal base, determines the epistemic flavor is the stereotypical one: the function that maps worlds w to sets of propositions that are held to be true in the normal state of affairs in w . In the rest of this section we will see, without much discussion, a couple of cases on the basis of which Kratzer makes this assumption.

While the need for an ordering source is self evident with deontic modals (and other circumstantial or "root" modals), for otherwise we would be completely missing on the substance of the modal flavor, it's not nearly as self evident, empirically, that we need any ordering of the worlds in the epistemic modal base when we examine the most common epistemic claims. In other words, it's not self evident that epistemic modals are interpreted relative to anything else than an empty ordering source. To see this in the simplest case, suppose that Ann really knows nothing about Beth's cat, apart from the fact that the cat exists:⁸ (33) is then obviously true, since the intersection of the prejacent proposition and Ann's⁹ epistemic modal background will be non-empty.

(33) For all Ann knows, Beth's cat might be female.

Clearly, we don't need to restrict Ann's epistemic base to get these truth conditions right and in fact, we may not want to restrict it: we want all possibilities admitted by Ann's information state to be considered, however remote. The example in (33) doesn't quite make the case, since the cat being female is not in principle a remote possibility at all, but we can see this with (34), keeping in mind that the Sokoke is a very rare breed:

⁷In the case of bare epistemic statements, which don't provide a relevant information state explicitly through an *in view of* phrase or one of its functional equivalents, an additional source of truth-conditional underspecification is observed: which information state is the epistemic claim made on? An overly simplistic story according to which the domain of quantification of epistemic modals is invariably given by the speaker's information quickly runs into all sorts of troubles. This is a complicated issue that has rather profound implications (chiefly, whether a purely contextualist theory can handle this type of underspecification) which are however beyond the scope of this chapter.

⁸In characterizing truth conditions of modal statements here I ignore all complications related to the occurrence of presuppositional expressions, such as the definite description in (33).

⁹For the reasons hinted at in footnote 7, the *in view of* phrase in (33) is important in order to guarantee an easy description of the statement's truth conditions.

(34) For all Ann knows, Beth’s cat might be a Sokoke.

However, there are many more ways to express epistemic modality than what we have considered so far: in particular, we can find cases like those in (35) which seem to manifest a gradable notion of modality. Faced with the judgments in (35), we need to explain what a “good possibility” is, and how it’s different from a “possibility” or a “slight possibility”.

(35) CALICO CATS. The only thing Ann knows about Beth’s cat is that it’s calico (i.e. it has a tri-colored fur). Given the genetic factors that determine coat color, calico cats are all female,¹⁰ save for some cases associated with very rare genetic conditions. Ann knows this fact.

In view of what Ann knows, there is a...

- a. ...good possibility that Beth’s cat be {female/male}. (true/false)
- b. ...possibility that Beth’s cat be {female/male}. (true/true)
- c. ...slight possibility that Beth’s cat be {female/male}. (false?/true)

The clearest contrast is of course in (35a): that the cat be male is certainly not a “good possibility” — in fact, it’s a very remote one, given that the cat is calico. What this intuitively means is that while there are some epistemically merely possible worlds in which the cat is male, none of them is found in some “epistemically privileged” subset of that modal base. Kratzer’s (1981b) intuition is that we can exploit the comparative notion of “idealness” obtained through the ordering source to enrich the analysis to cover gradable modality.

Now, as we saw, the assumption is that the ordering source that determines an epistemic flavor is a stereotypical one, mapping worlds w to propositions that are held to be true in the normal course of events in w . The ordering source in (36) is among the ones compatible with the CALICO CATS scenario (and with our actual world).

(36) $OS_{\text{calico}} = \{ \dots, q = \llbracket \text{All calico cats are female} \rrbracket, \dots \}$

Equipped with (36), we can use the ordering that it induces to define what a “good possibility” is. The definition below is adapted from Kratzer (1991: 644):

(37) A proposition p is a good possibility with respect to a modal background b and an ordering source o iff $\exists w \in b \forall u \in b : u \prec_o w \rightarrow u \in p$.

Thus, a good possibility with respect to a domain of worlds and an ordering source is one that characterizes a set of worlds that is one maximum of the order induced by the ordering source on the domain of worlds. Now imagine there are two worlds w, u in b which differ only in that Beth’s cat is male in w and female in u — in both worlds it’s a calico cat. The set of propositions in (36) that they verify is identical, except of course for q : we thus have that $u \prec_{OS_{\text{calico}}} w$. Given these modal parameters we can say, on the basis of (37), that the cat being female is a good possibility because we can find a world in b such that all the ones that are more ideal than it are such that the cat in

¹⁰Here and throughout I will make the assumption that every cat is either male or female.

female in them. It’s enough to find the “worst” female-cat-world: the one that verifies q in (36) and as few other premises as possible, compatibly with the information state represented by the domain b . All the worlds that (36) orders as better than it will be female-cat-worlds as well. Crucially, we see that the cat being male is not a good possibility: we would have to find a world w that itself is a male-cat-world, and then make sure that all the worlds in the epistemic base that are more ideal than w with respect to OS_{calico} are also male-cat-worlds. But of course there is a world in the domain that only differs from w in that it verifies q , and such world is not in the denotation of the prejacent.

Gradability and comparison are of course found in modality beyond the epistemic case. In (38) we have an equative construction that compares two deontic necessities:

- (38) (from Portner and Rubinstein 2016: 271)
 Susan must call her mother just as much as she must call her father.

We know with Kratzer that what makes the *must* in (38) deontic is the modal parameters it’s interpreted under: we can thus build an account of equatives such as this (and other comparative constructions) on the foundations provided by the preorder induced by the (deontic) ordering source. To be sure, Kratzer’s account of graded modality has faced several challenges in the literature. Particularly in the case of epistemic modality, alternative accounts that make reference to probability directly in the semantics of modals (Yalcin 2010; Lassiter 2017) have been argued for (see also Levinson 2003 for a seminal probabilistic account of bouletic predicates); alongside claims that both systems coexist with the modal lexicon partitioned between expressions that encode reference to probability measurement and comparative likelihood à la Kratzer (Klecha 2014); and accounts that enrich the Kratzerian world ordering system with direct reference to degrees as a theoretical primitive (Pasternak 2016). We will return to these issues.

At this point, we have seen some of the motivations for assuming the domain of quantification of modals is ordered in some way. It’s important to note that the way Kratzer (1981b) achieves this result, with the use of a dedicated premise set (the ordering source), is not the only possible way. Since what we really care about is the order itself, we could have just as well assumed the order as a primitive. This is in fact what Lewis (1973) — a direct inspiration for Kratzer’s analysis — does in his analysis of counterfactuals whereby $p > q$ in w asserts that all the p -worlds that are “most similar” to w are also q -worlds. In Lewis’s analysis, this order is not a mere preorder, because it’s connected (any two worlds are comparable) and strongly centered (there is the assumption that every world is more similar to itself than any other world is), but if these two assumptions are abandoned¹¹, a world ordering so devised is equivalent to the preorder Kratzer derived from the ordering source, as Lewis (1981) proves. For any premise set O , we obviously have the preorder \preceq_O derived as in (30). For any primitive Lewisian preorder \preceq_i^L on a domain W , we can construct an equivalent

¹¹Centering has to be abandoned in a general theory that wants to cover modal reasoning beyond the (counter)factual. In the case of deontic modality, for example, it’s crucial that the order be not centered, as it’s not guaranteed (in fact, it’s far from guaranteed) that the world of evaluation (or the actual world) is deontically better than any other world (Lewis 1973, 1981) — see footnote 13.

premise set¹² $O := \{\{w \mid w \preceq_i^L u\} \mid u \in W\}$. Just like at any world of evaluation we have a myriad of different ordering sources (stereotypical, deontic, bouletic...), we may assume we have different primitive world orders, and the choice of which one to use determines the resulting modal flavor.¹³ It's thus important to keep in mind that none of the results summarily presented in this section hinges on premise sets per se being operative in the interpretation: they provide a very useful and intuitive device to adequately render the truth conditions of modal statements, but they are not indispensable from a formal point of view.

1.2.2 Quantification over premise sets

In the previous section we have reviewed well-established evidence that the domain of quantification of modal expressions is ordered: which kind of order is operative in the interpretation (partially) determines the so called modal flavor of the expression, and the order itself allows us to interpret modal statements without paradoxical conclusions. We followed Kratzer (1981b) in the presentation, in deriving the required order from (at least one) premise set — traditionally called the ordering source — but this choice is *prima facie* not forced on us. We could, if we so prefer, follow Lewis (1973) and assume a primitive world order as a parameter of interpretation instead of a Kratzerian ordering source.

1.2.2.1 Antievidentiality is coarseness

In this section we will see that a correct characterization of *magari*'s felicity conditions (in particular, a correct characterization of the antievidential effect observed in §1.1.2) requires quantification over subsets of the ordering source. The core of the argument is that, while premise sets have been employed to derive various orders on domain of possible worlds, antievidentiality has to be defined through the premise set but makes no use of the order itself. This is, to my knowledge, a novel use of premise sets.

What ensures the antievidential effect is the predicate of coarseness, defined in (39), applied on a stereotypical ordering source. With **Best** defined as in (31), we define coarseness as a predicate true of a set of worlds b (the modal background), a set of premises o (the ordering source) and a proposition p (the prejacent of the modal statement) if and only if there is no subset of o that determines a subset of b of best worlds that entails p .¹⁴

¹²As we will see later, this would be just one of the equivalent premise sets.

¹³It's important to note that Lewis (1973: 102) utilizes the notion of world order (specifically, comparative permissibility) to address the very same issue we started with in (27) — under the guise of conditional obligation. Take for example the following statement: *If Jesse robbed the bank, he ought to confess*. It really ought to be the case that Jesse didn't rob the bank, and thus it also ought to be the case that Jesse doesn't confess (as he has nothing to confess). But what the statement says is that all the most permissible worlds in which Jesse robs the bank are worlds in which he confesses.

¹⁴In (i) is a definition equivalent to (39) that doesn't require the Limit Assumption:

(i) $\text{coarse} := \lambda b. \lambda o. \lambda p. \neg \exists o' \subseteq o [\exists w \in b [\forall u \in b : u \preceq_{o'} w \rightarrow u \in p]]$

$$(39) \quad \text{coarse} := \lambda b. \lambda o. \lambda p. \neg \exists o' : o' \subseteq o \wedge \text{Best}(b, o') \subseteq p$$

The intuition behind the name “coarseness” is very visual, and relies on visualizing the prejacent proposition as a funnel. If the conversational backgrounds are coarse with respect to p (the funnel), it means that no matter which combination of premises you take, you will not end up with a subset of the modal background “fine enough” to “fit” into p . If we gather up all the “privileged subsets” of the modal background that are derived from all the possible subsets of the ordering source we end up with a coarse set of sets of worlds, and none of those subsets will pass through the funnel.¹⁵

We now conjecture that *magari* is simply an epistemic possibility modal—in line with Ippolito’s account—that requires its epistemic modal base and stereotypical ordering source to be coarse with respect to the prejacent proposition:

$$(40) \quad \llbracket \text{magari} \rrbracket^w := \lambda b. \lambda o. \lambda p : \text{coarse}(b_w, o_w, p). b_w \cap p \neq \emptyset$$

To see how this achieves what we are after, recall the observation made in §1.1.2: the utterance of *magari p* conveys that nothing of what the speaker knows could count as a reason to suspect that p may be the case. If from the utterance of *magari p* I am to infer that the speaker doesn’t have factual knowledge of facts that could count as evidence in favor of the possibility p , then this is an inference about the speaker’s epistemic modal base in the world of evaluation. It’s the modal base that contains the information about what the speaker (or the relevant group of people) knows to be true or false and what they are ignorant about. If the modal background b (the grand intersection of the modal base) entails some proposition p , then we can plausibly claim that the information state represented by b constitutes evidence for p , and plain assertion of p should be supported.

Here the problem is different, for we are asking ourselves under what conditions an epistemic modal base can be taken to encode evidence for $\diamond p$. Crucially, we can see that what these conditions are depends on the context of the conversation.

- (41) LIGHT-1 Beth is describing what the department was like on some specific late evening at 7pm. She doesn’t say it, but among other things she saw that the light in Ann’s office was on.

Ann might have been in her office.

If Beth’s interlocutors in LIGHT-1 were to ask her: *Why do you think she might have been there?*, Beth would probably reply something like *Well, the light in her office was on*. If this is accepted as a good, cooperative answer (that is, if Ann’s interlocutors agree with Ann that that fact counts as evidence and their inquiry is thus addressed in a satisfactory way), it has to be because Ann and the interlocutors agree that in the normal course of events, if the light in an office is on, it means the office is occupied

¹⁵The analogy with gravel and other materials that are properly said to be coarse or fine breaks down at the point where we see that coarseness, as defined in (39), is not subject to homogeneity. Gravel doesn’t become “not coarse” because just one pebble is below the given standard of fineness. But the modal backgrounds become non coarse as soon as just one subset of the ordering source selects a set of best worlds that entails the prejacent.

by someone and if one person is in a closed office, it's the person whose name is on the name tag at the door. These are rather common sense assumptions to hold.

Thus, we have two elements: Beth's information that the light was on, encoded in the epistemic modal base, and the status of that information as evidence for the possibility that Ann was in her office. The latter obtains because of the joint existence of those two assumptions, in the form of premises in the stereotypical ordering source: if we take them to impose an order on the epistemic modal background, the best worlds we are left with are all worlds in which Ann was in her office.

Let us alter the example slightly to more clearly see the context dependence at work. Suppose Beth's assertion now takes place in scenario LIGHT-2.

- (42) LIGHT-2 Beth is describing what the department was like on some specific late evening at 7pm. She doesn't say it, but among other things she saw that the light in a big communal office (12A) was on. Ann is one of the people who has a desk in that office.

Ann might have been in her office.

When asked about what evidence she has, Beth could reply with (43), which, if the interlocutor is assumed to know nothing about how the department works, is a very bizarre reply to say the least (at the very least, the ignorant interlocutor will have to accommodate that office 12A is Ann's office):

- (43) Well, the lights in 12A were on.

But suppose that in fact, Beth's interlocutor is familiar with the department and (43) is accepted as sufficient evidence— why is that? Presumably, because Beth and her interlocutor agree—for instance—that in the normal course of events Ann is the very last person among those in office 12A to leave the department; so, if it was late at night and Beth saw the light on, it's not unreasonable to suspect that Ann might have been in there. In other words, Beth and her interlocutor's stereotypical ordering sources both contain a premise to the effect that Ann is the last person in 12A to leave the department.

Coarseness thus establishes a sort of bridge between the conversational backgrounds: the requirement it imposes allows one to draw conclusions about the state of information given the assumed value of the ordering source. In other words, once we agree that the stereotypical ordering source is an independently motivated parameter of interpretation, we can use it to distinguish information that is relevant as potential evidence from the rest. This distinction is not just non stipulative, but also naturally context dependent (in ways we will explore in more detail in what follows), since it's fully determined by parameters whose value is itself— uncontroversially— supplied by context.

So far, however, we could have defined coarseness in a simpler way, requiring the set of best worlds in the modal background not to entail the prejacent. That would however give us an incorrect characterization of what it means for a piece of information to be evidence for $\diamond p$. The reason why the definition of coarseness requires quantification over subsets of the ordering source is precisely that even when we have

contradicting evidence as to $\diamond p$ we can still single out and mention the evidence that supports $\diamond p$ if we want to. If coarseness only looked at the whole ordering source, it would only not hold of a prejacent p when all the epistemically best worlds are p -worlds (which, according to Kratzer 1991, is the case that verifies an epistemic *must* p assertion).

Suppose we are in a world and in a conversational context such that the stereotypical ordering source contains all the premises in (44) and, again, consider scenario LIGHT-1 — keeping in mind that Beth’s observation occurred at 7pm.

- (44) Four premises:
- a. $p := \llbracket \text{If the light is on in an office, it's occupied} \rrbracket$
 - b. $q := \llbracket (\forall x)\text{If an office with } x \text{ on its nameplate is occupied, } x \text{ is inside} \rrbracket$
 - c. $s := \llbracket \text{Ann is the last to leave the office} \rrbracket$
 - d. $r := \llbracket \text{Ann leaves the department before 6pm} \rrbracket$

Given the facts as described in LIGHT-1, in the normal course of events as determined by the premises in (44) it’s totally open whether Ann was there or not. The premise in r speaks against her being there, since it was 7pm already; on the other hand, the light in her office was on, and the other three premises taken together favor worlds in which she’s in the office over those where she isn’t. In other worlds, given LIGHT-1 and p, q, s , Ann being in the office counts as an (epistemically) better possibility than her not being there — but we have the premise r that changes everything. In a sense, these premises taken together deprive us of any evidence either way. But still, both question answer pairs below make perfect sense in this scenario:

- (45) a. Why do you think Ann might have been in the department?
 b. Well, the light in her office was on (but after all, it was already past 6pm)...
- (46) a. Why do you think Ann might have not been in the department?
 b. Well, it was already past 6pm (but after all, I did see a light in her office)...

So, empirically, even with the facts as in LIGHT-1 and a stereotypical ordering source that contains all four of the premises in (44), we have evidence for both p and $\neg p$. In fact, it’s precisely because we have evidence for a state of affairs and its negation that we cannot make a stronger modal claim.¹⁶ In other words, for some fact f to count as evidence it’s enough that knowledge of f excludes enough worlds from the modal background that just one subset of the ordering source will select from the modal background a proposition stronger than p . Thus, the definition of coarseness has to quantify over all subsets of the ordering source, as in (39), in order to deliver antievidentiality.

Now let’s see in detail how the antievidential inference of (47) — for concreteness, the inference that the speaker doesn’t know whether the light in Ann’s office was on or

¹⁶According to the Kratzerian treatment, epistemic *must* p is true precisely when all the stereotypically best worlds are p -worlds. That is, if we accept this analysis of *must* (contra a.o. von Stechow and Gillies 2010; Lassiter 2017), in the case in which all the stereotypical premises are consistent and they converge in selecting p -worlds from the modal background, *must* p would be true, and presumably the pragmatically ideal assertion.

not — arises from coarseness. Suppose, for simplicity, that the stereotypical ordering source only includes the two premises (49a) and (49b): that’s an ordering source that favors all and only those worlds where every office x where the light is on is being occupied by the person whose name is on the nameplate outside of x .

- (47) *Magari* Ann was in her office.
(48) \llbracket Ann was in the office $\rrbracket := \{w_1, w_4\}$ (prejacent)
(49) a. \llbracket If the light is on in an office, it’s occupied $\rrbracket := \{w_1, w_2, w_3, w_4, w_5\}$
b. \llbracket $(\forall x)$ If an office with x on its nameplate is occupied, x is inside $\rrbracket := \{w_0, w_1, w_3, w_4\}$
(50) \llbracket The light in Ann’s office was on $\rrbracket := \{w_0, w_1, w_2\}$

Given this simple model, the difference between (51a) and (51b) is that the former (the evidential epistemic state) entails (50), while the latter does not. The entry for *magari* in (40) imposes that (47) is undefined against an evidential modal background such as (51a) because its coarseness presupposition is not satisfied. Given the ordering source we are assuming, the best worlds are those that verify both (49a) and (49b). As one can see in (52), the only such world in the evidential epistemic state is w_1 , which also verifies the prejacent of *magari*: coarseness is not satisfied.

- (51) a. $\{w_0, w_1, w_2\}$ evidential epistemic state
b. $\{w_0, w_1, w_2, w_3, w_4, w_5\}$ antievidential epistemic state
(52) Evidential state: $\text{Best}((51a), \{(49a), (49b)\}) \subseteq (48)$

	<i>office empty</i>	<i>Ann in office</i>	<i>someone else in office</i>
<i>light on</i>	w_0 (49b)	w_1 (49a), (49b)	w_2 (49a)

Now, suppose the epistemic state is the antievidential one — compatible both with the light being on and with the light being off. Coarseness is now verified because the set of most ideal worlds among those in (51b) also includes w_3 , where the office is empty and the light is off. The set w_1, w_3, w_4 does not entail the prejacent of *magari*, precisely because of w_3 . The definition of coarseness given in (39) generalizes this by requiring that the epistemic state encode enough ignorance that no subset of the ordering source will select a small enough subset of best worlds.

- (53) Antievidential state: $\text{Best}((51b), \{(49a), (49b)\}) \not\subseteq (48)$

	<i>office empty</i>	<i>Ann in office</i>	<i>someone else in office</i>
<i>light on</i>	w_0 (49b)	w_1 (49a), (49b)	w_2 (49a)
<i>light off</i>	w_3 (49a), (49b)	w_4 (49a), (49b)	w_5 (49a)

What does coarseness have to say about the data examined in §1.1? The challenge is to find cases in which *magari p* is not felicitous: and the reason this is a challenge is that we have to find scenarios in which the signal that there is no stereotypical premise that will slice a subset of the modal background out that would entail p somehow conflicts with other assumptions. WITNESS-1, CREDIT CARD-1 and BIKE are

precisely such cases. In the first, the antievidential signal is in blatant contrast with the conversational obligations the witness has agreed to comply with, and in the other two cases Ann is behaving in quite an irrational way: there is no need to be distressed if you have no information that would support the possibility of the bike being stolen.

- (20) BIKE. Beth enters Ann’s office and she finds her looking quite distressed. *Ann, what’s going on? Is everything OK?*
- a. *Potrebbero avermi rubato la bici.*
they might have to me stolen the bike
‘They might have stolen my bike.’
 - b. *Forse mi hanno rubato la bici.*
perhaps to me they have stolen the bike
‘Perhaps they stole my bike.’
 - c. # *Magari mi hanno rubato la bici.*
MAGARI to me they have stolen the bike
‘*Magari* they stole my bike.’

If we had a mirror image of *magari*, an epistemic possibility modal that signals “anti-coarseness”, we would expect that expression to be much preferred in scenarios such as BIKE. This would be an expression of possibility that signals that in fact the epistemic modal background contains information that counts as evidence for the fact that the bike might have been stolen.¹⁷

Now let’s see one case where *magari* is felicitous contra Ippolito’s prediction, namely STRAWBERRIES-1.¹⁸ Any expression of epistemic possibility in (7) would be appropriate: *magari* is in fact most appropriate, since absent any indication to the contrary, there is no “normal course of event” that Ann and Beth would agree upon under which the die lands on a particular number.

- (7) STRAWBERRIES-1. Ann and Beth are at a fair, where there are games in which you can win prizes by casting a die. In one particular game, you win a teddy bear if the face is 1, \$10 if it’s 2, and some strawberries in all other cases. Since Ann loves strawberries, Beth encourages her to play: *Ann, you should play this game...*

¹⁷Of course, *forse* ‘perhaps’ and *potere* ‘might’ don’t come with such putative “anti-coarseness” requirement. This can minimally be shown with cases like (16) and (19): whenever the conversational context entails that no reason exists to suspect the prejacent might in fact be the case, these expressions are use-conditionally indistinguishable from *magari*. However, it’s worth pointing out that implementing coarseness as a presupposition does raise a number of relevant questions — most of which I won’t be able to address. One among them is precisely the issue of competition between *magari* and other expressions of epistemic possibility that are here, for concreteness, taken to differ from *magari* only in that they lack the coarseness presupposition. If this simplifying assumption were correct, descriptive principles such as Heim’s (1991) *Maximize Presupposition!* would predict some “evidential” inference to arise from not using *magari*, as a form of anti-presupposition. I have nothing insightful to say here, also because a detailed comparison of all expressions of epistemic possibility is well beyond the scope of this work.

¹⁸The discussion of (7) here owes a lot to Kai von Stechow’s input on the difference between unexpected vs. merely improbable state of affairs.

Magari vinci le fragole!
MAGARI you win the strawberries
‘*magari* you win the strawberries!’

At first blush, however, (7) might seem like a counterexample to the antievidentiality hypothesis too: shouldn’t the fact that the likeliest outcome is winning the strawberries count as “evidence” in support of the strawberries possibility? In other words: while it’s true that nobody in STRAWBERRIES-1 is expected to have any evidence that would lead one to think the die will land, say, on a 4 rather than on a 1, the possibility expressed by the prejacent is undisputedly the likeliest outcome. Given how the antievidential inference was characterized in §1.1.2, it’s hard to ignore the fact that if Beth was asked (54a), a reply like (54b) would definitely be accepted.

- (54) a. Why do you think I could win the strawberries?
b. Well, it’s the most probable outcome.

If we wanted to cash out the appropriateness of (54b) in the same way we did with (45), we’d have to assume that the propositions in (55), however unnatural their linguistic representation, are included in the stereotypical ordering source. The premise set in (55) guarantees that given any two worlds w and u which are the same except for the fact that a more probable outcome occurred in w than in u , w is epistemically better than u .

- (55) { [Every outcome with probability of at least q occurs] | $0 < q < 1$ }

A crucial feature of STRAWBERRIES-1 is that Ann’s and Beth’s knowledge has to entail (under the most basic assumption that they are rational agents) that winning the strawberries is the most probable outcome, with a 2/3 chance of happening. Thus, any ordering source that includes (55) will make Ann’s and Beth’s epistemic states not coarse with respect to the prejacent of (7), simply because in Ann’s and Beth’s epistemic state all and only the strawberries worlds are also worlds in which the most probable outcome happened.

Some genuine (albeit ultimately only apparent) counterexamples to the present analysis of *magari* will be discussed in §1.3, but (7) isn’t one. What (7) shows is just that dialogues like (54) aren’t fine grained enough a diagnostics to detect what’s reflecting normality assumptions and what isn’t. There is nothing abnormal or surprising per se in a low probability outcome to occur. Suppose we draw one number at random from 1 to 100. Each of these 100 numbers has an equal 1/100 chance of being selected. Thus, the probability that any one number, say 42, is drawn is quite low — and yet, it wouldn’t make much sense for someone to declare themselves “surprised” that 42 came out. Obviously, the same holds if the number is drawn from a much larger range, say between 1 and 10^{10} : as long as the outcome is determined purely by chance, surprise and expectations don’t really come into play. Thus, while (54b) intuitively is an appropriate answer, it is so not because it provides some evidence in support of the prejacent being a possibility — at least, not one that expresses assumptions of normality.

We can see the issue with STRAWBERRIES-1 more clearly if we compare it with the normality represented by a calico cat being female. What the premise in (56) encodes is a generalization that is falsified by rare genetic conditions of various sorts.

(56) [[All calico cats are female]]

Unlike the case of dice games where the probability distribution is known a priori, the likelihood of encountering a male calico cat can't be quantified exactly, but it can nevertheless be estimated: suppose, for the sake of argument, that the probability of finding a male in a group of calico cats is 1 in 3,000. The reason why it's perfectly sensible to be surprised by having found the 1 in 3,000 male calico cat is clearly not that the probability is (relatively) low per se—otherwise, any number drawn at random from a pool of 3,000 should be cause for surprise. Rather, the surprise stems from the fact that there's an intuition of normality behind the generalization expressed by (56) that goes beyond, and is in fact completely dissociated from, the statistical distribution. For the generalization to be falsified, some form of genetic condition has to have taken place. This is why (56) is a premise that properly belongs in a stereotypical ordering source and the premises in (55) are not.

Before moving on, one last point should be made about how coarseness delivers antievidentiality. The system as it's been set up here predicts that the antievidential inference associated with *magari* should be sensitive only to positive evidence. All the participants to the conversation in RACKET are aware of the correlation between coat color and sex expressed by (56), and (57a) is accordingly odd insofar as it expresses an antievidential assertion of possibility whereas strong evidence in favor of the prejacent exists.

- (57) RACKET. Ann and Beth are checking out cats at a shelter: they'd like to adopt a female cat. They were both just told that, because of feline genetics, calico cats are almost all female. Ann points to a beautiful calico cat whose name tag reads "Racket" and says *Look! Racket seems to like us...*
- a. ?? *e magari è femmina.*
and MAGARI is female
'and *magari* she's female.'
 - b. *ma magari è maschio.*
but MAGARI is male
'but *magari* he's male.'

One might have expected no contrast in acceptability between (57a) and (57b). After all, from a pre-theoretic characterization of what antievidentiality is, it would seem that (57b) just as "weak" an assertion as (57a): if there's strong evidence to suspect the cat is female, then there's strong evidence that to suspect the cat isn't male (if we stick to the assumption in footnote 10)—that is, there is strong evidence that the prejacent of (57b) is false. In other words, from the point of view of the evidence that is available to her, Ann's epistemic state with respect to the prejacent of (57a) and (57b) is quite similar, precisely because the two propositions partition the space of possibilities. Nevertheless, a contrast between (57a) and (57b) is detectable: (57b)

comes with no trace of oddity whatsoever, and this is predicted by the definition of coarseness in (39). The prejacent of (57a) is entailed by the worlds that (56) alone ranks as best, the prejacent of (57b) isn't—thus, assuming that (56) is the only premise in Ann and Beth's stereotypical ordering sources that has anything to do with the sex of cats, (57b) is correctly predicted to be a perfectly felicitous assertion.

In conclusion, the assumption that led us to the definition of coarseness in (39) is that stereotypical ordering sources have independent justification and provide us with a clear intuition of what it means for any given piece of information to count as evidence for something. The definition in (39) is little more than a rendition of this intuition in higher order logic.

1.2.2.2 Orders are not enough for coarseness

It's natural—and necessary—to ask how coarseness fits into the general picture of the theory of modality we have been assuming throughout. For one thing, if $\text{coarse}(b, o, p)$ is true, p cannot be a necessity: p is a necessity if the modal background entails it, and imposing coarseness means imposing that no subset of the modal background entails p , which is impossible. We can thus see that coarseness is a notion that is only relevant to existential modals.

As a corollary of this, we see the infelicity of (58b).¹⁹ Simple possibility statements of the form $\diamond p$ are logically compatible with $\Box p$. The negation of the latter is understood to be merely an implicature of the former, as suggested, for instance, by the fact that such inference is cancellable. The fact that cancellability in (58b) is not possible directly follows from the hypothesis that *magari* p is only defined if the conversational background is coarse with respect to p .

- (58) a. *Anna potrebbe essere a casa; in effetti, deve essere a casa.*
 Ann might be at home in fact must be at home
 'Ann might be home; in fact she must be home.'
- b. # *Magari Anna è a casa; in effetti, deve essere a casa.*
 MAGARI Ann is at home in fact must be at home

We saw in §1.2.1.3 that Kratzer's (1981b) results can be obtained without assuming that premise sets (or ordering sources) themselves are involved in the interpretation of modal statements, and that just like we can derive preorders from a premise set, we can construct a premise set to be equivalent to any given preorder. If this is the case, could we achieve a definition of the coarseness requirement that, unlike the one given in (39), makes no reference to the ordering source, so that the empirically motivated notion of coarseness can be made to be general enough to be translatable in the Lewisian system? This would be a test to verify whether the rich structure offered by the premise set, which the definition in (39) crucially relies on, is needed empirically—in other words, we want to convince ourselves that we cannot arrive at an equivalent definition of coarseness using only the order that the premise set is there to derive.

¹⁹Coarse epistemic possibility is thus effectively predicted to be an Aristotelian “two-sided possibility” (Bobzien 2020).

The answer to the question is “no”, and it’s straightforward to see why. As Lewis (1981: 223f) notes, the correspondence between orders and premise sets is not one-to-one: there exist distinct premise sets that produce the same preorder. Since in this section we are only dealing with formal properties of premise sets and the preorders they induce (and not actual natural language data), let’s simplify the definition of coarseness and make it a binary predicate as in (59), whereby the first argument in (39) is left implicit with the value of W , the set of all possible worlds (and, as Lewis 1981 does, let’s assume W is finite for simplicity).

$$(59) \quad \text{coarse}(H, p) \leftrightarrow \neg \exists H' \subseteq H : \text{Best}(H) \subseteq p$$

Take p in (60a) to represent the prejacent proposition. Now the two premise sets H and H' induce the same order on the domain b , namely the one in (60d). We have that $\text{coarse}(H, p)$ is the case, as no set of best worlds in (60e) entails p , but crucially it’s not the case that $\text{coarse}(H', p)$, since we have the premise o_3 .

- (60) a. $p := \{w_2\}$
 b. $H := \{o_1 := \{w_1\}, o_2 := \{w_2, w_3\}\}$
 c. $H' := \{o_1 := \{w_1\}, o_3 := \{w_2\}, o_4 := \{w_3\}\}$
 d. Order induced by H and H' : $[w_1, w_2, w_3] \prec_{H/H'} [w_4, w_5, w_6]$
 e. Best worlds, subsets of H (coarseness wrt. p satisfied):
 i. $\text{Best}(\{o_1\}) = \{w_1\}$
 ii. $\text{Best}(\{o_2\}) = \{w_2, w_3\}$
 iii. $\text{Best}(H) = \{w_1, w_2, w_3\}$
 f. Best worlds, subsets of H' (coarseness wrt. p fails because of $\{o_3\}$):
 $\text{Best}(\{o_1\}) = \{w_1\}$ $\text{Best}(\{o_1, o_4\}) = \{w_1, w_3\}$
 $\text{Best}(\{o_3\}) = \{w_2\}$ $\text{Best}(\{o_3, o_4\}) = \{w_2, w_3\}$
 $\text{Best}(\{o_4\}) = \{w_3\}$ $\text{Best}(H') = \{w_1, w_2, w_3\}$
 $\text{Best}(\{o_1, o_3\}) = \{w_1, w_2\}$

This toy example shows that premise sets, as Lewis puts it, contain “surplus information” that makes no difference to how the worlds end up being ordered. In some sense, the difference between H and H' above is in how they represent w_2 and w_3 to be ideal “to the same degree”: in H , they are tied, as they both verify the same premise, in H' they are incomparable, as they each verify one premise but not the other (the fact that we can have both ties and incomparability is what makes the order we derive from premise sets a preorder: partial and non strict).

From what we’ve seen in this section we can conclude that the notion of coarseness, which we hypothesized is the distinctive feature of *magari*, cannot be defined on the basis of orders alone, because they lack a crucial amount of information (see however §1.A²⁰ for more elaboration on this point). While Kratzer (1981a, 1989)

²⁰What is discussed in §1.A is not particularly interesting in itself, but it puts us in a position to see more clearly how coarse modality, such as the one brought about by *magari*, relates to the notions that have been put forward in the literature on the basis of the order of possible worlds and, in particular, graded modality.

already argued that the “surplus information” encoded in premise sets is needed on empirical ground (mainly for the analysis of counterfactuals), coarseness is a novel type of argument in this spirit from the empirical domain of modal expressions.

1.3 Coarseness in context

The goal of this section is to understand why *magari* is in certain cases felicitous even though coarseness, the distinctive feature that teases it apart from other expressions of possibility, seems to be violated. One such case is (61): the speaker precedes the *magari p* statement with the assertion of what can be taken to be a reason to think that *p* is the case.

- (61) *La luce del suo ufficio è accesa, quindi magari è ancora qui.*
the light of her office is on thus MAGARI is still here
‘The light in her office is on, so *magari* she’s still here.’

The puzzle represented by this example becomes clearer if its acceptability is contrasted with (62). In (62a) we see again the basic hallmarks of *magari*’s antievidential character in the fact that the follow up question feels uncooperative. At the same time, the intuition behind (62b)’s acceptability is that pointing out that the light is on counts as providing evidence for the possibility under discussion. Taken together, these facts would lead us to expect (61) to be impossible.

- (62) a. A: Do you know where Ann is?
B: *Magari* she’s still here.
A: # What makes you think that?
b. A: Do you know where Ann is?
B: She might be still here.
A: What makes you think that?
B: The light in her office is on.

What seems to be falsified here is the very core of the empirical argument about *magari*, namely the antievidential condition, and not just the implementation through coarseness. Fortunately, the problem posed by cases like (61) is only apparent, and it goes away once we reason about the role a presupposition like coarseness plays in a conversation. We will do that in §1.3.2, but first some crucial assumptions about presuppositions have to be stated.

1.3.1 Coarseness as a presupposition

Coarseness was characterized in §1.2.2 as a presupposition, without argument. In the most general sense, this means the assertion *magari p* is only true or false at those worlds *w* that return a stereotypical ordering source and an epistemic modal base (of

the speaker²¹) that are coarse with respect to p .²² The central evidence for treating coarseness as non at issue comes from the critical data where *magari* is observed to render the assertion use-conditionally deviant. These are the cases collected in §1.1.2: a witness at trial who is venturing guesses, and Ann expressing the need to remedy a state of affairs that she presupposes has no reason to think is a possibility.

On the other hand, we have just seen that there are cases (and we will see more) in which the coarseness requirement is unmet under the most uncontroversial assumptions — and yet *magari p* denotes a proposition that is judged as true (in any case, not undefined). My answer to this is that there is really no issue at all, once we take an empirically more adequate view of the status of presuppositions in conversations.

Since the empirical picture that motivated the encoding of coarseness as a presupposition consists of utterances that are inappropriate or odd in particular conversational contexts, the natural starting point is to ask what effects things that have long been treated as presuppositions have on the appropriateness conditions of assertions — in an abstract sense, what the integration between the semantics of a speech act (which is where we located the existence of the coarseness requirement) and its pragmatics aspects is. An exhaustive answer to this question is of course impossible to attempt here, but even a very cursory overview of the issue will help.

A very influential view on the relation between the semantics and the pragmatics of assertion is represented by what’s sometimes referred to as Stalnaker’s Bridge Principle (Soames 1989: 581), and it relies on the fundamental notions of Common Ground of conversation (CG) and Context Set (CS) formalized in Stalnaker (1974, 1978). The CG of a conversation is the set of all propositions that all participants to that conversation mutually (and possibly implicitly) assume the others to believe as true. In a system in which propositions are modeled as sets of possible worlds (the system we have explicitly assumed throughout), we can derive the CS of a conversation as the grand intersection of all the propositions in the CG. Taken together, these notions allow for an elegant idealization of what a successful speech act of assertion is: the assertion of proposition p is pragmatically successful if all the worlds w such that $p(w) = 0$ are removed from the CS, and all the worlds u that are left in the CS are such that $p(u) = 1$. Successfully asserting p is thus offering information which updates the beliefs of all the participants in the conversation to the effect that their individual belief states now entail p .

However, if the proposition p in question comes with a presupposition, by definition, there exist possible worlds at which p is neither true nor false. This is where the Bridge Principle comes in, as a rule (or, according to von Stechow 2008: 139, as an “irreducible property of natural language pragmatics”) for determining whether any given proposition with a truth value gap constitutes a possible update of the context or not. A version of the Bridge Principle is given in (63).

²¹We have so far implicitly assumed that the modal background which *magari* takes as an argument is the one that represents the speaker’s knowledge. As already noted in footnote 7, this is a simplistic assumption for epistemic modals in general, and we shall soon see, for *magari* as well.

²²A static semantics that can express presupposition failure is usually one that either is enriched with a third truth value or has propositions as (potentially) partial functions from indices to the domain $\{1, 0\}$ of truth values. I take no position as to which approach is to be preferred here.

(63) The Bridge Principle:

A proposition p can update a context c only if for every world w in c , either $p(w) = 1$ or $p(w) = 0$ is the case.

The predictions of (63) are very strong, and in fact too strong if we adopted a simplistic view of conversation. To see that, let's consider the classic example of a presuppositional expression: definite descriptions, like *my neighbor* and *his daughter* in (64), are taken to presuppose—minimally—existence of a referent. It's no remarkable empirical discovery, however, that (64) can in fact be a felicitous utterance even if the other participants to the conversation have no idea who the speaker's neighbors are, let alone whether they have daughters or not. This is a quite clear, albeit apparent, violation of (63).

(64) My neighbor drove his daughter to school.

What occurs in a conversation in which we would wrongly expect the Bridge Principle to ban (64) is a well known and well studied process that goes under the name of (presupposition) accommodation (Lewis 1979). A working characterization of this process goes along the lines of: while conversing, it's natural and proper for cooperative listeners to silently update their beliefs in order to accept their interlocutors' assertions as a successful update of the common ground—and this, to quote Lewis (1979) himself, “*ceteris paribus* and within certain limits”. Applied to the case in (64), the process of accommodation would simply amount to tacitly accepting that the speaker has a neighbor who has a daughter.

The person who asserts (64) doesn't seem to be asking much. Imagine, on the other hand, what happens if a certain Matt utters (65) while speaking with his coworkers, who he has known for years—and imagine that in fact it was not common knowledge among the coworkers that he has a daughter.

(65) I have to drive my daughter to school.

With (65), Matt seems to be asking a bit more of his interlocutors. It's not cognitively hard for them to accommodate—updating their knowledge of their coworker's life to entail that he has a daughter—but they would certainly not be considered difficult interlocutors if they replied to (65) with something like *Hey, I had no idea you have kids!*²³ Such a reaction would have been less than run-of-the-mill if it was in response to (64), like *Hey, I had no idea you had a neighbor who has a daughter!* The difference between the two cases is obvious: the personal life of Matt's neighbor is not a subject matter knowledge of which can be said to define the property of “being acquainted with Matt”—a property that can safely be assumed to apply, to a certain extent, to Matt's coworkers. Whether he himself has a daughter or not, on the other hand, is something that his acquaintances are to a certain extent expected to know about.²⁴ The overly simple case illustrated by (64) and (65) is intended to

²³This reply is of course inspired by the “wait a minute” test to diagnose presupposed content (von Stechow 2008).

²⁴The obvious caveat is that of course Matt keeps details about his personal life secret to his coworkers, as we all do. But by the very act of asserting (65), Matt makes it clear that the existence of his daughter is not a matter he considers private enough to keep secret.

show that accommodation is a process whose application is a complicated business, mainly because it depends on so many non linguistic factors.

What we need to learn from this extremely brief discussion is that it's an undeniable fact about how people converse that sometime listeners have to update their beliefs in order for the context set to be updatable by an assertion which, had such accommodation not taken place, would not be defined across the context set. In the simplest case, such as the one exemplified by (64), this accommodation takes the form of restriction of one's belief state. The expectation is now that *magari* assertions too can be "saved" by means of accommodation.

1.3.2 Two routes to accommodation

Now, going back to coarseness. An important difference between the existence presupposition we have just considered and coarseness is that the latter is a presupposition about two objects, "the" stereotypical ordering source and someone's epistemic modal base, that are themselves quite abstract. While it's straightforward to reason about the application of Stalnaker's bridge when it comes to the existence of someone's daughter, when it comes to modal parameters we have a larger space of possibilities for accommodation and, as we will soon see, this has somewhat surprising consequences on how the coarseness requirement is complied with in natural discourse.

All the *magari* examples we have considered so far fall into the category of "bare" epistemic modal statements, meaning they lack any overt indication (e.g. through *in view of*-phrases) of whose information, and whose assumptions about what's normal and what isn't come into play in determining the domain of quantification of the epistemic modal. In the most general sense, thus, the modal parameters we have assumed are functions from possible worlds to sets of propositions — precisely as in Kratzer (1981b). Under this picture, a vanilla application of the bridge principle in (63) predicts *magari p* to be infelicitous if the context set includes a possible world *w* returning conversational backgrounds that are not coarse with respect to *p*. Suppose that this is the case: since coarseness is a predicate with two²⁵ world dependent arguments, there can be more than one reason why coarseness is not verified at a given possible world, which in turns entails that the avenues of accommodation are more than one.

At this point it's important to recognize a fundamental difference between the epistemic modal base and the stereotypical ordering source. The former, providing the information state the prejacent is asserted to be compatible with (or entailed by), is naturally "underdetermined", as the example (66) adapted from Kratzer (1986) shows.

- (66) FRED OR MARTIN. Ann and Beth are looking in the same direction, observing a person approaching, Ann is closer to the person than Beth. In view of Beth's evidence, the person might be Fred. In view of Ann's evidence, who is closer, the person cannot be Fred, but instead it must be Martin. *The person approaching...*

²⁵In principle, it's conceivable that some language has some expression lexicalizing coarseness of more than two modal parameters (in cases in which more than one ordering source is involved in the interpretation). This is however not the case of *magari*.

- a. ...might be Fred. (true if said by Beth)
- b. ...might be Fred. (false if said by Ann)
- c. ...cannot be Fred. (true if said by Ann)
- d. ...cannot be Fred. (false if said by Beth)

How precisely this type of underspecification is to be characterized from a semantic point of view is not the point here: what’s important about examples like (66) is that they make the case that bare epistemic claims lend themselves to a natural “flexibility” in interpretation²⁶ (to be as theory-neutral as possible) as to which person’s or which group of people’s knowledge is the one that matters (in other words, who the anchor of the epistemic statement is). Thus, the coarseness requirement inherits much of this flexibility: the example in (67), inspired by Egan et al. (2005: 10) makes this point.

- (67) CAR-1. Ann is planning a surprise party for Beth. The party will take place at Beth’s home, where her wife is now waiting for Ann to secretly come and set up the party. Unfortunately, Cora told Beth about it, and now they are having fun watching Ann approaching Beth’s house with a large supply of party hats. Then, as a car slowly drives through the street, they see Ann suddenly jumping into some nearby bushes, taking a picture of the car and seemingly texting someone. At that point, Cora asks Beth: *what do you think she’s doing?* Beth replies: *I wonder if she’s worried...*

perché magari quella è la mia macchina.
 because MAGARI that is the my car
 ‘because maybe that’s my car.’

The most natural interpretation of (67) is one in which Beth is asserting that a reason for Ann’s odd behavior is that for all Ann knows, that car might be Beth’s and even though she has no real reason to suspect that it is, she wants to avoid being spotted. The “solipsistic” modal base, the one that represents the speaker’s state of knowledge, is not the only option, else (67) would be at the very least odd (one is supposed to know what one’s car is).

Suppose that the modal base that is asserted to be compatible with the prejacent can be a different one from the one against which coarseness is checked. To the extent that this makes any sense, the variation on CAR-1 below shows that also for the modal base that *magari* presupposes to be coarse, there are resolutions other than the solipsistic one available:

- (68) CAR-2. Ann is planning a little prank on Beth, which consists on covering her car in shaving foam. Cora told Beth about the plan, and now they are having fun watching Ann approaching Beth’s house with a large supply of shaving foam. They observe Ann hiding behind a bush and taking a picture of the car parked in front of Beth’s home (which is in fact Beth’s car), and seemingly texting someone. At that point, Cora asks Beth: *what do you think she’s doing?* Beth replies: *I guess she’s double checking...*

²⁶Indeed, von Stechow and Gillies (2011) claim that bare epistemic statements are “ambiguous by design”.

perché magari quella non è la mia macchina.
 because MAGARI that is not the my car
 ‘because maybe that’s not my car.’

Now, coarseness in (68) cannot hold of Beth’s (the speaker’s) epistemic modal base and any possible ordering source, simply because in all of the worlds compatible with what Beth knows, that car is in fact her car and thus no subset of such domain will entail the opposite (the prejacent).

On the other hand, it’s not clear that we observe the same kind of flexibility when it comes to the ordering source. When it comes to the modal base, we are dealing with factual information: as such there is nothing surprising in finding out at w that the common ground of conversation is different, and informationally weaker, than all the information states that characterize what the participants of the conversation know or believe at w . In fact, the opposite would be surprising: after all, if the knowledge and beliefs of every participant of a conversation were the same, the model of conversation sketched at the beginning of this section would make no sense, as there would be nothing to assert (or even, to ask). The stereotypical ordering source, however, is inherently a different type of object: we don’t expect that every person we happen to converse with has different expectations of how the world looks like from a factual point of view. It can still be the case, of course, that in the same world what’s factually normal for one person is not normal for another,²⁷ but this is far from a virtual necessity — unlike when we are dealing with information states.

This creates a sort of asymmetry between the two modal parameters. Consider an abstract case of a listener L interpreting an assertion A of the form *magari* p uttered by speaker S , and suppose that L ’s epistemic state (B_L) and the stereotypical ordering source they assume (O_L) are not coarse with respect to p (that is, when coarseness has to be accommodated by L). Obeying a general pragmatic principle, L wants to be as charitable (or cooperative) as possible — in the sense that they are ready to accommodate as much as they can in order for the presupposition that $\text{coarse}(B_S, O_S, p)$ to be true. Since the default expectation in a natural conversation is that S ’s epistemic states differs from L ’s, L ’s first move toward accommodating coarseness is assuming that B_S is “poor enough” in information to be antievidential as to p . Let’s see a concrete example. If S utters (69), and the common ground entails that S was in the department at the relevant time, L , who assumes that S is a cooperative and truthful speaker, will understand that S doesn’t know, for instance, whether the light was on or not.

(69) *Magari* Ann was in her office.

L themselves may know that the light was on, but if they don’t know whether S does, they will be led by (69) to believe that they don’t (here’s the antievidential inference): this is because L considers the premises in (70) to be uncontroversial and relevant, and if S knew that the light was on, these two premises would be enough to falsify the coarseness condition of (69).

²⁷However, note that from this point of view not all stereotypical premises are the same. For example, we shouldn’t assume that all our interlocutors know about the correlation between sex and fur color in cats.

- (70) $p := \llbracket \text{If the light is on in an office, it's occupied} \rrbracket$
 $q := \llbracket (\forall x)\text{If an office with } x \text{ on its nameplate is occupied, } x \text{ is inside} \rrbracket$

L could in principle accommodate coarseness by adjusting their understanding of what S holds to be a normal course of events. For instance, they could choose to infer that according to S , the light in an office being on or not is in no relation with the office being currently occupied or not (from a point of view of factual normality), which means that they don't consider the premises in (70) to hold in a normal course of events. But this is quite irrational if compared to the alternative way of adjusting one's assumptions: L starts out by assuming that S 's view of what's factually normal is the same theirs, and adjusts their assumptions about S 's information state accordingly so that coarseness is satisfied — if they used *magari*, it must be because they don't know whether the light was on or not.

But when S cannot be assumed to be ignorant of some fact that would make coarseness fail, the pragmatic pressure to be a charitable listener forces L to operate differently. Consider again the problematic case with which we started this section. Crucially here, L cannot assume that S is ignorant about some evidence in favor of the possibility that Ann is in her office — S themselves asserted it.

- (61) *La luce del suo ufficio è accesa, quindi magari è ancora qui.*
 the light of her office is on thus MAGARI is still here
 'The light in her office is on, so magari she's still here.'

The only explanation for why the *magari* assertion in (61) ends up being felicitous is that it's interpreted against an ordering source that is restricted as to exclude the “offending” premise.²⁸ So, being charitable when faced with a *magari p* assertion involves the following steps: given the ordering source O that you can safely assume is the operative one, assume (compatibly with what's known about S 's knowledge on the basis of their public commitments) that B_S is deprived of information to a degree that guarantees B_S and O to be coarse with respect to p . If this “first best” route to accommodating coarseness is not viable, A is interpreted against a restricted O .

Crucially, this doesn't mean that the antievidential inference disappears completely in (61) or (71). Intuitively, the meaning contribution of connectives such as *so* or *thus* is to convey (presumably as a conventional implicature) that the content expressed by one proposition is in some sense an argument in favor of the truth of the other one. In (71), S recognizes that if Ann's car were in the driveway, they would not entertain the possibility that she's at work:

- (71) L : Where is Ann?

²⁸While the process as described may seem ad hoc, it's very similar to how contextual restriction is applied when interpreting quantified statements. Imagine that S and L are in a big lounge with quite a few people, and S asserts *Everyone is being so quiet*. If L wanted to be uncooperative and uncharitable, they would point out that S cannot know that every person in the world is being quiet at that moment. But of course, if they are cooperative and charitable, they try to “make” S 's assertion true, and interpret the domain of *everyone* as restricted to the people currently present in the lounge.

S: La sua macchina non è a casa, (quindi) magari è al lavoro.
 the her car not is at home so MAGARI is at work
 ‘Her car is not in the driveway, (so/thus) maybe she’s at work.’

Both these cases still feel like guesses: *S* in (71) is conveying that the car not being parked in front of the house is not really a good reason to suspect she’s at work of all places, and certainly they have no private knowledge that would lend credence to that hypothesis. Thus, *L*, who has moved to the second step of the recipe and restricted the ordering source accordingly, understands with (71) that besides what was already indicated, *S* has no evidence to offer in favor of the prejacent being the case. This is what the recipe predicts. Just like accommodation, in the most general sense, amounts to a silent restriction of the context set—before considering the update—to exclude those worlds where the presupposition in question is not satisfied, what’s going on with our problematic examples is a restriction of the stereotypical ordering source to exclude those premises that would cause coarseness to fail. When we can save coarseness by attributing the right amount of ignorance to the speaker, we do it—and full antievidentiality is inferred. When we cannot, either because the information to ignore is manifest in the conversation or because the speaker themselves asserted it, we restrict the ordering source.

The general availability of the latter strategy is what makes examples where *magari* is pragmatically beyond saving rather hard to find. The two cases that we have used to argue for antievidentiality in the first place, however, are exactly of this kind: for different reasons, they are cases in which no matter how hard one tries to save the felicity of the *magari* utterance, it’s the use of an expression that signals coarseness that conflicts with what’s expected of the speaker.

- (13) WITNESS-1. Ann is testifying at trial as an eyewitness. She’s supposed to tell the jury when she left home on a particular day.
- a. *Potevano essere le sette.*
 might.IMPERF be the seven
 ‘It might have been 7pm.’
 - c. # *Magari erano le sette.*
 MAGARI were.IMPERF the seven
 ‘Magari it was 7pm.’
- (20) BIKE. Beth enters Ann’s office and she finds her looking quite distressed. *Ann, what’s going on? Is everything OK?*
- a. *Potrebbero avermi rubato la bici.*
 they might have to me stolen the bike
 ‘They might have stolen my bike.’
 - c. # *Magari mi hanno rubato la bici.*
 MAGARI to me they have stolen the bike
 ‘Magari they stole my bike.’

The case of WITNESS-1 takes place in a pragmatically heavily regulated context. The witness is presumed to be the only one who might be in possession of relevant

knowledge: the antievidential inference itself makes their assertion infelicitous because they are supposed to only express possibilities that can be in some way substantiated. Could restriction on the ordering source “save” the witness’s *magari* assertion? Well, if the witness doesn’t provide any information that could count as evidence we don’t even know which premises to exclude, and all we can do is infer that they are guessing. In BIKE, what’s weird is simply that Ann seems to be acting irrationally: she’s signaling that she has no private knowledge that would support the belief the bike could have been stolen, and yet behaves as if she’s worried that the bike was stolen. As soon as Beth applies the first step of the recipe, she has to find this behavior bizarre.

The difference between the two contexts, however, is very instructive because it highlights the fact that even when the speaker offers some reason to think that $\diamond p$, if they follow up with *magari p* the antievidential inference persists. In a scenario like BIKE, (72) is not bizarre. If anything, Beth could react to (72) saying that, given that she doesn’t see the bike where it’s supposed to be, an epistemic *must* statement is licensed: *Well, then I think it must have been stolen in fact.*

- (72) *Non vedo più la mia bici dove credo di averla lasciata... magari*
 not I see more the my bike where I think of have it left MAGARI
me l’hanno rubata.
 to me they have it stolen
 ‘I don’t see my bike where I think I left it... *Magari* they stole it.’

The fact that (72) is not infelicitous is expected, as Ann’s behavior is not irrational anymore. But in WITNESS-1, *magari* assertions are not as easy to save: even if the speaker precedes them by offering some concrete reason to think that it was indeed 7pm, like in (73), the assertion is still infelicitous.

- (73) *Credo che io fossi tornato da poco dal lavoro... magari erano*
 I think that I was returned recently from work MAGARI were.IMPERF
le sette.
 the seven
 ‘I think I had just returned from work... *Magari* it was 7pm.’ (# in WITNESS-1)

Again, this is due to the fact that the witness’s speech is highly regulated. In ordinary conversations, there is nothing wrong in venturing guesses, like when Beth encourages Ann to try to win the strawberries. But in (73), just like in (71), the witness is indicating that besides the substantiation she offers (the fact that she thinks she had just come back from work), she still cannot do much better than guessing. In (73) just like in the original example (13), the natural reply of the person who is interrogating her would be: *what do you mean, “magari”? We are not interested in your guesses here.*

It’s no surprise that, having rooted the antievidential effect in some property defined of conversational backgrounds, a lot of pragmatics has to be taken into account when evaluating the analysis. Far from being a weakness, this is in fact an empirical strength of the account in terms of coarseness, because the phenomenology of *magari*’s antievidential effect is complex and above all very dependent on non strictly linguistic factors.

1.4 Conclusion

This chapter intended to make two contributions. The first is purely empirical: we started out seeking an answer to the question of how *magari* is different from other strategies of expressing epistemic possibility. Antievidentiality was recognized to be the key to the distinction, in itself a feature that has not been observed in the literature.

The second contribution is theoretical, and has to do with the nature of the antievidential character of *magari*. Antievidentiality arises from the assumptions that are made about a speaker’s information state given that such information state has to satisfy, together with what the context entails to be a factual description of the normal state of affairs in the world, the novel presuppositional constraint we dubbed coarseness. Since coarseness takes two, in principle independent, context sensitive arguments, there are two ways of accommodating it: one route leads to a pure antievidential inference, the other one leads to an inference that a certain state of affairs is not considered a compelling argument to believe the prejacent proposition is a possibility.

Finally, the way coarseness was defined made use of an independently motivated component of Kratzer’s (1981b) theory of modality in a novel way. This component, the ordering source, has traditionally been used to order the domain of quantification of modals expressions. But coarseness requires direct access to the ordering source since the order it imposes doesn’t encode enough information to ground the antievidential intuition.

At the very beginning, we mentioned that *magari* is notoriously polysemous on its face, so what’s left to do is to see what *magari* does in other configurations (i.e., when it’s not taking propositional scope in an assertion) and see how the analysis developed here fares when the other meaning contributions are under scrutiny. It turns out that rooting antievidentiality in a predicate like coarseness, which is not inherently epistemic, is the key to achieve a more general analysis of *magari* and related expressions. We will see this in the next chapters.

1.A Appendix: Orders and coarseness

Coarseness was defined in (39) on page 36 as a three place predicate, two arguments being sets of possible worlds, and one being a set of sets of possible worlds (the premise set). The goal of this short appendix is to explore what can be concluded about the order induced by the premise set H on a domain W if we know the value of $\text{coarse}(W, H, p)$, for any value of W, H, p . Since this question only addresses formal properties of premise sets and orders induced by them, we can abstract away from the modal background argument and use a working definition of coarseness like the one in (74), with \mathcal{W} being the set of all possible worlds (assumed to be finite for simplicity²⁹). In the rest of this section, whenever the word “coarse” is used, it’s meant as defined in (74).

$$(74) \quad \text{coarse}' := \lambda o. \lambda p. \text{coarse}(\mathcal{W}, o, p) \qquad \text{coarse as defined in (39)}$$

²⁹This simplification also entails the Limit Assumption.

We already know that for any given preorder \preceq_i on \mathcal{W} , there is more than one premise set H that induces it (i.e., such that $H \triangleright \preceq_i$). With $\lceil \mathbb{H}_{\preceq_i} \rceil$ being the set of premise sets that induce the preorder \preceq_i , the question we address here is (76).

$$(75) \quad \mathbb{H}_{\preceq_i} := \{H \mid H \triangleright \preceq_i\}$$

(76) For any preorder \preceq_i and proposition p , are there properties of \preceq_i that allow us to tell whether all, some or no H in \mathbb{H}_{\preceq_i} is such that $\text{coarse}'(H, p)$?

Let $\text{max}(\preceq_i)$ be the set $\{w \in \mathcal{W} \mid \neg \exists u \in \mathcal{W} : u \prec_i w\}$.³⁰ It's easy to see that the answer to (76) is in three cases, and all we need to know about the order \preceq_i is the relation between the set $\text{max}(\preceq_i)$ and the proposition against which coarseness is checked:

(77) For any preorder \preceq_i and proposition p :

- a. $\text{max}(\preceq_i) \subseteq p \iff \neg \exists H \in \mathbb{H}_{\preceq_i} : \text{coarse}'(H, p)$
- b. $\text{max}(\preceq_i) \cap p = \emptyset \iff \forall H \in \mathbb{H}_{\preceq_i} : \text{coarse}'(H, p)$
- c. else $\iff \exists H, H' \in \mathbb{H}_{\preceq_i} : \text{coarse}'(H, p) \wedge \neg \text{coarse}'(H', p)$

Before showing why (77) is the case, let's establish some convenient notions that will make what follows simpler to present. Two premise sets are equivalent if and only if they induce the same preorder on \mathcal{W} . With $\lceil H_w \rceil$ we indicate the set of premises in H verified by world w . For any premise set H and its closure under intersection H^\cap , we have that H is equivalent to H^\cap (using the closure under intersection will make thinking about coarseness easier).

$$(78) \quad H^\cap := \{p \mid \exists H' [H' \subseteq H \wedge p = \bigcap H']\}$$

It's easy to see that in fact H and H^\cap are equivalent for any value of H . Suppose they are not. Then, we would have that $u \prec_H w$ and $w \preceq_{H^\cap} u$ for some u and w . From $u \prec_H w$ we know that $H_w \subset H_u$. First suppose that $w \prec_{H^\cap} u$, that is, there is a premise q' such that $q' \in H^\cap \wedge q' \notin H \wedge w \in q' \wedge u \notin q'$. Let q' be the intersection of two $s, s' \in H$. From these facts we conclude that $w \in s \wedge u \notin s \wedge s \in H$, which contradicts $H_w \subset H_u$. Now suppose instead that $w \approx_{H^\cap} u$ because $H_w^\cap = H_u^\cap$: this is impossible because $H \subseteq H^\cap$, and so whatever premises guarantee that $u \prec_H w$, will falsify the equivalence $H_w^\cap = H_u^\cap$. Finally, suppose that $w \approx_{H^\cap} u$ because they are incomparable ($H_w^\cap \setminus H_u^\cap \neq \emptyset$ and $H_u^\cap \setminus H_w^\cap \neq \emptyset$). It suffices to see that $H_w^\cap \setminus H_u^\cap \neq \emptyset$ contradicts the starting assumption that $u \prec_H w$: the premise in H^\cap verified by w and not u being q , q has to be the intersection of a q' and q'' included in H , both verified by w . But since $u \prec_H w$, u must verify both and q as well. Since for every premise set H we have that H and H^\cap are equivalent, we have that $\text{coarse}'(H, p) \iff \neg \exists q : q \in H^\cap \wedge q \subseteq p$.

Now, back to the question in (76). We will first demonstrate the first case (77a). Suppose there exists a premise set H and a proposition p , such that $\text{max}(\preceq_H) \subseteq p$. Let w be a world in $\text{max}(\preceq_H)$: by definition, there exists a premise q in H that is verified only by worlds in $\text{max}(\preceq_H)$. That is, $q \subseteq \text{max}(\preceq_H)$ and, given that the relation

³⁰Given a preorder O , we have as notational convenience the relations $\preceq_O, \prec_O, \approx_O$ as defined in (30) on page 30.

of subsethood is transitive, we also have that $q \subseteq p$, which amounts to $\text{coarse}'(H, p)$ being false.

Now we move to the second case (77b). Suppose what is said in (77b) is false: we have a premise set H and a proposition p such that $\max(\preceq_H) \cap p = \emptyset$, and H is not coarse with respect to p . That means that there is a premise q included in H^\cap such that $q \subseteq p$. By definition, we have that either all or some but not all worlds in $\max(\preceq_H)$ verify q ($\max(\preceq_H) \cap q \neq \emptyset$), and since $q \subseteq p$ is the case, the antecedent of (77b) is false and we have reached a contradiction.

Now to the last case: for any proposition p , if only some of the worlds in $\max(\preceq_H)$ verify p , H could be either coarse or not with respect to p . A general recipe that takes a preorder \preceq and generates an H such that $H \triangleright \preceq$ was already given above on page 35, and is reformulated here:

$$(79) \quad \forall \preceq: \{\{w \mid w \preceq u\} \mid u \in \mathcal{W}\} \triangleright \preceq$$

This recipe takes an order \preceq_i and returns a premise set that is coarse with respect to p , as long as, of course, $\max(\preceq_H)$ is not itself a subset of p . The crucial point is precisely this: there are worlds u and w in $\max(\preceq_H)$ such that $u \approx_H w \wedge u \notin p \wedge w \in p$. Let H be a premise set obtained through the recipe in (79): it will thus be such that every premise in it, and in H^\cap , will include u , thereby guaranteeing coarseness of H with respect to p . Now, the premise set in (80) is equivalent to H but is not coarse with respect to p :

$$(80) \quad H \cup \{\{w\} \mid w \in \max(\preceq_H)\}$$

From all this, a final trivial conclusion can be drawn for the case of “degenerate” orders \preceq_i such that $\max(\preceq_i) = \mathcal{W}$. All premise sets in \mathbb{H}_{\preceq_i} are coarse with respect to p if p is the contradiction (\emptyset), and not coarse with respect to p if p is the tautology (\mathcal{W}). If instead p is contingent, \mathbb{H}_{\preceq_i} will contain premise sets that are and premise sets that are not coarse with respect to p .

For one thing, we can re-examine Ippolito’s hypothesis that *magari* p requires p to be on the lower end of a scale of likelihood. She did not implement this notion in terms of comparative likelihood between possible worlds, also because the crucial notion in her analysis is likelihood of the prejacent compared with contextually salient alternative propositions. Nevertheless, if we take Kratzer’s notion of graded modality, we see that any non-trivial ordering source H (meaning, a source H such that $w \prec_H u$ for some worlds w and u) that is also coarse with respect to p will induce an order such that p cannot be a good possibility with respect to H and W :

$$(37) \quad \text{A proposition } p \text{ is a good possibility with respect to a modal background } b \text{ and an ordering source } o \text{ iff } \exists w \in b \forall w' \in b : w' \preceq_o w \rightarrow w' \in p.$$

Thus, an ordering source that is coarse with respect to p will necessarily have a non- p world among the best ones: accepting *magari* p relative to some conversational backgrounds entails that p is a weaker possibility than a “good” one.

1.B Appendix: Optative *magari* in exclamatives

It was briefly mentioned on page 15 that the “etymological” meaning of *magari* is bouletic, as it entered the Italian lexicon as a loan from Byzantine Greek ‘μακάρι/*makári*’, whose modern Greek reflex *makari* invariably contributes a bouletic meaning.³¹ When applied to clauses containing the particle *na*,³² *makari* expresses a desire on the part of the speaker, which is either attainable or not depending on whether the preajacent proposition is expressed through O- or X-marking (von Fintel and Iatridou 2023):

- (81) a. *Makari na ine eki tora.*
MAKARI PRT is(O) there now
‘I want him/her to be there now.’
b. *Makari na itan eki tora.*
MAKARI PRT was(X) there now
‘I wish he/she was there now.’

Neither the epistemic meaning nor the exemplificational one discussed in Chapter 2 are present in modern Greek. How these meanings were acquired in Italian is a question I have no answer to; something that cannot be ignored, however, is that Italian *magari* does retain a use in which its contribution is bouletic, along the lines of (81b).³³ It turns out, in fact, that this bouletic, or optative (as is characterized by Grosz 2012 and D’Antuono 2020), use of *magari* is often the first one to be listed in a dictionary entry, and it’s exemplified in (2), repeated below.

- (2) (example 515 in Grosz 2012: 214)
Magari Maria avesse ascoltato Gianni!
MAGARI Maria had listened to Gianni
‘{I wish/If only} Maria had listened to Gianni!’

Can this use of *magari* and the epistemic one be given a unified analysis? If the answer is yes, then the most straightforward unification would amount to a very shallow one: *magari* would be a modal expression that is underspecified along two axes (flavor and quantificational force), but such that only two of the four logically possible combinations are possible (existential force and epistemic flavor, universal force and bouletic flavor). Besides being very much not insightful, a unification like

³¹I thank Sabine Iatridou, Irini Amanaki and Anastasia Tsilia for personal communication on this.

³²See Iatridou (2014) for a quite detailed investigation of the *na*-construction beyond its use as a preajacent of *makari*.

³³None of the other languages that have borrowed from Greek *makári* have, to the best of my knowledge, innovated along the lines of Italian. A potentially non exhaustive list of languages that have borrowed this expression from Greek comprises Bulgarian *makar* ‘although’ (Roumyana Pancheva, p.c.), Romanian *măcar* ‘even’ (Donca Steriade, p.c.), Serbian/Croatian *makar* ‘at least’ and Slovenian *magari* ‘at least/even’ (Crnič 2011), Old Spanish *maguer* (*que*) ‘although’ and Occitan (Grosz 2012: 290–291). At least Old Spanish, Romanian and Serbian also retain an optative use too. For more discussion of this rich crosslinguistic picture, and of the relation between optativity and *at least* meaning, see Grosz (2012: 149–151, 290–313) and references therein.

this leaves many issues unaddressed. Among them we have the question of whether any residue of coarse epistemic possibility is detectable in this bouletic meaning (if it isn't, then we ought to be suspicious of this unification), and the question of whether both meanings are available in all configurations in which they would both be sensible from a semantic point of view (if they aren't, the unification become untenable)—in other words, whether we ever have genuine ambiguity between the two meanings. Since the answer to both these questions is no, I will conclude that no unification is viable.

The first thing to point out is that there is no trace of a bouletic meaning in the epistemic use and, conversely, no trace of epistemic uncertainty in the optative one. The former point should be clear from the discussion throughout Chapter 1, but to confirm it we can observe that both continuations in (82) are sensible. In the epistemic use, *magari p* conveys nothing about the desirability of *p*.

- (82) *Non so chi ha vinto; spero che abbia vinto Anna...*
 not I know who has won I hope that has won Ann
 'I don't know who won; I hope Ann did...'
 a. *e magari ha vinto!*
 and MAGARI has won
 'and maybe she did!'
 b. *ma magari ha perso.*
 but MAGARI has lost
 'but maybe she lost.'

On the other hand, expressions like the one in (2) are, using Grosz's (2012) terminology, counterfactual/subjunctive optatives. From a morphological point of view, optative *magari* requires X-marking (the same morphological marking, past subjunctive, that is found among others in the antecedent of counterfactual conditionals). And just like with X-marked conditionals, we have counterfactuality and Future Less Vivid (Iatridou 2000; von Stechow and Iatridou 2023) depending on the temporal orientation. Uttering (83a) or (83b) commits the speaker to believing that Ann did not move to Rome and is not presently in Rome respectively (whether that is in fact presupposed is hard to tell since, as we will point out later, *magari*-optatives are not embeddable). On the other hand, (83c) has the hallmarks of Future Less Vivid, as it conveys that the outcome the speaker longs for, Ann coming to Rome, is somewhat less expected than its polar opposite.

- (83) a. *Magari Anna si fosse trasferita a Roma!*
 MAGARI Ann herself was(X) moved to Rome
 'If only Ann had moved to Rome!'
 b. *Magari Anna fosse a Roma (oggi)!*
 MAGARI Ann was(X) to Rome today
 'If only Ann was in Rome (today)!'

- c. *Magari Anna venisse a Roma la settimana prossima!*
 MAGARI Ann came(X) to Rome the week next
 ‘If only Ann came to Rome next week!’

What matters here is that when the optative is about settled facts (that is, not future oriented) we don’t have any trace of epistemic uncertainty on the part of the speaker or anyone else. It really just is *if only*.

Finally, we come to the issue of whether *magari* is ever ambiguous between the familiar epistemic use and the optative one. The answer is no, simply because optative *magari*-clauses are exclamatives and, as is prototypical for optatives, “have the distribution of unembedded utterances but the morphosyntax of an embedded clause” (Grosz 2012: 6). Minimally, this means that optative *magari* can never be embedded. When used as a fragment answer, the optative meaning is strongly preferred but it only comes about with a particular prosodic contour; if the intonation is falling, the interpretation is again epistemic. While I cannot offer a more precise phonological description of the contrast in (84), I take it to show that the two unambiguous answers are fragments of two clauses of different type.

- (84) Did Ann buy the car?
 a. Magari! --> *If only she did!*
 b. Magari... --> *Maybe she did*

Optative *magari* constitutes an interesting case study, especially from a diachronic and crosslinguistic point of view, but I don’t see what strong argument could be made against just assuming that *magari* in modern Italian is simply ambiguous between the “etymological” meaning that contributes optativity in exclamatives, and another meaning developed in Italian which is the main focus of the present dissertation. So far, the latter was spelled out as a special type of epistemic modal, but that analysis will be substantially revised in chapter §2.1 (where *magari* is taken to be a modifier of modal expressions that introduces a disjunction at LF). In this case, positing ambiguity seems to me to be a justified course of action, especially since none of the languages that have borrowed the same lexical item from Greek (listed in footnote 33) is similar to Italian in terms of the range of meanings that item displays.³⁴

D’Antuono (2020), starting from the optative use — whose analysis he grounds in Grosz’s (2012) account of optativity — claims that the meaning in (85) constitutes a general analysis for *magari* in all its uses (not only the epistemic one, but the imperative one that is discussed in §2.4 as well). What (85) is meant to express, I think, is that *magari p* is felicitous only if some salient proposition other than *p* is true and *p* is above a certain contextually supplied threshold on a scale against which *magari* is interpreted (the desirability scale is central to Grosz’s account of optativity, and D’Antuono intends to generalize this notion).

- (85) (verbatim from D’Antuono 2020: 82)

³⁴If there were another language that, independently from Italian, borrowed from Greek *makari* and then developed the antievidential epistemic and the exemplificational meanings (discussed in Chapter 2), then of course we should dismiss the ambiguity hypothesis and strive to come up with a unified analysis.

Given a proposition p , a scale S and a context c
[[magari]] is defined iff
 $\exists q \in C[q \neq p \wedge q = 1] \wedge \forall q[\text{THRESHOLD}(c) >_S q \rightarrow p >_S q]$

I am not sure that (85) delivers what it intends to deliver, but surely it cannot explain the most basic empirical points that inspired the analysis in Chapter 1.

Chapter 2

Parasitic Coarseness

In order to motivate the novel constraint of coarseness, Chapter 1 kept the investigation of *magari* on very narrow empirical grounds: not only limiting the data to declarative clauses, but neglecting all issues of scope (that is, pretending that *magari* only really takes scope over the entire prejacent proposition). Such narrow focus allowed us to maintain a very simple hypothesis that *magari* has the meaning in (1), nothing more than an epistemic possibility modal, similar to the verbal modals like *might*, but one that presupposes coarseness. This chapter, while still mostly limited to declarative clauses, attempts to widen the empirical picture, encompassing cases in which *magari* interacts with other clausemate intensional operators in a way that is simply not possible to capture with the assumptions made so far.

$$(1) \quad \llbracket \text{magari} \rrbracket^w := \lambda b. \lambda o. \lambda p : \text{coarse}(b_w, o_w, p). b_w \cap p \neq \emptyset$$

This chapter is divided in three parts. In §2.1, we will start by first examining the scope-taking properties of *magari* under the pretense that Chapter 1’s analysis is the final word on the matter—observing the exemplificational contribution of embedded *magari* will lead us to the conclusion that *magari* itself only modifies other modal expressions: the coarseness condition is enforced parasitically on the conversational backgrounds that are associated with independently occurring modal expressions. Section 2.2 advances a different analysis that retains coarseness as a central ingredient but associates the assertive contribution of *magari* to disjunction and derives the exemplificational meaning as a scalar implicature. In §2.3 we will go back to the data analyzed in Chapter 1 to see how they could be squared with our newly developed understanding of *magari*. Finally, in §2.4 yet another domain where *magari* is found, namely imperative clauses, is used as a testing ground for the analysis, leaving us with some answers and many questions.

2.1 The exemplification reading

In this section we will expand upon Chapter 1’s empirical coverage, and in particular we will observe how *magari* loses its epistemic flavor when it’s in the scope of intensional

predicates. The meaning it contributes is “exemplificational”, and by the end of this section we will have explored a characterization of this meaning that leverages coarseness but also will require some important revisions of the denotation that was proposed for *magari* in Chapter 1. What we will have accomplished is little more than a description of the problem however, and the account this section builds up to will be abandoned in §2.2.

It’s well known that sentences like (2) are ambiguous between two readings: a specific reading, that entails that there exists a student who happens to speak German (and Ann is looking for them), and a non specific one, which doesn’t entail the existence of any student who speaks German.¹

- (2) *Anna vuole avere uno studente che parla tedesco.*
 Ann wants to have a student that speaks German
 ‘Ann wants to get a student who speaks German.’

Having established this, consider (3), which is the result of adding *magari* in the restrictive relative clause: the question is, of course, how (3) and (2) are different.²

- (3) *Anna vuole avere uno studente che magari parla tedesco.*
 Ann wants to have a student that *MAGARI* speaks German
 ‘Ann wants to get a student who *magari* speaks German.’

If we were to guess an answer to this question based on what we have learned about *magari* in Chapter 1, we would say that (3) is roughly equivalent to (4) below, with the addition of the antievidential inference³ originating from the coarseness requirement baked into *magari*.

- (4) Ann wants to get a student who might speak German.

The specific reading is somewhat more intuitive in the case of (4), but the non specific one is available too. Imagine that Ann wants to test her skills in detecting

¹The verb in the relative clause in (2) is in the indicative mood. It has been known at least since Quine (1956) that in Romance the choice of mood (indicative vs. subjunctive) in relative clauses in the scope of intensional predicates can affect the availability of the specific reading. While Quine’s remark was about Spanish, this fact holds of Italian as well (see e.g. Beghelli 1998). Without going too much into detail (and with no claims of generality), the important observation is that the indicative mood is compatible with either reading, whereas the subjunctive version below only allows for a non specific reading:

- (i) *Anna vuole avere uno studente che parli tedesco.*
 Ann wants to have a student that speaks.SUBJ German
 ‘Ann wants to get a student who speaks German.’

²The choice of mood in the relative clause in (3) doesn’t affect the acceptability of *magari*: as remarked in footnote 1, it only forces the unspecific reading of the nominal and thus, in the case of (3), the exemplificational meaning.

³The antievidential inference, in the case at hand, would presumably amount to this: the individuals that verify the predicate denoted by the relative clause *who magari speaks German* might be German speakers, but there is no evidence available to the relevant anchor in the conversational context that supports that possibility.

accents (in particular, the accent of someone whose native language is German), and for that reason she's looking for a student who possibly speaks German. In this case, who Ann is looking for is precisely a person such that the property of speaking German might apply and might not apply.

The important fact to remark is that only under the specific readings of (3) and (4), *magari*'s and *might*'s contributions are largely⁴ equivalent. The non specific reading of (3), paraphrased in (6), has no detectable epistemic component. Scenario V2 is one in which (3) is judged true on its non specific reading (the one we will focus on henceforth).

- (5) V2. Ann is working on V2 and wants to test a conjecture she just came up with. In order to test it, she needs a native speaker of a language that has V2 (German is one). She thus hopes that her next student speaks a V2 language.
- (6) Paraphrase of (3), non specific reading: *Any student who speaks German would be one of several types of people such that if Ann got them, she'd be satisfied.*

Much in the same pre-theoretic spirit behind the label “antievidential(ity)” adopted in Chapter 1, let's call (6) the exemplificational reading: German speaking is an example of one among potentially many alternatives that would satisfy Ann's quest. Two questions arise at this point: how does *magari* bring about the exemplificational reading and how is this reading tied to the non specific construal of the quantificational phrase *magari* is embedded under. A first conjecture could be that the exemplificational meaning generally comes about when epistemic modality interpreted in the scope of an intensional verb is expressed through sentence adverbials, as opposed to verbal modality as is the case in (4). This hypothesis is however readily falsified by the fact that neither sentence in (7) is paraphrasable with (6), while both are compatible with the epistemic non specific reading that is also available in the case of (4).

- (7) a. Ann wants to get a student who perhaps/maybe speaks German.
- b. *Anna vuole uno studente che forse parla tedesco.*
Ann wants a student that perhaps speaks German
'Ann wants to get a student who perhaps speaks German.'

Furthermore, the exemplificational reading is not restricted to *volere* 'want' plus *magari*: the examples in (8), under the non-vs-specific reading, are characterizable in terms of the paraphrase in (6), modulo the differences in meaning between *want*, *need* and *looking for*.

- (8) a. *Anna ha bisogno di uno studente che magari parla tedesco.*
Ann has need of a student that MAGARI speaks German
'Ann needs a student who *magari* speaks German.'
- b. *Anna cerca uno studente che magari parla tedesco.*
Ann looks for a student that MAGARI speaks German
'Ann is looking for a student who *magari* speaks German.'

⁴That is, they are equivalent modulo the antievidential character associated with *magari* that was the focus of the discussion in Chapter 1.

In other words, the culprit is *magari* and ideally we will be able to explain the exemplificational reading and its distribution by leveraging on what we already know is special about *magari*: we are back to coarseness. Is “exemplification through coarseness” a tenable analytical aim? Before arguing in favor of an affirmative answer to this question, we need to understand what role *magari* could even play in examples like (3), and in order to do that we need to be clear on the meaning for *want*.

Heim (1992) makes the case that desire ascriptions (such as those expressed through *want*) predicate some relation between the prejacent proposition and the attitude holder’s doxastic state (i.e., the set of worlds compatible with what they believe at the world of evaluation). Since I am not going to adopt Heim’s (1992) actual analysis of desire ascriptions, I will not present it here, limiting the discussion to the argument she offers in favor of a semantics according to which desire is, so to say, “rooted in” the beliefs of the attitude holder. That argument is based on the different patterns of projection observed when presuppositional expressions are embedded under attitude predicates. In the case of doxastic predicates like *think*, we observe that the existence presupposition associated with a definite like *her cello* in (9) can be interpreted as projecting globally (into the context set), or be accommodated in the scope of the attitude predicate. The latter reading, which is perhaps the less prominent of the two, is forced by having (9) preceded by something like *Ann wrongly believes she has a cello*.

(9) Ann thinks her cello is in the basement.

Now, local accommodation in the case of (10) would mean that the fact that Ann owns a cello has to hold across all the worlds that comply with Ann’s desires (her bouletic state). Under this interpretation, (10) would be sensible even if Ann doesn’t own any cello and Ann doesn’t believe she does. But besides this reading, and the obvious one where the presupposition projects globally, we have a third reading— one that holds true in a scenario where Ann doesn’t own a cello but wrongly believes that she does. These two readings are made explicit in (10a) and (10b) respectively.

(10) Ann wants to paint her cello.

- a. Ann wants to own a cello, and she wants to paint her cello.
- b. Ann thinks she owns a cello, and she wants to paint her cello.

Note furthermore that under the intermediate projection interpretation in (10b), the ascription entails neither that Ann owns a cello, of course, nor that owning one is a desire of hers. This example thus shows that there is doxastic component (indexed to the attitude holder) in desire ascriptions, because presuppositions triggered in the scope of *want* can project exclusively in this doxastic state. A simpler argument for this conclusion is the that (11) is true even if what I really want is not to teach at all next semester: intuitively, (11) says that teaching on Tuesdays and Thursdays is the option that best complies with my desires given the choices I have or, in other words, given what I consider possible (and not teaching at all is not an option I have).

(11) (from Heim 1992: 195)

I want to teach Tuesdays and Thursdays next semester.

At this point, we are in a situation that is somewhat reminiscent of Kratzer’s (1981b) analysis of modals: we need to individuate a subset of a domain of possible worlds that is made out of those worlds that are most ideal given a set of possibly inconsistent requirements (the attitude holder’s desires). This analogy is what led von Fintel (1999) to the proposal that *want* (among other attitude verbs) has precisely “Kratzer-style semantics”: it asserts that all the worlds that x deems possible and are best according x ’s bouletic ordering source entail the prejacent (i.e. the proposition that *want* takes as a complement).

If this were the whole story, however, we would make a series of wrong predictions (Heim 1992; von Fintel 1999): one the one hand, that ascribing belief in p to x entails ascribing desire in p to x , on the other, ascribing belief in *not* p entails ascribing desire in *not* p . That is, we would predict that everything we think is the case is also wanted, and everything we think is not the case is also not wanted. For this reason, *want* has to be undefined just in case the attitude holder’s doxastic state either entails the prejacent or is incompatible with it: this type of requirement, given in (12), has come to be known as “diversity condition”.⁵ Finally, (13) is a version of von Fintel’s (1999) denotation of *want*: a universal modal that is interpreted against a doxastic modal base and a bouletic ordering source, both indexed to the attitude holder.

$$(12) \quad \text{div} := \lambda w. \lambda x. \lambda p. \text{Dox}(w, x) \not\subseteq p \wedge \text{Dox}(w, x) \cap p \neq \emptyset$$

$$(13) \quad \llbracket \text{want} \rrbracket^w := \lambda p. \lambda x : \text{div}(w, x, p). \text{Best}(\text{Dox}(w, x), \text{Boul}(w, x)) \subseteq p$$

An interesting aspect of (13) is that it inherits from its Kratzerian inspiration a certain characteristic underspecification of meaning that allows it to be extended to other attitude verbs. For example, since we mentioned *need* and *look for* in (8), it’s easy to see that we can sketch meaning for these attitudes if we start by taking (13) and replace the bouletic ordering source with some others. For instance, an ordering source whose premises describe how the world would look like if the attitude holder has it their way could be the one that is operative in the interpretation of *look for*.⁶

Now, given (13), what would a coarse desire amount to? The definition of coarseness is repeated below: a predicate that holds of a modal background, an ordering source and a proposition if and only if no subset of the ordering source selects a set of best worlds from the modal background that entails the propositions.

⁵The name comes from Condoravdi (2002), who proposed a similar requirement in the analysis of temporal orientation of root modals. Felicitous uses of *want* that violate the diversity condition exist. What’s more concerning is that there exist violations in both directions, so to say: (i) can be true and felicitous without committing the speaker to the belief that eternal weekends are a possibility, just like (ii) can be true and felicitous without the speaker committing themselves to uncertainty as to where they live.

(i) I want this weekend to last forever. (Heim 1992: 199)

(ii) I live in Bolivia because I want to live in Bolivia. (Iatridou 2000: 243)

I don’t have anything to say about these cases.

⁶Assuming, for example, a very traditional decomposition of *look for* into intensional *try* and extensional *find* (Montague 1969).

(14) $\text{coarse} := \lambda b. \lambda o. \lambda p. \neg \exists o' : o' \subseteq o \wedge \text{Best}(b, o') \subseteq p$

If such requirement holds of a doxastic modal background and a bouletic ordering source, it just means that no desire entails the prejacent: no desire of Ann’s in the original example (3) entails that she ends up getting a student who speaks German. This is certainly true in the exemplificational reading (her desire is less “specific” than that — she wants a student who speaks a V2 language): this is perhaps a promising sign, but we cannot get to the exemplificational reading through coarseness alone. The fundamental problem is that, as was already pointed out in §1.2.2, coarseness contradicts the universal force. If the set of bouletically best worlds in Ann’s doxastic state entails p , it cannot also be that no subset of the bouletic ordering source selects a set of best worlds that entails p . We ought to take this as evidence for the fact that *magari* in the exemplificational “use” (but, as we will see, possibly in general) does more than just imposing coarseness and in fact weakens the modal that it’s in the scope of.

2.1.1 Weakening

Recall what we have seen so far: when *magari* is interpreted in the scope of some intensional verb such as *want* in (3) under its non specific reading, it contributes an exemplificational meaning.

- (3) *Anna vuole avere uno studente che magari parla tedesco.*
 Ann wants to have a student that MAGARI speaks German
 ‘Ann wants to get a student who *magari* speaks German.’

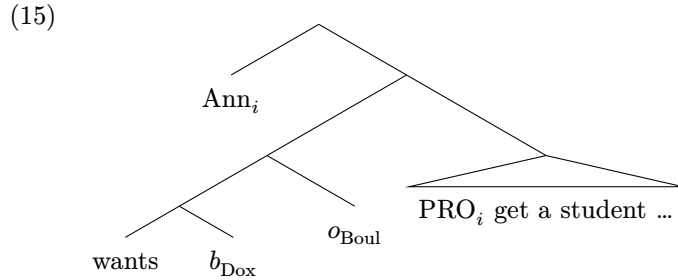
Propositional attitudes like *want* have independently been argued to have a denotation that is similar to the one of the Kratzerian doubly relative modals (von Stechow 1999). This suggests that coarseness, *magari*’s characteristic feature, may be involved in the derivation of the exemplificational reading of sentences like (3), but for this to have any chance of working, we’d have to weaken the quantificational force of verbs like *want*, *need* and the like,⁷ as universal force itself trivially conflicts with coarseness.

⁷It’s important to remark here that Staniszewski (2019, 2022) argues that predicates like *want* are semantically weak (i.e. with existential force) to begin with and, lacking a universal scalar alternative, they are strengthened as a result of exhaustification (see among others Fox 2007; Bar-Lev and Fox 2017). Some of the evidence for the underlying weakness of *want* comes from sentences like (i). Under (i)’s most salient reading, *no longer* triggers the presupposition that at some point in the past Ann was ok with being made fun of, not that she actually wanted to be made fun of (this “being ok with” is meant to approximate the underlying weak meaning of *want*). I don’t dispute Staniszewski’s argument, but the issue here is that the same diagnostics rule out such weak underlying meaning, for example, in the case of *need*: (ii) clearly presupposes that Ann used to need to be made fun of.

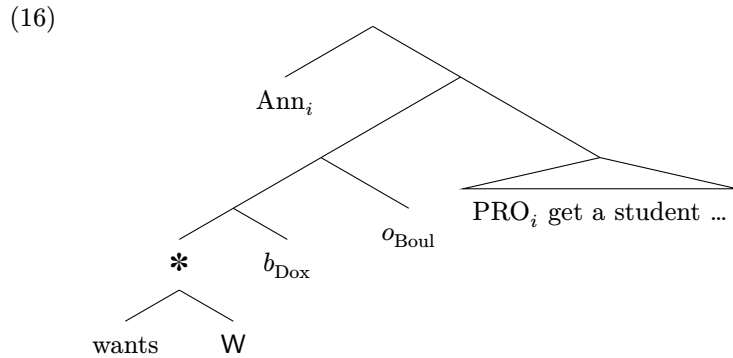
- (i) Ann no longer wants to be made fun of.
 (ii) Ann no longer needs to be made fun of.

Since *magari* contributes the exemplificational meaning even when it’s in the scope of a clearly universal predicate like *need* I will maintain that the weak quantificational force associated with the exemplificational reading is not due to underlying weakness of the modal in question.

Now, suppose that the schematic LF for *Ann wants to get a student who speaks German* is like the one in (15). The first two arguments of *want* (the modal base and the ordering source) are world dependent “conversational background” pronouns, whose value is given by the assignment function taken to be a parameter of the interpretation function.⁸ Let’s assume the general framework (in particular, the rules of composition) of Heim and Kratzer (1998), and that the subject of the infinitive clause is a covert pronoun guaranteed on syntactic grounds to be bound by the subject of *want* (in this case, referring to Ann).



Now, the simplest way to define an expression (call it *W*) that modifies *want* weakening its quantificational force is to let it take take scope between *want* and its arguments: it will return a new attitude predicate, “*W want*” whose return value is an existential statement that asserts that there exists a subset of b_{Dox} which along with all other arguments, verifies *want*. A partial representation of the resulting LF is in (16).



(17) $\llbracket * \rrbracket^w := \lambda b. \lambda o. \lambda p. \lambda x. \exists b' : b' \subseteq b \wedge \llbracket \text{want} \rrbracket^w(b', o, p, x)$

⁸The fact that the two pronouns, in the case of (15), must be a doxastic modal base and a bouletic ordering source is arguably to be understood as a selection requirement lexically encoded in *want*. The fact that they are indexed to the attitude holder (the last argument of *want*), however, should probably not be encoded this way, since there are so called “advisory” (Jerzak 2019) uses of *want*, such as (i), in which the attitude is interpreted against a modal base and an ordering source that represent two different people’s beliefs and desires respectively.

- (i) (You don’t know it), but you want to order the onion soup.

If we want the embedded *magari* to impose coarseness on *want*'s modal parameters, it too should take scope between *want* and its first argument. At this point, we may very well think that *magari* itself takes as its own argument *want* and its arguments, so that we have (18) taking scope where *W* does in (16).⁹

(18) (to be revised)

$$\llbracket \text{magari} \rrbracket^w := \lambda m. \lambda b. \lambda o. \lambda p. \lambda x : \text{coarse}(b, o, p). \exists b' \subseteq b[m(b', o, p, x)]$$

The *want* that results from modification by (18) is one that denotes an coarse attitude of “being ok” with the prejacent *p*: some desire-worlds are *p*, but no desire is strong enough to actually entail *p*. We still make a wrong prediction, however.

Suppose that Ann has no desire pertaining to which kind of student she gets: she is completely neutral as to that issue. Let's simplify things as much as possible, and pretend that in world $w_{\mathcal{O}}$ she's very stoic and manages to live her life with a single desire, namely to own a Lamborghini:

(19) $\text{Boul}(w_{\mathcal{O}}, \text{Ann}) = \{\llbracket \text{Ann owns a Lamborghini} \rrbracket\}$

We correctly predict that *Ann wants to get a student who speaks German* is either false or undefined at $w_{\mathcal{O}}$. If we take diversity to be satisfied, it has to be false, since there will be worlds *u* in $\text{Dox}(w_{\mathcal{O}}, \text{Ann})$ where she doesn't get a student who speaks German, and some of these *u* worlds are worlds in which she owns a Lamborghini: now, such worlds are the most ideal given (19), and they falsify the universal quantification encoded in *want*. We do however predict that altering the attitude ascription by having *magari* modify *want* can be true (that is, it's true if defined) at $w_{\mathcal{O}}$, and this is a wrong prediction. The attitude ascription in (3), repeated below, entails that getting a student who speaks German satisfies at least some of Ann's desires.

(3) *Anna vuole avere uno studente che magari parla tedesco.*
 Ann wants to have a student that *MAGARI* speaks German
 ‘Ann wants to get a student who *magari* speaks German.’

The wrong prediction is, of course, a direct consequence of having brutally weakened *want*. In order for (3) to be defined at $w_{\mathcal{O}}$, $\text{Dox}(w_{\mathcal{O}}, \text{Ann})$ needs to contain both a world where Ann gets a student who speaks German and one where she doesn't: let's suppose that possible worlds *u* and *v* satisfy these predicates respectively. Now, the definition of *magari* in (18) allows us to restrict $\text{Dox}(w_{\mathcal{O}}, \text{Ann})$ as much as needed in order to find a subset that verifies the predicate *want* (along with the other arguments, left untouched). As soon as Ann doesn't believe that there is no incompatibility between owning a Lamborghini and getting, or not getting, a student who speaks German, we wrongly predict (3) to be true at $w_{\mathcal{O}}$. This is simply because we can restrict $\text{Dox}(w_{\mathcal{O}}, \text{Ann})$ as much as reducing it to $\{u, v\}$, with *u* and *v* both being worlds in which Ann owns a Lamborghini. Both these worlds are ideal, given Ann's desire as encoded by (19), but only one of them is a world that verifies the

⁹I will remain maximally agnostic as to the manner in which *magari*, or covert expressions associated with its use, take scope where they do in (16).

prejacent of (19). Coarseness is obviously satisfied, since the only subset of (19) selects $\{u, v\}$ as the set of best worlds and this set doesn't entail the prejacent.

What we have lost through weakening is the entailment that the prejacent of *want* is in any relation with Ann's desires: this is a pretty critical problem, but we can solve it if we first give some thought as to why *magari* in (3) overtly occurs where it does (i.e. in the relative clause) rather than in a position to modify the attitude predicate. We have completely glossed over this, but if we try out different syntactic positions of *magari* we will see how to fix our prediction and finally derive the exemplificational meaning adequately.

2.1.2 Non-exclusivity and Focus

According to what we have so far said about *magari* in its exemplificational meaning, we don't expect (3) and (20) to be truth-conditionally different from one another (the two differ syntactically as to the position of *magari*: adjoined to TP in the relative clause in the former case, adjoined to the object in the relative clause in the latter).

- (20) *Anna vuole avere uno studente che parla magari tedesco.*
Ann wants to have a student that speaks MAGARI German
'Ann wants to get a student who speaks *magari* German.'

The exemplificational meaning of (20) leads to the following inference: Ann's desires entail that she get a student who speaks one of a bunch of languages, and German is one of them. In fact, (20) is still a true and felicitous desire ascription to Ann in the original scenario V2 in (5), because in that scenario what Ann is really after is a getting a student who speaks a V2 language, and it just so happens that German is one of them.

The difference between the two examples can thus be reduced to this: in both cases, Ann will be happy to get a German speaking student, but in (3) this is because she wants a student who verifies some properties (among which speaking German), in (20) it's because she wants a student who speaks either German or some other language. What is common between the two inferences, and in general characteristic of what we have called the exemplificational meaning, is that there are alternative properties that would also satisfy Ann's desire (what they are, is left for the context to determine). I will call this inference (which really is part of the definition of exemplification) non-exclusivity. The obvious conclusion from this is that the constituent at which *magari* adjoins at surface structure is the one that denotes the property that together with its alternatives makes up the space of Ann's desire. This poses a compositional issue: *want* in (20) has access to one proposition, but in order for the exemplificational meaning to be derived, it also needs to access a certain set of alternatives that is determined by the scope position of some lower element in the LF.

One way to make this possible is to adopt the essential notions of a well-established framework known as Alternative Semantics, which was originally entertained in semantic theory to provide an analysis of questions (Hamblin 1973) and so called

Association with Focus¹⁰ (Rooth 1985, 1992). I will now offer the essentials of Alternative Semantics, condensed in a couple of paragraphs. Every lexical entry α has two semantic values: the ordinary value $\llbracket \alpha \rrbracket$, which is what we already know about, and the focus value $\{\!\{ \alpha \}\!\}$, such that for every variable assignment g we have that $\{\!\{ \alpha \}\!\}^g := \{\llbracket \alpha \rrbracket^g\}$. The principle of compositionality is of course maintained for both dimensions of meaning: the Focus semantic value of any object language constituent α is a function of the Focus semantic values of its subconstituents. A special rule of composition, usually referred to as “Pointwise Function Application”, takes care of deriving Focus semantic values of complex expressions (Hamblin 1973):

(21) Pointwise Function Application (PFA):

If X is a branching node and $\{Y, Z\}$ the set of its daughters such that $\llbracket Y \rrbracket^g :: \alpha \rightarrow \tau$ and $\llbracket Z \rrbracket^g :: \alpha$ then, for any variable assignment g ,
 $\{\!\{ X \}\!\}^g := \{f(x) \mid f \in \{\!\{ Y \}\!\}^g \wedge x \in \{\!\{ Z \}\!\}^g\}$.

In order for non-trivial Focus semantic values to be introduced in the composition (that is, Focus semantic values that are not simply type-lifted ordinary semantic values), we assume that the Focus marker F , whose semantic values are given in (22), can be adjoined to any constituent. On the ordinary dimension of meaning F is moot — on the Focus dimension, F adjoined to X returns the set of semantic objects that have the same type as $\llbracket X \rrbracket$.

(22) a. $\llbracket F \rrbracket^w := \lambda x. x$ $:: \alpha \rightarrow \alpha$
 b. $\{\!\{ F \}\!\}^w := \lambda x. \{y \mid \mathcal{T}(y) = \mathcal{T}(x)\}$ $:: \alpha \rightarrow (\alpha \rightarrow t)$

At this point, we may hypothesize that *magari* acts as F on its surface position. We thus derive that in (20), where *magari* adjoins to the object of *speak*, the Focus semantic value of the relative clause is a set of properties each of which is about speaking some language, as in (23). In the original example (3), on the other hand, *magari* takes maximal scope in the relative clause, and as such the Focus semantic value is simply the set of all properties that can be true of an individual.

(23) $\{\!\{ \text{who speaks magari German} \}\!\} = \left\{ \begin{array}{l} \lambda x. \text{speak}_w(x, \text{german}), \\ \lambda x. \text{speak}_w(x, \text{french}), \\ \lambda x. \text{speak}_w(x, \text{dutch}), \\ \dots \end{array} \right\}$

(24) $\{\!\{ \text{who magari speaks German} \}\!\} = \left\{ \begin{array}{l} \lambda x. \text{speak}_w(x, \text{german}), \\ \lambda x. \text{speak}_w(x, \text{french}), \\ \lambda x. \text{pescatarian}_w(x), \\ \dots \end{array} \right\}$

We can now write in a definition of non-exclusivity that will do what we want. Crucially, we have to make the assumption that *magari* and any other expression whose meaning is involved with a non-exclusivity predicate such as the one defined in

¹⁰On page 81 we will see that *magari* does seem to actually associate with Focus (i.e. that the placement of Focus in the scope of *magari* has truth-conditional effects).

(25) has direct access to the Focus semantic value of an expression in its scope: this is the second to last argument fed to the lambda expression in (26). A paraphrase of (25) is the following: given a modal m , its conversational backgrounds b, o , a proposition p and a set of propositions f , there exists a proposition p' in f that is logically independent of p and such that if you remove all the worlds that verify p from the modal background b , you will have that m is true of such restricted modal base, o and p' .

$$(25) \quad \text{non-excl}(m, b, o, p, f) := 1 \leftrightarrow \\ [\exists p' \in f : \neg p' \subseteq p \wedge \neg p' \supseteq p \wedge m(\{w \in b \mid p(w) = 0\}, o, p') = 1]$$

(26) (to be revised)

$$\llbracket \text{magari} \rrbracket^w := \lambda m. \lambda b. \lambda o. \lambda p. \lambda f. \lambda x : \text{coarse}(b, o, p) \wedge \\ \text{non-excl}(m, b, o, p, f). \exists b' \subseteq b[m(b', o, p, x)]$$

Given the denotation in (26), we can go back to the example in (20) and spell out its definedness and truth conditions. $\llbracket (20) \rrbracket^w$ is defined iff Ann's doxastic modal base and bouletic ordering source in w are coarse with respect to the propositions expressed by *Ann gets a student who speaks German* and iff there is at least another language l other than German such that, if getting a student who speaks German were impossible in w , Ann would want to have a student who speaks l ; and it's true iff there is a subset b' of Ann's doxastic alternatives in w such that all the worlds in b' that best comply with Ann's desires in w are worlds in which Ann gets a student who speaks German.

Allowing ourselves to use any tool we could have a use for, we managed to describe *magari*'s contribution. The result is not pretty, as *magari* does a lot of things — and we are left wondering whether coarseness is really needed at this point: once *magari* weakens the quantificational force of the modal it modifies, and presupposes that there is a logically independent alternative of which the underlying modal is true (provided its domain of quantification is suitably restricted), we are intuitively close to the target meaning even before we take coarseness under consideration.

However, being close is not enough. There are (at least) two empirical arguments that support the idea that coarseness does ensure an important component of the exemplificational meaning. The first can be appreciated in the context of a well known shortcoming of the type of analysis we have assumed for bouletic attitudes, namely the case in which the attitude holder has conflicting desires. This is the case when the attitude holder wants two things that (they believe) are not both actualizable. Suppose that Ann has saved money to buy a vacation home — she can only buy one, and for that matter she wouldn't want to have more than one even if she had the means to get two. Her trouble is that she's deeply conflicted between buying a house in Vermont and buying one in Louisiana. According to our way of thinking about desire ascriptions, this state of affair is encoded in the fact that no world in Ann's doxastic alternatives is such that she has more than one vacation home; and in her bouletic ordering source are two premises, denoted by *Ann buys a house in Vermont* and *Ann buys a house in Louisiana*. The set of bouletically best worlds from the point of view of Ann is thus partitioned in two: the Vermont-worlds and the Louisiana-worlds. If we

removed the coarseness requirement from (26), we would wrongly predict that (27) is an acceptable and truthful description of Ann's desires:

- (27) *Anna vuole comprare una casa magari in Vermont.*
 Ann wants to buy a house MAGARI in Vermont
 'Ann wants to buy a house *magari* in Vermont.'

As should be clear by now, (27) would in fact be a truthful desire ascription in case Ann's desire had been, say, to buy a vacation home somewhere in New England; but *magari* in (27) cannot signal that the Vermont option is in fact one of Ann's specific desires that just happens to be in conflict with something else that she wants. What guarantees that we in fact predict (27) to be an inappropriate ascription in the given scenario is precisely the requirement of coarseness, violated here because of the strong premise *Ann buys a house in Vermont*. Formally, what coarseness guarantees is that the realization of any of Ann's desire doesn't entail that she ends up buying a house in Vermont; and this is also intuitively the essence of the exemplificational meaning and the reason why (27) is not a good description of the scenario in which she's conflicted (and not indifferent!) between Vermont and Louisiana.

The second argument is actually quite similar, but it has to do with ranked preferences instead of conflicts. Imagine that Ann does want to buy a house in Vermont but, if that turned out to be impossible, she would be happy to settle for Louisiana. Such bouletic state is determined by the presence of these two premises in her ordering source:

- (28) a. [[Ann buys a house in Vermont]]
 b. [[Ann buys a house in Vermont or Louisiana]]

Without coarseness, (27) would be wrongly predicted to be true and felicitous in such a scenario. Note that Ann's desires as determined by the premises in (28) support the truth of the prejacent of (27), namely *Ann wants to buy a house in Vermont*: if *magari* had nothing to do with coarseness and only weakened the quantificational force, (27) should be true (as long as diversity is satisfied). But of course, because of (28a), coarseness is not satisfied in ascriptions like (27).

What about (29) in a scenario determined by (28), i.e. in which buying the house in Louisiana is the second-ranked preference? We do find that (29) is an adequate way of ascribing desires to Ann: after all, Louisiana is one option among others.

- (29) *Anna vuole comprare una casa magari in Louisiana.*
 Ann wants to buy a house MAGARI in Louisiana
 'Ann wants to buy a house *magari* in Louisiana.'

This is of course predicted, because no subset of the ordering source, assuming that the premises in (28) are all that matters as far as Ann's house buying preferences, will carve out a subset of her doxastic state that entails she buys a house in Louisiana: coarseness is satisfied. The problem of (27) is just that Vermont isn't just one of the options: it's actually what she wants, and using *magari* conveys that she has a much weaker attitude toward that option than she actually has.

2.1.3 Weak modals

So far all we have seen is the interaction between *magari* and intensional operators with universal quantificational force (with the caveat expressed in footnote 7). What about embedding *magari* under weak modals? Consider the baseline contrast between two teleological modal statements in (30). The difference between the two is pretty straightforward, and is directly derived by assigning to (30a) the semantics of universal and to (30b) the one of existential quantification over the set of possible worlds restricted by relevant goals established in the conversation.

- (30) *Since your cat is supposed to lose some weight...*
- a. *dovresti darle cibo umido.*
you should give her food wet
'you should feed her wet food.'
--> *all the worlds compatible with the goals are wet-food-worlds.*
 - b. *potresti darle cibo umido.*
you could give her food wet
'you could feed her wet food.'
--> *some worlds compatible with the goals are wet-food-worlds.*

We predict that embedding *magari* under the modals in (30) makes the sentences truth-conditionally equivalent, given how the weakening of the quantificational force is achieved. Note once again that neither sentence expresses epistemic uncertainty as to the truth of the teleological statement (that is, they only have the exemplificational reading), and in fact they could both be uttered by someone knowledgeable who is giving authoritative advice (such as a vet).

- (31) *Since your cat is supposed to lose some weight...*
- a. *dovresti magari darle cibo umido.*
you should MAGARI give her food wet
'you should maybe feed her wet food.'
 - b. *potresti magari darle cibo umido.*
you could MAGARI give her food wet
'you could maybe feed her wet food.'

Focusing on the existential prejacant case in (31b), the denotation of *magari* given in (26) returns an at issue proposition that is true in w iff there exists a (potentially improper) subset of the speaker's doxastic modal background in w such that some of its teleologically ideal worlds in w are worlds in which the cat is fed wet food. What's important here is that the subset can be improper: were this not the case, we would wrongly strengthen the possibility statement. As far as the presuppositional component is concerned, both sentences in (31) are defined if they satisfy non-exclusivity (that is, there are options other than giving wet food that would make the goal fulfilled), and coarseness (that is, no goal encoded in the teleological ordering source entails that the cat be fed wet food). It's indeed hard to tease apart the two assertions in (31) from a

truth-conditional point of view, as can be verified by comparing the two translations, which we can take to be something our analysis gets right.

The cases in (31) are reminiscent of the modal sufficiency construction, exemplified in (32): as von Stechow and Iatridou (2007) observe, (32) conveys that going to the North End is one option the interlocutor has if they want to get good cheese, and that it's an easy option.

(32) To get good cheese, you only have to go to the North End!

The puzzle of how this sufficiency meaning comes about compositionally from the pieces given in (32)—in particular, the interaction between the teleological/goal-oriented necessity modal *have to* and *only*—is von Stechow and Iatridou's (2007) main focus, but this type of example makes *magari*'s contribution very clear. Of course what's missing in (31) is precisely the second part of (32)'s paraphrase, namely the inference that what the prejacent describes is a relatively easy way to fulfill the stated goal: we could say that *magari* in the scope of the priority modal results in exemplification without the minimal sufficiency inference. Now, using this type of teleological statements we can more clearly appreciate the fact we opened the chapter with. Both sentences in (33) convey the same: the North End is brought up as an example of one possible place where to get good cheese. This is, of course, the exemplificational meaning that is also observed in the modal sufficiency construction in (32).

- (33) a. *Per trovare buon formaggio, dovresti magari andare al NE!*
 for find good cheese you should MAGARI go to the NE
 b. *Per trovare buon formaggio, potresti magari andare al NE!*
 for find good cheese you could MAGARI go to the NE

Now, as soon as *magari* is not placed under the modal, as in the sentences in (34), the most prominent reading¹¹ is not exemplificational, the teleological modal instead being interpreted in the scope of coarse epistemic possibility. Accordingly, (34a) and (34b) are truth-conditionally distinct in the expected way.

- (34) a. *Per trovare buon formaggio, magari dovresti andare al NE!*
 for find good cheese MAGARI you should go to the NE
 b. *Per trovare buon formaggio, magari potresti andare al NE!*
 for find good cheese MAGARI you could go to the NE
- (35) a. *Potrebbe magari aver perso peso.*
 it might MAGARI have lost weight
 b. *Magari ha perso peso.*
 MAGARI has lost weight

Finally, we correctly expect the two sentences in (35) to be identical: all that *magari* does, when embedded under an epistemic possibility modal, is adding antievidentiality.

¹¹The reason why the exemplificational reading is still marginally available in (34) is probably due to the fact that an LF in which the modal takes wider scope than *magari* is possible. The examples used at the beginning of this chapter, with *magari* adjoined to a nominal phrase embedded under an attitude predicate were chosen precisely because they afforded us a clearer picture of the correlation between scope and the epistemic/exemplificational meaning alternation.

2.2 Exemplification as embedded disjunction

The meaning of *magari* we arrived at in the previous section is not particularly elegant, and definitely is too narrowly tailored to our current case. The feeling that (26) misses the forest for the trees is corroborated by the fact that the addition of the non-exclusivity component was really only needed because of the way the effect of existential force is derived — in fact, the way it’s hardwired. In this section we will start anew, taking inspiration from well-studied phenomena that have superficially little to do with *magari*.

The source of much of the trouble we encountered in the previous section is that, as was remarked in footnote 7, the quantificational force of any universal modal ends up being weakened if *magari* is in its scope — and this includes modals that lack any independently detectable underlying weak meaning as well. The informal schema in (36) represents this effect.

$$(36) \quad m_{\square/\diamond} \text{ magari } p \approx m_{\diamond} p \wedge m_{\diamond} q \wedge \dots \wedge m_{\diamond} q'$$

for some q, \dots, q' that are Focus alternatives of p .

What (36) should remind us of is the very well known fact that embedded disjunctions receive a somewhat “conjunctive” interpretation, a puzzle first identified by von Wright (1968) and Kamp (1974) with disjunction embedded under possibility modals, such as (37) — a configuration that has since been known as “Free Choice” disjunction.

$$(37) \quad \text{John may have cake or ice cream.}$$

$$\rightarrow \diamond \text{cake} \wedge \diamond \text{ice cream} \qquad \text{(free choice, FC)}$$

Under standard assumptions, the predicted truth conditions of (37) are too weak, since the sentence is predicted to express the proposition that is true in w iff there is a (here deontically) accessible world w' in which John either has cake or has ice cream. In other words, if we maintain the straightforward analysis of *may* and of disjunction as the boolean connective, (37) is wrongly predicted to be true if in fact John is not allowed to have ice cream, but only cake. This is a problem: (37) intuitively expresses that John has two options from which he can freely choose. We observe a similar effect if disjunction is embedded under a universal modal: (38) expresses that John has an obligation that he can fulfill by cleaning his bedroom and also by cooking dinner — a stronger meaning than what one obtains standardly.

$$(38) \quad \text{John must clean his bedroom or cook dinner.}$$

$$\rightarrow \square(\text{bedroom} \vee \text{dinner}) \wedge \diamond \text{bedroom} \wedge \diamond \text{dinner} \qquad \text{(distributive inference, DI)}$$

However these inferences arise, it seems like we could perhaps spare much of the ad hoc machinery introduced in the previous section if we just assume that *magari* is responsible for introducing an implicit disjunction.¹² To see how plausible this line of

¹²For the rest of this chapter, whenever I talk of “implicit disjunction” I mean a disjunctive construction where only one disjunct (the prejacent of *magari*) is overtly expressed.

thought is, we must first see at least one concrete account of (37) and (38), so that we can be sure of what the consequences are of embracing the hypothesis that *magari* is really a disjunction introducer. The phenomenon of Free Choice disjunction has received a lot of attention since it was first identified as a problem for extant theories. An exhaustive and detailed overview of the different accounts that have been proposed is well beyond the scope of the current discussion. Nevertheless, it’s important to see the merits of those analyses that predict FC and DIs to arise whenever disjunction is embedded under a modal expression, weak or strong. Finally, there may be good reasons to distinguish the inferences disjunction give rise to under an existential vs. a universal modal (cf. Crnič, Chemla, et al. 2015; Marty et al. 2023); for practical purposes however, unless the distinction is relevant, I will follow part of the literature by referring to Free Choice in both cases.

Recent analyses of FC can be grouped in two main families, depending on whether the FC inference is derived as a semantic entailment (among others Zimmermann 2000; Aloni 2003; Geurts 2005; Simons 2005; Aloni 2022) or identified as a scalar implicature of sort (among others Alonso-Ovalle 2005, 2006; Fox 2007). The analysis that we will rely on to capture *magari*’s contribution is Alonso-Ovalle’s (2006), but to see what advantages it has over the former family of analyses we have to first see some concrete examples of these.

For example, Zimmermann (2000) proposes that disjunction is interpreted as a list of epistemic possibilities, so that the assertion of (37) is equivalent to the conjunction of two epistemic statements:

$$(39) \quad \diamond_{\text{epistemic}} \diamond_{\text{deontic}} \text{ice cream} \wedge \diamond_{\text{epistemic}} \diamond_{\text{deontic}} \text{cake}$$

The account then relies on an “authority principle” to extract the deontic flavor of FC from (39): whenever the speaker is understood to be an authority when it comes to the relevant permissions (in this case, what the addressee is allowed to eat), the outer epistemic possibility of each conjunct is essentially strengthened into the assertion of each deontic possibility statement. In contexts where the speaker is not perceived as a deontic authority, we do not derive FC but simply ignorance. Of course this approach cannot easily extend to deriving the distributive inferences that arise under a universal modal: all that was said so far would wrongly predict that (38) means that cleaning the bedroom and cooking are both obligations.

Geurts (2005) offers an analysis that, unlike Zimmermann’s (2000), makes the correct prediction as to the universal case. In his proposal, (38) is equivalent to the conjunction of necessity statements whose domains of quantifications are required to partition the space of deontic possibilities. This is in fact reminiscent of what we tried to achieve by defining non-exclusivity as a component of the meaning of *magari* in §2.1.2: by restricting the domain of quantification of the universal modal we effectively weaken its force.

However, all analyses of this kind face a fundamental issue that Alonso-Ovalle (2005, 2006) raises, following the same argument made by Kratzer and Shimoyama in their seminal account of indeterminate pronouns. If FC is truth-conditional, certain things are expected once we embed a FC construction in various logical contexts. For example, the most natural interpretation of (40) conveys that the addressee is under

no obligation of either cleaning the bedroom or cooking dinner:

(40) You are not required to clean the bedroom or cook dinner.

However, if the DI associated with (40) were truth-conditional and, for concreteness, derived as a conjunction of modalized statements according to Geurts's (2005), we'd expect (40) to be true if the addressee is just required to clean the bedroom. Again the same phenomenon obtains with the FC inference of disjunction under an existential modal. It's very clear that (41) means that the addressee is allowed neither the cake nor the ice cream:

(41) You are not allowed to have the cake or the ice cream.

The fact that these inferences disappear under negation and, in general, in downward-entailing environments, leads Kratzer and Shimoyama; Alonso-Ovalle to conclude that they are better understood in terms of scalar implicatures (Gazdar 1979). It's now crucial to point out that the very same argument applies to the exemplificational use of *magari*. Recall that the exemplificational meaning is intuitively associated with disjunction in that it conveys that there are other, non explicitly mentioned alternatives that would “do just as good” as the one denoted by the prejacent of *magari*. So, the default interpretation of (42a) under its non specific reading is that the need Ann has is to have a student who speaks German or some other language. On the other hand, negating this ascription entails that Ann has no need of a student who speaks German. If exemplification were truth-conditional and conjunctive in nature — that is, if (42a) was semantically equivalent to something like *Ann would be fine with a student who speaks German, and also with a student who speaks x,...,y* — we would again predict the negation of (42a) to be too weak. That is, one would expect (42b) to be true if a student who speaks German were the only option to satisfy Ann's needs — (42b) could be taken to mean that it's not the case that there are other options besides a German speaking student. But in fact, (42b) is stronger: it's true (under its non specific reading) if and only if Ann has no need for a German speaking student.

- (42) a. *Anna ha bisogno di uno studente che parla magari tedesco.*
Ann has need of a student that speaks MAGARI German
'Ann needs a student who speaks *magari* German.'
- b. *Anna non ha bisogno di uno studente che parla magari tedesco.*
Ann not has need of a student that speaks MAGARI German
'Ann doesn't a student who speaks *magari* German.'

I will now present Alonso-Ovalle's (2006) analysis of (37) and (38) as a concrete basis to use in order to provide a precise definition of the meaning contribution of *magari*. It should be stressed at this point that I don't think anything in the data pertaining to *magari* makes the domain widening analysis necessary, or even preferable to alternative analyses of FC/DIs, such as, for example, Fox (2007), Aloni (2022), Bar-Lev and Fox (2017), Santorio and Romoli (2017) or Bar-Lev and Fox (2023). Ultimately, I propose that all that *magari* does is introducing an implicit

disjunction and distributing coarseness of the local conversational backgrounds over the disjuncts so introduced. As long we have an analysis that derives the FC/DIs from these ingredients, we are good. I do think however that Alonso-Ovalle’s (2006) approach, couched in a Hamblin semantics, makes *magari*’s semantic contribution more perspicuous to state, which is why I am going with this one here.

2.2.1 Alonso-Ovalle’s (2006) analysis

Alonso-Ovalle (2006) takes the existence of Free Choice and DIs with modals embedding disjunction to be one evidence among others that natural language disjunction is not a (potentially cross-categorical) manifestation of Boolean join, but rather a device through which alternatives (in the technical sense) are introduced. The technical sense is the one that was introduced in Hamblin (1958, 1973) for the analysis of questions, and for example later picked up by Rooth (1985) for an account of association with Focus. In its most common form of Hamblin semantics, all expressions of type τ are mapped into sets of objects of τ , which I will henceforth indicate with $\{\tau\}$, and the main mode of composition of expressions is Pointwise Function Application, defined in (43). The crucial idea in Alonso-Ovalle’s (2006) analysis is that *or* (in general, disjunction) is an operator that returns a set containing the denotations of each of its disjuncts (cf. Simons 2005: for a similar idea couched in a different theory). The denotation of *or* in (44) is of course reminiscent of boolean join, but its return value, given that we are operating in a Hamblin semantics, still contains enough information to retrieve the individual disjuncts.

(43) Pointwise Function Application (PFA):

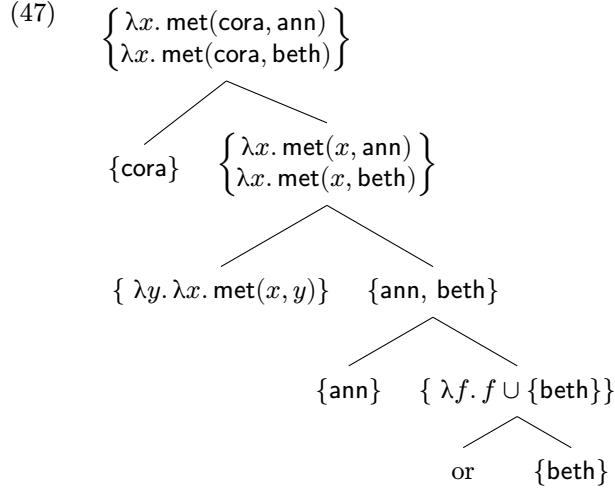
If $\llbracket X \rrbracket :: \{\sigma \rightarrow \tau\}$ and $\llbracket Y \rrbracket :: \{\sigma\}$, then
 $\llbracket X(Y) \rrbracket := \{n \mid n :: \tau \wedge \exists x, y [x \in \llbracket X \rrbracket \wedge y \in \llbracket Y \rrbracket \wedge n = x(y)]\}$.

(44) $\llbracket \text{or} \rrbracket^w := \lambda f. \lambda g. f \cup g$

(45) $\llbracket \text{Ann} \rrbracket^w := \{\text{ann}\}$

(46) $\llbracket \text{Ann or Beth} \rrbracket^w := \{\text{ann}, \text{beth}\}$

Now, in this system disjunction is responsible for introducing alternatives into the semantic composition: these alternatives effectively propagate given the definition of PFA. The denotation of every node in (47), illustrating the composition of *Cora met Ann or Beth*, is obtained through PFA.



The propagation of propositional alternatives is “blocked” by an Existential Closure operator (\exists -closure) that occurs in the scope of modals (cf. Heim 1982):

(48) $\llbracket \exists_{\text{cl}} \rrbracket^w := \lambda P_{\{s \rightarrow t\}}. \{ \lambda w'. \exists p : p \in P \wedge p(w') = 1 \}$

For example, if (48) were applied at the root node of (47), it would return the singleton containing the proposition mapping worlds w to true if it’s the case that Cora met Ann or that Cora met Beth in w . Now let’s go back to the sentences we are interested in, which are repeated below. If we make the innocent assumption that *may* and *must* are raising predicates (that is, their surface external argument is interpreted as the subject of an embedded clause at LF), we have that these verbs in (37) and (38) scope over sets that contain two propositions, as a result of the embedded disjunctions. In (49), the modals themselves are given a classical quantificational semantic that includes \exists -closure of the set of propositional alternatives that they take as an argument (via “regular” Function Application).

(37) John may have cake or ice cream.

(38) John must clean his bedroom or cook dinner.

(49) a. $\llbracket \text{may} \rrbracket^w := \lambda P_{\{s \rightarrow t\}}. \{ \exists w' : w' \in D_w \wedge \exists p \in P : p(w') = 1 \}$
b. $\llbracket \text{must} \rrbracket^w := \lambda P_{\{s \rightarrow t\}}. \{ \forall w' : w' \in D_w \rightarrow \exists p \in P : p(w') = 1 \}$

In this setup, the role of disjunction is to expand the domain of \exists -closure, and expanding the domain weakens the assertion. Such weakening through disjunction being intuitively a violation of the Maxim of Quantity, it has to be “justified”. Such justification has to be reasoned about comparing (37) or (38) to their alternatives, among which we have ones that only differ in having a more restricted domain of \exists -closure: more generally, it’s assumed that individual disjuncts or coordinates have to be counted as alternatives (Sauerland 2004). For example, (37) and (38) are contrasted with (50) and (51) respectively, and the justification for the widened domain (and the

weaker truth conditions) in the former case is that for each of the disjuncts there is in fact an accessible world verifying it, thus deriving the effect of distribution of the modal predicate over every disjunct. Informally, under this approach the distributive inference arises from reasoning about why the speaker has weakened the truth conditions of the assertion by expanding the domain of existential closure (by adding disjuncts): these disjuncts must all “matter”, in some sense.

(50) John may have cake.

(51) John must clean his bedroom.

Since this distribution is not encoded in the semantics, but only comes about as pragmatic enrichment upon reasoning about alternative assertions, its effect is not reflected if the truth conditions are manipulated, for instance by negation. In particular, negating the existential (37) is correctly predicted to return stronger truth conditions than what we would have by negating the distribution: (52) is understood to mean that neither cake nor ice cream are permitted, and (49a) delivers this result—the truth of (52) is the absence of accessible worlds that verify any of the alternative propositions introduced by disjunction.

(52) John may not have cake or ice cream.

We will now use the main insight of Alonso-Ovalle’s (2006) analysis to be more concrete about how *magari*’s exemplificational character comes about, but before doing that, one thing should be made clear: I don’t think *magari* itself provides arguments in favor of the theory we have sketched here over others. The essential character of Alonso-Ovalle’s (2006) account that we need for our purposes is a derivation of these distributive inferences that come about once disjunction is interpreted under modals—as far as the data considered here are concerned, domain widening doesn’t have to be the explanatory path. If, for instance, we chose to adopt an analysis that relies on the grammatical theory of scalar implicatures, little would have to be changed in what we say here, as it will become evident in the next section: as long as *magari* is able to feed to the modal expression a disjunction made up of its preadjacent and some of its alternatives, we are good.

2.2.2 *Magari* as a domain widener

We have just seen a concrete analysis that derives FC/DIs in an empirically satisfactory way with three ingredients: a Hamblin semantics in which disjunction introduces alternatives in the composition of meaning, \exists -closure as an operation associated with the interpretation of modal statements, a quantity implicature account of the pragmatic effect of domain widening (that is, of the use of disjunction). The question now is what place *magari* occupies in this picture; we will use (53) under its non specific reading as the working example.

(53) Ann needs to get a student who speaks *magari* German.

A scenario against which (53) is felicitous and true is one in which Ann’s need is to have a student who speaks a V2 language (German being one of many such languages). It’s important to note that (54), where “German” receives the same prosodic prominence “book” receives in (55), is an equally true and appropriate description of such scenario.

(54) Ann needs to get a student who *magari* speaks GERMAN.

(55) *Anna ha solo dato un LIBRO a Beatrice.*

Ann has only given a book to Beatrice.

‘Ann only gave a book to Beatrice.’

This suggests a parallel between *magari* and *only*. Just like long distance association is possible with Italian *solo* (and English *only*), prosodic prominence allows for an interpretation of the configuration [*magari* *XP*] in which it is the focus alternatives of a subconstituent of *XP* that contribute to the truth conditions of the whole expression. In the absence of such prosodic prominence placed on a subconstituent, the default interpretation is one in which the focus marker takes scope at the surface position of *magari* — hence the equivalence of (53) and (54).

We can divide *magari*’s contribution in two parts which take scope at different positions: disjunction (alternatives) introduction, and coarseness imposition. Let’s start with the former, defining an appropriate operator *M* that takes scope at a position equal or lower to *magari*’s surface position. Such operator will be very similar to the focus value of the focus marker as it was defined in (22b), but it takes two argument, the first being a choice function. Once a choice function *f* and an expression *c* are fed to (57), we get as a return value a set containing *c* and what *f* maps to the power set of the set of all expressions that have the same type of *c*. The first argument of *M* is a choice function variable that is existentially closed at the matrix level: as an illustration, we have possible values of $\llbracket \llbracket \llbracket \llbracket M \rrbracket f \rrbracket \text{German} \rrbracket \rrbracket$ for different values of *f* in (58).

(56) $\forall f, S : \text{CF}(f) \leftrightarrow f(S) \in S$

(57) $\llbracket M \rrbracket^w := \lambda f : \text{CF}(f) . \lambda c_{\tau} . \{c\} \cup f(\mathcal{P}(\{c' \mid c' :: \tau\}))$ (to be revised)

- (58) a. {german, dutch}
 b. {german, dutch, french}
 c. {german, english, spanish}

...

At this point, the component of *magari* that scopes between the modal predicate and its contextual parameters is (60): all it does is distributing the coarseness requirement of the conversational backgrounds over the Hamblin set. In (59) we have a meaning for *need* along the lines of (49), which *magari* takes as its first argument.¹³

¹³While I will be glossing over compositional details that are of no concern for the discussion of *magari* and exemplification, it’s important to keep in mind that there is a fundamental incompatibility between syncategorematic predicate abstraction, which I have implicitly assumed as Heim and Kratzer’s (1998) “Predicate Abstraction” rule of composition, and the alternative semantics setting

$$(59) \quad \llbracket \text{need} \rrbracket^w := \lambda b. \lambda o. \lambda P. \lambda x : \text{div}(w, x, \bigcup P). \\ \{ \forall w' : w' \in \text{Best}(\text{Dox}(w, x), \text{Goals}(w, x)) \rightarrow \exists p \in P : p(w') = 1 \}$$

$$(60) \quad (\text{to be revised}) \\ \llbracket \text{magari} \rrbracket^w := \lambda m. \lambda b. \lambda o. \lambda P. \lambda x : \forall p \in P [\text{coarse}(b, o, p)]. m(b, o, P, x)$$

The truth conditions of (53) come out as follows: the sentence is true in w iff there is a way of choosing a subset $A = \{y_1, \dots, y_n\}$ of the alternatives to $\llbracket \text{German} \rrbracket^w$ such that it's true that Ann in w needs to get some student who verifies the property $\lambda x. \text{speaks}_w(x, \text{german}) \vee \text{speaks}_w(x, y_1) \vee \dots \vee \text{speaks}_w(x, y_n)$, and none of Ann's goals g in w (i.e., no premise in the ordering source controlling the interpretation of *need*) entails any of the propositions in the set $\{\llbracket \text{Ann gets a student who speaks } y \rrbracket \mid y = \text{german} \vee y \in A\}$.

In this analysis, *magari* really just acts as a domain widener and coarseness distributor over the widened domain.¹⁴ Before moving on to the next section, I'd like to point out one more consequence of this analysis: *magari* doesn't reduce its contribution to coarseness if alternatives have already been introduced in its scope (that is, the domain widening or disjunction introduction component is not optional). This is proven by the fact that (61) in its non specific reading still conveys that options other than speaking German or speaking Dutch would still satisfy Ann's needs.

(61) Ann needs to get a student who speaks *magari* German or Dutch.

2.3 Revisiting epistemic *magari*

The main theme throughout this chapter so far has been the treatment of *magari* as a modifier of modal expressions, rather than a modal itself. Such a view is of course in sharp contrast with the meaning that was assumed in Chapter 1: that position is to be revised here on the basis of what we have learned from the previous sections. The main idea is that whenever *magari* is seemingly not embedded under a modal expression (or when it's not interpreted in the scope of such an expression) the epistemic possibility interpretation it receives is the result of *magari* modifying a covert epistemic universal modal that takes maximal scope over every assertion. I will call this covert assertion modal K, following Meyer's (2013) work which first proposed it as an assumption to derive ignorance implicatures in the context of the grammatical theory of implicatures, but none of my arguments, I think, rely on Meyer's (2013)

we inherited from the choice of following Alonso-Ovalle's (2006) account. The problem is not confined to the specific definition of Predicate Abstraction but applies more generally to an Alternative Semantics in which assignment functions are modeled as parameters of the interpretation function (see among others Shan 2004; Charlow 2021). We don't run in any of these problems if instead all meanings are functions from assignments (incidentally, the system employed in Montague 1970 in its relevant features) such that, for example, we can assign to the pronoun *she*₂ the singleton $\{\lambda g. g(2)\}$ as its Hamblin/Alternative denotation.

¹⁴The distribution of coarseness over the alternatives is a forced choice here, because *magari* in this analysis doesn't have access to the prejacent proposition: we will see independent evidence to adopt a slightly different system in §2.3.2.

general framework.^{15,16} Of course, the main result obtained in Chapter 1 — deriving antievidentiality through coarseness — is trivially maintained. In the rest of this section we’ll explore some more consequences of treating epistemic *magari* as a special case of the exemplificational reading.¹⁷ The next section illustrates how the disjunction

¹⁵That assertions are defined by the presence of such an epistemic operator is itself not something Meyer (2013) pioneered. For example, such an assumption is made explicitly — albeit not elaborated upon — in Alonso-Ovalle (2005: 10): “In this system, in the case of apparent unembedded disjunctions, the alternatives are caught by an implicit epistemic universal. The disjuncts are distributed over the epistemic space: each must be an epistemic possibility”. Similarly, Alonso-Ovalle (2006: 189) remarks that the reason sentences with embedded disjunction are ambiguous between a FC/DIs reading and an ignorance reading is that the \exists -closure over the widened domain of alternatives can be triggered under the scope of the overtly embedding modal (and thus derive the FC/DIs implicature) or under the scope of “an implicit epistemic modal”.

¹⁶While I’ll maintain the assumption that such covert modal is epistemic in flavor, there are reasons to think (not explored in Chapter 1) that things are more complicated. Kratzer (1991) makes a distinction between circumstantial and epistemic modal bases, and illustrates the distinction with the following contrast between *can* and *might*. While (ii) expresses that hydrangeas growing there is compatible with the available evidence, the circumstantial claim in (i) expresses that the growing of hydrangeas is compatible with some established facts (presumably about the soil, the temperature, exposure to sun and the likes).

- (i) Hydrangeas can grow here. (circumstantial)
- (ii) There might be hydrangeas growing here. (epistemic)

Unlike in English, bare assertions in Italian (and according to Sabine Iatridou, Greek) can have a circumstantial reading, and so does (iii), which expresses a guess about the compatibility of the location with the growing of hydrangeas.

- (iii) *Magari qui crescono le ortensie.*
MAGARI here grow the hydrangeas

How to make the availability of non-epistemic readings for bare assertions in languages like Italian and Greek compatible with theories that associates every assertion with a covert modal operator is an issue I leave unresolved.

¹⁷While a full analysis of this issue is beyond the scope of this discussion, it’s worth pointing out that the unification of exemplification and epistemic possibility that we are attempting makes *magari*’s semantic contribution very reminiscent of the one that is associated with so called modal (or epistemic) indefinites (among many others, Kratzer and Shimoyama 2002; Alonso-Ovalle and Menéndez-Benito 2009). Kratzer and Shimoyama (2002) observe that (i), with the modal indefinite *irgendein-*, is ambiguous between the readings (ii) and (iii).

- (i) *Mary musste irgendeinen Mann heiraten.* (German)
Mary had to irgend-one man marry
- (ii) There was some man Mary had to marry, the speaker doesn’t know or care who it was.
- (iii) Mary had to marry a man, any man was a permitted marriage option for her.

The parallel between this case and the one we started out with in §2.1 is evident. When the ascription is construed as specific, as in (ii), the indefinite *irgend-* conveys that the speaker is ignorant as to the identity of the man Mary married. Otherwise, we get something that is rather close to the exemplification meaning we’ve been discussing so far. An important difference between (i) and *magari*, besides the fact that the latter, as an adverbial, can adjoin to various different categories, is that the use of *magari* is a “proper” instance of exemplification because one of the disjuncts is mentioned. Since it plays such a central role in our analysis of *magari*, an important question is whether traces of coarseness — particularly antievidentiality in its epistemic flavor — can be found in epistemic indefinites across languages. In the case of (i), an antievidential effect would presumably convey

hypothesis as we implemented it in the previous section accounts for data we saw in Chapter 1 and some more. In §2.3.2 we will refine the analysis once again to avoid some predictions that arise from the simple disjunction based account. Finally in §2.3.3, we explore the limitations of the current assumptions for the cases in which *magari* is adjoined in the restrictor of a modal quantifier (i.e., in the antecedent of a conditional).

2.3.1 Non-matrix epistemic reading

Something Chapter 1’s analysis was not equipped to account for, is the fact that there is a subtle difference between the sentences in (62). They both express uncertainty as to whether Ann got Covid or not, but (62a) is understood as committing the speaker to the fact that Ann is in fact sick — and it’s being speculated that maybe it’s Covid that she got. No such commitment arises from uttering (62b).

- (62) a. *Anna ha preso magari il Covid.*
 Ann has got MAGARI the covid
 ‘Ann got maybe Covid.’
- b. *Anna magari ha preso il Covid.*
 Ann MAGARI has got the covid
 ‘Maybe Ann got Covid.’

Suppose that we are at a meeting where Ann’s presence is expected, but she’s absent. Someone wonders whether she’s late or not. Then, Beth utters either of the sentences in (62). The distinction between the two is subtle, but can be detected by the fact that a reply like (63) is sensible if Beth uttered (62a), but utterly bizarre as a reply to (62b).

- (63) Oh really? Since when is she sick?

This distinction was of course impossible to characterize given Chapter 1’s assumptions: if *magari* is itself a modal that scopes over the proposition denoted by its prejacent, the two sentences in (62) are predicted to be semantically equivalent. On the other hand, the distinction is trivially captured if we assume that the difference between (62a) and (62b) is due to the different sets of alternatives from which disjuncts are picked out. In the former case, the disjunction in the scope of K is made out of propositions denoted by *Ann got x*, for *x* being an alternative to $\llbracket \text{Covid} \rrbracket$. That means that the truth of (62a) entails that the relevant doxastic modal base entails that Ann “got something”, i.e. is sick. In the latter case, of course, the alternatives

that for every entity *x* in the contextually salient domain of men, the relevant epistemic anchor has no evidence that would suggest *x* is in fact the person Mary had to marry. I haven’t been able to reliably test whether such inference is associated with expressions like these. I thank Viola Schmitt for bringing these issues to my attention, and I leave a more thorough investigation of them to future research.

are just properties that can be true of Ann, as they are formed from alternatives to the denotation of the TP.^{18,19}

Now, what are the alternatives in play when *magari* takes matrix scope? One attractive hypothesis would be to stipulate that when M adjoins at a propositional node, the only alternative is the polar one (the complement of the denotation denoted by the prejacent of *magari*). But this is not tenable in general, for it would fail to capture the meaning of sentences like (64), where *magari* takes scope over the entire complement of an attitude verb. It should be obvious by now, but what (64) means is that Ann’s desires can be satisfied in different ways, one of which is for the addressee to write her a letter.

- (64) *Anna vuole {magari che / che magari} tu le scriva una lettera.*
 Ann wants MAGARI that that MAGARI you to her write a letter
 ‘Ann wants that *magari* you write her a letter.’

But if the only alternative *magari* has access to is the polar one, we would predict (64) to be a vacuous attribution, and indeed to violate the diversity requirement encoded in the meaning of *want*: the felicity of (64) would require Ann to not believe in the tautology. For this reason, and also on an intuitive level given the truth and felicity conditions of (64), we need the alternatives accessible to *magari* to be non-polar ones.

It’s important to stress, however, that whenever *magari* modifies K, the existential statement that is denoted is always going to be verified if a choice function is chosen that picks only the polar alternative to the prejacent, so that *magari p* is really $K(p \vee \neg p)$, with coarseness presupposed with respect to both disjuncts. In this case the meaning is not vacuous: the assertion is that the anchor’s doxastic base entails a contextual tautology, but there is the crucial addition of coarseness, to which all of Chapter 1 was devoted.

2.3.2 No distributive inference without modals

It’s well known that (65) comes with the inference that some students read Pinocchio, and some other read Heart. The same arguments that led us to treat the distributive inference of disjunction under modals as a scalar implicatures apply to cases like (65), where the universal quantifier in question is not a modal but a nominal one (among others Spector 2006; Fox 2007; Crnič, Chemla, et al. 2015; Denić 2023).

- (65) Every student read Pinocchio or Heart.

¹⁸It should be noted, as an additional good prediction, that we can reproduce the distinction in (62) by leaving the surface position of *magari* unchanged at the left periphery of the clause and shifting nuclear pitch accent. This is predicted to be possible if indeed the surface position of *magari* merely marks the maximal scope of the M operator defined in (57), and nuclear pitch accent could signal the placement of M. However, the competing explanation that this effect is simply due to contrastive free Focus is impossible to rule out.

¹⁹If K is available as a covert matrix assertion modal, the zero assumption is that its presence in syntactically embedded environments is what’s behind embedded matrix effects. There, *magari* behaves as predicted, parasitic on the embedded K: we saw that in the examples in §1.3.2 on page 49, where *magari* is embedded in a *because*-clause.

Whether or not the distributive inferences associated with (65) have to be analyzed in the same way as the ones that are detectable when disjunction is under a universal modal, the fact that both are generated by the presence of disjunction should make us wonder about the interpretation of sentences like (66). In §2.2 we split *magari* in two, with the “lower” part being only responsible of introducing an implicit disjunction. Given this and the distributive inference associated with (65), if *magari*’s “lower component” could operate “in isolation”, we’d predict that (66) could be understood as conveying that some students read Pinocchio and some other students read some other book(s). We would be wrong.

- (66) *Ogni studente ha letto magari Pinocchio.*
 every student has read MAGARI Pinocchio
 ‘Every student read *magari* Pinocchio.’

The only reading (66) is that it’s coarsely possible that every student read Pinocchio, and it’s also possible that they read some other book. It’s important here to stress that if *magari*’s contribution was really reduceable to the introduction of an implicit disjunction, the lack of the distributive inference for sentences like (66) would be a puzzle to be tackled. It’s instead what is expected if we maintain that *magari*’s nature is that of a modifier of modal expressions and that the disjunction is introduced in the immediate scope of the embedding modal expression. The LF of (66) is thus something along the lines of (72). Inevitably, the new definition has to be bidimensional: the alternatives generated by the lowest operator introduced by *magari* have to be represented in a separate dimension of meaning that the universal in (70) “doesn’t see”. For concreteness, I will assume this is the Focus dimension that is arguably needed independently. Consequently, *magari* as defined in (67) has to have access the Focus value of the prejacent of the modal expression it modifies (in this case, K).

$$(67) \quad \llbracket \text{magari} \rrbracket^w := \lambda f. \lambda m. \lambda b. \lambda o. \lambda p : \text{CF}(f) \wedge \text{coarse}(b_w, o_w, p). m(b_w, o_w, p \cup f(\mathcal{P}(\text{Foc}(p))))$$

$$(68) \quad \text{a. } \llbracket \clubsuit \rrbracket = \left\{ \begin{array}{l} \lambda w. \{x \mid \text{student}_w(x)\} \subseteq \{x \mid \text{read}_w(x, \text{pinocchio})\}, \\ \lambda w. \{x \mid \text{student}_w(x)\} \subseteq \{x \mid \text{read}_w(x, \text{heart})\}, \\ \lambda w. \{x \mid \text{student}_w(x)\} \subseteq \{x \mid \text{read}_w(x, \text{the-prince})\}, \\ \dots \end{array} \right\}$$

$$\text{b. } \llbracket \clubsuit \rrbracket = \{\lambda w. \{x \mid \text{student}_w(x)\} \subseteq \{x \mid \text{read}_w(x, \text{pinocchio})\}\}$$

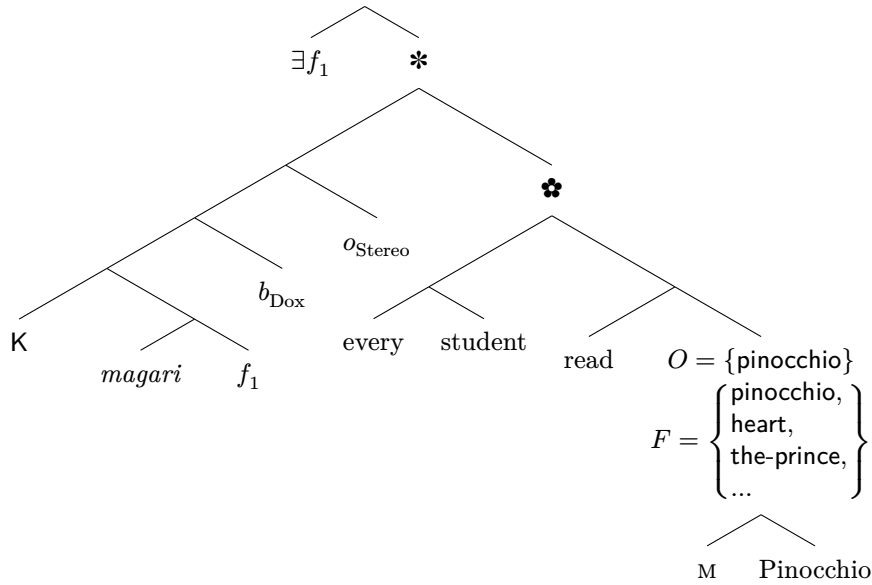
$$(69) \quad \llbracket * \rrbracket^w = \# \text{ if } \neg \text{coarse}(b_w, o_w, \llbracket \clubsuit \rrbracket) \\ = 1 \text{ iff } \forall w' : w' \in b_w \rightarrow \exists p \in \llbracket \clubsuit \rrbracket \cup f_1(\mathcal{P}(\llbracket \clubsuit \rrbracket)) : p(w') = 1$$

$$(70) \quad \llbracket \text{ogni studente} \rrbracket^w := \lambda f. \{x \mid \text{student}_w(x)\} \subseteq \{x \mid f_w(x)\}$$

$$(71) \quad \text{a. } \llbracket \text{M} \rrbracket^w := \lambda f. f$$

$$\text{b. } \llbracket \text{M} \rrbracket^w := \lambda f. \tau. \{f' \mid f' :: \tau\}$$

(72)



What we have seen is that the fundamental idea is still correct: *magari* introduces an implicit disjunction and modifies covert or overt modal expressions. But this idea is very powerful if not constrained correctly: disjunctions not only, and crucially, generate the exemplificational reading when they occur in the scope of modals, but they are responsible for various other inferences that we don't observe *magari* giving rise to. To avoid this, we need to retain a trait of the tentative account sketched in §2.1, namely that a correct characterization of the exemplificational meaning of *magari* requires bidimensionality and crucially access to the alternative dimension of meaning where alternatives are composed. True to its nature of a modal modifier, *magari* marks a constituent for alternatives generation, and then feeds to the modal it modifies a disjunction that is derived from a subset of the alternatives so generated.

2.3.3 Antecedent of conditionals

The main empirical focus of this chapter has been the behavior of *magari* when embedded in the scope of various operators. What happens when *magari* is in the antecedent of a conditional? How is (73) different semantically from its baseline (that is, the same conditional without *magari/by any chance*)? Since some phenomena discussed in §2.4.3 rely on this issue, we should at least highlight the problem here, even though the puzzle will remain essentially unsolved.

- (73) *Se magari Anna è a casa, deve pulire la lettiera.*
 if MAGARI Ann is at home she has to clean the litter box
 'If Ann is home by any chance, she has to clean the litter box.'

For once, we can faithfully translate *magari* with *by any chance*²⁰ — and this

²⁰I will switch between the two expressions freely in this section, since the judgments I collected

fact alone should alert us of the possibility that we are dealing with something new. The upshot of this section is that the semantic contribution of *magari* in antecedents of conditionals is not just inconsistent with the analysis argued for so far (which is designed to model the exemplificational meaning) but also essentially non compositional given the framework we’ve been employing so far. This is because, as we shall see, what *magari* contributes in examples like (73) doesn’t interact semantically with the environment around it (the conditional), in a way that resembles the projective contribution of appositives, expressives, parentheticals and other expressions that are associated with so called conventional implicatures (in the sense of Potts 2005). While this isn’t the concern of this section, adopting a richer framework for semantic composition that is designed to accommodate such phenomena (such as, for example, Potts 2005; Giorgolo and Asudeh 2012), would have to be necessary to give a fully compositional semantic characterization of examples such as (73).

A most prominent theory of natural language conditionals, which in its explicit formulation originates in Lewis (1975) and was then elaborated upon in Kratzer (1986) and much subsequent work, holds that conditional constructions are modal statements that come with an explicit domain restriction provided by the proposition denoted by the antecedent. Take for example a “bare” conditionals like (74): under a classic restrictor theory approach, (74) is a modal statement true at w iff all the worlds that are epistemically accessible from w and in which Ann’s train was on time are also worlds in which Ann got home by noon.

(74) If her train was on time, Ann got home by noon.

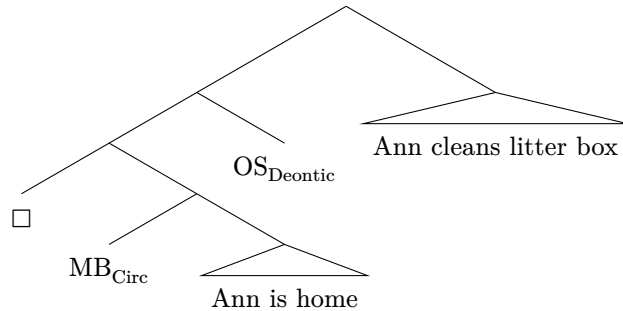
Unsurprisingly, the restrictor theory is well suited to work with the Kratzerian theory of doubly relative modality: the role of the antecedent proposition is just to further restrict a domain of quantification that is determined in much the same way as in the case of modal statements that are not overtly restricted (that is, lacking the equivalent of an *if*-clause or one of those *in view of* phrases). To see a concrete example, consider that (75) expresses an obligation of Ann (on account of the use of the modal *have to*) that is conditioned on her being at home. The way to achieve this meaning in the framework of modality we have employed so far is to assume that the proposition expressed by *Ann is home* restricts the circumstantial modal base which is then ordered by the deontic premise set, and all the best worlds w according to the resulting order are asserted to be such that Ann cleans the litter box in w . These are the truth conditions in (76), and I will assume them without much argument together with the schematic LF for conditional statements in (77).

(75) *Se Anna è a casa, deve pulire la lettiera.*
 if Ann is at home she has to clean the litter box
 ‘If Ann is home, she has to clean the litter box.’

(76) $\llbracket (75) \rrbracket^w = 1 \leftrightarrow$
 $\forall w' : [w' \in \text{Best}(\{u \mid \text{Acc}(w, u) \wedge \text{home}_u(\mathbf{a})\}, \text{De}_w)] \rightarrow \text{clean}_{w'}(\mathbf{a}, \text{lb})$

are identical. The use of *by any chance/magari* in questions is ignored here completely as it’s the focus of Chapter 3.

(77)



Before approaching the issue of *magari/by any chance* in the antecedent, it's instructive to check our predictions for *magari* in the consequent: the three conditionals in (78) exemplify three scope positions in the consequent. Unsurprisingly, an epistemic contribution of *magari* is detectable in (78a), but not in (78b) or (78c).

- (78) If Ann is home,
- magari* she has to clean the litter box.
 - she has to *magari* clean the litter box.
 - she has to clean *magari* the litter box.

The last two conditionals both express that if Ann is home, cleaning the litter box is one way for her to fulfill her obligations, although she has no specific obligation in that regard. The difference between the two is that (78c) indeed entails that she has the obligation of cleaning something, but not necessarily the litter box. All this is predicted: *magari* is parasitic on the deontic universal and its parameters and feeds to the modal as its scope a disjunction of the consequent and some of its alternatives. It's (78a) that deserves a closer look: (78a) is true if it's antievidentially possible that Ann, if she is home, has the obligation of cleaning the litter box. In that case, *magari* modifies the K modal that outscopes the conditional, but we cannot tell whether the constituent that is marked for alternatives generation is just the consequent or the whole conditional construction. This is because the mechanism whereby the quantificational force is weakened (through the distributive inference that arises with low scope disjunction of alternatives that are freely selected by a choice function variable) is powerful enough to handle either case.

Now let's see what issues arise with conditionals like (73), where *magari* is embedded in the antecedent. The first issue is the lack of semantic effects we'd expect to observe if a disjunction were interpreted in the antecedent of the conditional. Conditionals with disjunctive antecedents are known to license a so called Simplification inference, illustrated in (79).²¹ However, (80a), the translation of (73), is perfectly felicitous and true in LITTER BOX, whereas (80b) is false on account of the simplification inference that *if Ann is not home, she has to clean the litter box* being clearly false in that scenario.

²¹The existence of Simplification is a significant theoretical challenge for classical approaches to the semantics of conditionals, including the one adopted here (the restrictor theory). For the purposes of our discussion all that matters is the empirical fact that it exists.

- (79) If you take an Aspirin or go to bed you'll feel better.
 --> *If you take an Aspirin you'll feel better*
 --> *If you go to bed you'll feel better*
- (80) LITTER BOX. The rule of the house is the following: nobody has to come home in time (i.e., before 6pm) to clean the litter box, but if someone happens to be home at that time, then they have to clean it. Cleaning the litter box is Ann's responsibility, but other people can cover for her if she happens not to be home in time.
- a. If Ann is home by any chance, she has to clean the litter box.
 - b. If Ann is home or somewhere else, she has to clean the litter box.

This is a serious problem. If the antecedent *Ann is home* is marked for alternatives generation and *magari/by any chance* modifies the closest modal it is in the scope of, K, the prediction is that (80a) is false in LITTER BOX just like (80b) is, since the scenario makes it clear that the only state of affairs in which Ann has the obligation of cleaning the litter box is her being at home. Another case that illustrates this point is (81): if *magari/by any chance* introduced an implicit disjunction interpreted in the antecedent of the conditional, (81) should be weird, or force an understanding whereby the presence of Dana would prevent Ann from being able to help for some reason other than the fact that the two look identical. However, (81) can be followed by an explanation like: *because the two are identical twins*.

- (81) TWINS. Ann and Beth are going to a party where they know they will find Cora, who is a very secretive person of which there are no known photographs. Beth, unlike Ann, has never met Cora and she asked Ann to quietly point Cora out to her as soon as they are at the party. However, Cora has an identical twin named Dana, and Ann cannot tell the two apart. Ann and Beth don't know whether Dana will be at the party as well.

Se magari c'è anche Dana, non potrò aiutarti.

if MAGARI there is also Dana not I will be able to help you

'If by any chance Dana is there too, I won't be able to help you.'

In fact, it's hard to tell what *by any chance* contributes in (80a) or (81) in the first place— for one thing, if it's removed we obtain a truth-conditionally equivalent conditional. Importantly, however, we do find a use-conditional effect if we look at different types of conditional constructions: for example, in the case of (82), *by any chance* renders the conditional infelicitous. It's clear what the issue is with (82), an example of what Iatridou (1991) calls "factual conditionals": after A's assertion, the context entails that Ann is home— by adding *magari/by any chance* to the antecedent, B seems to convey that knowledge of whether Ann is home or not isn't settled. In other words, *by any chance* in (82) seems to have the role of conveying B's epistemic state of uncertainty as to the truth of the antecedent proposition: such epistemic uncertainty is a felicity condition of ordinary O-marked (or indicative) conditionals, which makes the semantic contribution of *by any chance* in (80a) hard to detect, but factual conditionals such as (82) constitute a lucky exception in this regard.

- (82) A: Ann is home.
B: If she's home { _/ # by any chance}, she has to clean the litter box.

But shouldn't we expect *magari/by any chance* in non-factual O-marked conditionals such as (80a) to be in some sense redundant, if all it does is conveying the speaker doesn't know whether the content expressed by the antecedent is true or false? In fact, we should: knowing what we know about *magari*, however, we expect what's conveyed to be coarse epistemic possibility — and as such to bear the hallmark of what we have called antievidentiality. While it does impressionistically seem that a conditional like (80a) would be dispreferred over its bare version if uttered at a point in time where Ann is expected to be home (say, in the middle of the night), we'd like to have more solid evidence. Consider first the difference between (83a) and (83b): in both cases, it's clear that Ann doesn't know how the test will go. But by using *by any chance* in (83b), the feeling is that she's being encouraging by signaling that she has no reason to suspect she will actually fail the test.

- (83) TEST. Ann has been tutoring Beth for an important test. The day before the exam she wants to reassure her that were she to fail the test, she will tutor her for free for a second attempt.
- a. If you fail the test tomorrow, I will tutor you for free.
 - b. If you by any chance fail the test tomorrow, I will tutor you for free.

What about (84b)? The natural reaction to that assertion, unless it's perceived as ironic, would be to say *well of course she'll be exhausted after running a marathon!*, seemingly refuting the antievidential stance that is conveyed through *by any chance*. The ironic character is also salient with examples such as the biscuit (or speech act) conditional in (85), in which *by any chance* seems to act as a marker of politeness, through which Beth is pretending that she has no knowledge of fact that would make her think Ann is in need of a change of clothes (while she's drenched in mud in her living room).

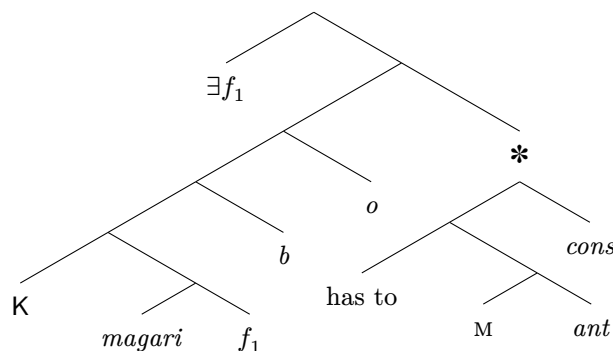
- (84) MARATHON. Ann and Beth are waiting for Cora to finish a marathon. They are wondering whether they should all go rafting later that afternoon.
- a. If Cora is exhausted after this, we'll have to postpone rafting.
 - b. If Cora is exhausted after this by any chance, we'll have to postpone rafting.
- (85) MUD. Ann enters Beth's living room with her clothes drenched in mud. Before she can sit on the couch, Ann utters:
- If by any chance you need clean clothes, I can get them for you.

On the basis of this, we can conclude that *magari* in the antecedent of a conditional (and the expression *by any chance*) retains the fundamental property at the center of our discussion all along: coarseness, which in the epistemic flavor manifests itself as antievidentiality. This conclusion is reassuring on one side (coarseness is associated with the meaning of *magari* regardless of whether it's in the antecedent of a conditional

and translated with *by any chance*, or anywhere else in declaratives), but concerning on another. After all, the present chapter has endeavored to justify an account whereby *magari* is merely a modifier of modal expressions, rather than a modal itself: neither position, however, automatically delivers a good result for the cases at hand.

If we were to revert back to treating the *magari* that is translated with *by any chance* as an epistemic modal, we'd have to stipulate that for some reason it's not interpreted as embedded in the conditional antecedent — else we would wrongly predict, for instance, the two conditionals in (84) to have different truth conditions.²² If instead we stick to the idea that *magari* modifies whatever modal it's in the scope of, we have the problem of the lack anti-exhaustivity generated by the simplification inference associated with the implicit disjunction. This issue emerges if we try to have *magari* mark the conditional antecedent as the constituent whose alternatives project, and feeding the disjunction to K, as the simplified LF in (86) illustrates. The denotation in (67), repeated below, would work in (86) but again it would predict that *if magari p, q* essentially means *it's possible that if p, q, and that if p', q...*, which as we have seen is empirically incorrect.

(86)



(87) $\{\{*\}\} = \{\llbracket \text{if } ant, \text{ has to } cons \rrbracket, \llbracket \text{if } ant', \text{ has to } cons \rrbracket, \dots\}$

(67) $\llbracket magari \rrbracket^w :=$

$$\lambda f. \lambda m. \lambda b. \lambda o. \lambda p : CF(f) \wedge \text{coarse}(b_w, o_w, p). m(b_w, o_w, p \cup f(\mathcal{P}(\text{Foc}(p))))$$

Can the modal restricted by the antecedent be modified by the *magari/by any chance* in the antecedent as in the simplified LF in (88)? If it did, the coarseness presupposition would lead to contradiction with the universal force of the modal (in the case at hand, *have to*). The reason for this is that the alternatives of the antecedent proposition never enter the composition: the antecedent proposition is just

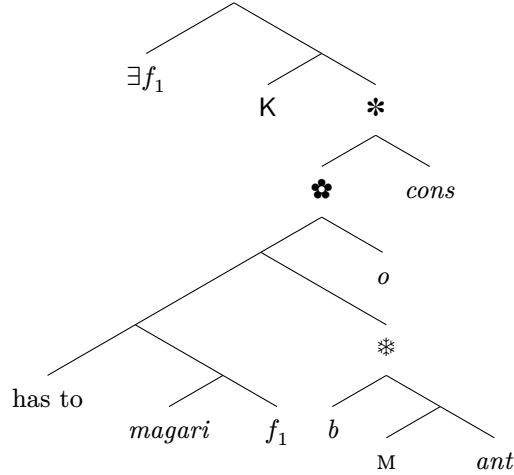
²²It should be noted, however, that *magari* and *by any chance* are far from the only expressions that can modify conditional antecedents without being interpreted locally. Take the sentence adverbial *improbably*, for example: (i) conveys that the speaker deems the circumstance of Ann showing up improbable, but *improbably* itself doesn't affect the truth conditions of the conditional at all.

- (i) If improbably Ann shows up, we'll have to talk with her.

It's clear that a satisfactory analysis of the bidimensional contribution of *magari/by any chance* in conditional antecedents should have something to say in the general case of sentence adverbials.

used to restrict the modal base (as in any conditional). Since *magari* doesn't mark the consequent for alternatives generation in (88), the set of alternatives that existential closure quantifies over is just the singleton containing the consequent proposition itself, which makes the coarseness presupposition unsatisfiable (a point already made on page 43).

(88)



$$(89) \llbracket * \rrbracket^w = \{u \mid \text{Acc}(w, u) \wedge \text{ant}_u\}$$

$$(90) \llbracket \clubsuit \rrbracket^w = \lambda p : \text{CF}(f_1) \wedge \text{coarse}(\llbracket * \rrbracket^w, o_w, p). \\ \forall w' : [w' \in \text{Best}(\llbracket * \rrbracket^w, o_w)] \rightarrow \exists p' \in [p \cup f_1(\mathcal{P}(\text{Foc}(p)))] : p'(w') = 1$$

$$(91) \llbracket * \rrbracket^w = \# \text{ if } \neg \text{coarse}(\llbracket * \rrbracket^w, o_w, \text{cons}) \\ = 1 \text{ iff } \forall w' : [w' \in \text{Best}(\llbracket * \rrbracket^w, o_w)] \rightarrow \\ \exists p' \in [\text{cons} \cup f_1(\mathcal{P}(\text{Foc}(\text{cons})))] : p'(w') = 1$$

If we were to replace the modal in (88) with an existential one, this issue would of course not arise (the result would only be imposing coarseness of the restricted modal base and the ordering source with respect to the consequent proposition), but nevertheless, as things stand, if an LF like (88) were possible we would predict the simplest indicative conditionals with *magari/by any chance* in the antecedent to be infelicitous in any context. It thus seems that when *magari* occurs in a clause p that restricts a modal operator m , it cannot be parasitic on m the way it does when it's in its scope: its contribution is rather the seemingly parenthetical assertion that the proposition expressed by p is coarsely possible. Why that is the case is not clear to me: we'll see in Chapter 3 that this behavior of *magari/by any chance* is found in questions too (tentatively, another environment where the adverb is not in the scope of a local modal operator). One choice point that an analysis of this bidimensional effect would face is whether to maintain the function of *magari* as a modifier of an epistemic modal in the parenthetical dimension too or to go back to an analysis along the lines of Chapter 1's.

Before concluding this exploration and moving on to imperatives, we should note that a correct characterization of *by any chance/magari* cannot be achieved by simply

pretending that, somehow, epistemic possibility is asserted at the matrix level. If that were the case, *by any chance* should be incompatible with counterfactual conditionals, but — just like *magari* — it isn't. On its counterfactual reading, (92) presupposes that Ann was not at the game yesterday. This of course means that *by any chance* in (92) cannot assert that the antecedent is possible (coarsely or otherwise) at the index of evaluation of the conditional — otherwise (92) should be infelicitous in any context that satisfies its counterfactual presupposition.

- (92) If she had been at the game yesterday by any chance, Ann would have met my sister.

On an intuitive level, the antievidential effect is detectable with (92), which does sound a bit weird in a scenario in which Ann is a player (as opposed to a spectator) — her being a player would certainly constitute a reason to think it possible that she would be at the game. So, one would want to say that examples such as (92) show that the possibility statement that is conveyed by *by any chance* is evaluated at an index that is different from the one at which the conditional is evaluated. But what index? Under a past-as-past account of counterfactuality (among others Ippolito 2003; Arregui 2005), a natural hypothesis would be that what *by any chance* conveys is that the proposition denoted by the antecedent was a coarse possibility at the same times in the past at which the conditional could have been true. If instead a past-as-modal approach (among others Stalnaker 1975; von Stechow 1998; Iatridou 2000) is adopted, there is no natural candidate for an evaluation index. One tentative option could be the following: given counterfactual conditional *if magari p, q* evaluated at w , what's conveyed by *magari* is that p is coarsely possible at all the worlds w' that are most similar to w and such that among the worlds accessible from w' there are some where p is true and some where p is false (that is, the relevant epistemic anchor doesn't know whether p is true or false in all the w' worlds).

Finally, a puzzling type of X-marked conditional offers another yet another interesting test case for *magari/by any chance*: these are the conditionals that admit a reading that was first observed in Anderson (1951). In (93) is the example given there, for which the “Anderson reading” is particularly salient. A doctor asserting (93) is not presupposing that Jones didn't take arsenic, but in fact is providing a reason to conclude that indeed he did take arsenic.

- (93) If Jones had taken arsenic, he would have shown just exactly those symptoms which he does in fact show. (Anderson 1951: 37)

Now compare the scenarios (94) and (95): depending on which scenario it's uttered in (96a) is a counterfactual or an Anderson conditional respectively.

- (94) COUNTERFACTUAL VENDETTA. Cora came to the party alone. Ann, Cora's ex wife, remarks to Beth that Cora was very respectful: if she had intended to hurt her, she would have come with Sara, with whom Cora cheated on Ann.
- (95) ANDERSON-VENDETTA. Ann's ex wife Cora came to the party with her new girlfriend Sara. Ann and Beth later wonder whether Cora still wants to be on good terms with Ann. Ann makes the point that since she brought Sara to the party, Cora clearly intended to hurt her.

- (96) a. *Se avesse voluto ferirmi, sarebbe venuta con Sara.*
 if had wanted to hurt me would have come with Sara
 ‘If she had wanted to hurt me, she would have brought Sara.’
- b. *Se magari avesse voluto ferirmi, sarebbe venuta con Sara.*
 if MAGARI had wanted to hurt me would have come with Sara
 ‘If by any chance she’d wanted to hurt me, she would’ve brought Sara.’

Adding *magari* to the antecedent however changes the picture: every speaker who accepts (96a) in scenario (95) finds (96b) dispreferred, from odd to outright infelicitous. Why is that?

One initially plausible reason for this might be that interpreting an X-marked conditional under its Anderson reading derives that the speaker has an epistemic commitment on the truth of the antecedent that is similar to the assertion. That is, uttering (96b) in the ANDERSON-VENDETTA scenario commits her to believing that Cora wanted to hurt her just as much as if she had plainly asserted as much. Or, to take Anderson’s original example in (93), whoever is doing the diagnosis there is concluding, and not merely suggesting, that Jones took arsenic. We could then attribute the seeming incompatibility of a *magari*-antecedent with the Anderson reading on the fact that the use of *magari* conveys a weak epistemic commitment that is at odds with the Anderson reading itself. The commitment that comes with Anderson cases is however not this strong, as pointed out in Anderson (1951) itself. In fact, the doctor who utters (93) can follow up by saying *so, however unlikely that might be, we cannot rule out arsenic at this point* (supposing Jones didn’t have as easy an access to arsenic as Emma Bovary did).

I’d like to suggest that the issue is in fact, once again, that the possibility expressed has antievidential character. Intuitively, an Anderson conditional of the form *if p, q* is used to convey that the settled fact that *q* is ground to suspect *p* is the case. This is exactly the definition of an epistemic state that is not antievidential with respect to *p*. In §1.3 the role of contextual domain restriction was discussed in relation to the negotiability of the coarseness presupposition, in order to explain why in some circumstances a *magari p* epistemic statement can follow an assertion that amounts to evidence for $\diamond p$, or when the context entails that such evidence exists. But what we have here is arguably a different case: the presupposition of coarseness that underlies the antievidential character of the assertion that $\diamond p$ is interpreted alongside the at issue meaning, which under the Anderson reading is precisely the offering of some evidence to think that *p* might be the case. What (96b) conveys is, at the same time that Cora bringing Sara is reason to suspect that she wanted to hurt Ann, and that it’s possible that Cora wanted to hurt Ann but there is no knowledge of any fact that supports that possibility — a clear contradiction.

2.4 Disjunction in imperatives

Another type of clause in which *magari* is found (again, similar to English *maybe*) is the imperative, which is a label used both to refer to the clause type and to

the morphosyntactic marking that characterizes it (if any). Traditional descriptive grammars define imperatives as those clauses that express a command rather than, for instance, an opinion or a request for information. There is sharp disagreement in the literature as to how this description should be cashed out in a formal semantic and/or pragmatic theory — and we will very summarily explore some of this disagreement in §2.4.1. What’s crucial is that, despite their name, imperative clauses are not always used to give commands or express obligations that the addressee is expected to fulfill. How this variability in the meaning is to be accounted for, and also to what extent this is a question that is to be addressed in pragmatic terms, are major questions theories of imperatives have striven to settle. For the rest of this section, I will use the labels “strong” and “weak” to distinguish between imperative clauses that express obligations or commands and all other uses respectively: as the non exhaustive list in (97) suggests, the latter is on its face a quite heterogeneous class.

- (97) Some types of weak imperatives:²³
- | | |
|---|---------------|
| a. Turn off the light, please! | Request |
| b. Stay away from the projector! | Warning |
| c. Have fun at the party! | Wish |
| d. (It starts at eight, but) come earlier if you like!
(Hamblin 1987: 30) | Permission |
| e. Can I open the window? — Sure, open it!
(von Stechow and Iatridou 2017) | Acquiescence |
| f. Go left, go right! I don’t care.
(von Stechow and Iatridou 2017) | Indifference |
| g. All right, don’t come then! | Concessive |
| h. Win a drum!
(Murray 2016) | Advertisement |

Let’s substantiate the claim that (97) is a heterogeneous list. If we take, for the sake of argument, the expression of a command, uttered in a scenario where the speaker has the authority to give that command to the addressee, as the “basic” meaning of all imperative clauses, the request imperative in (97a) is the closest we get to such basic meaning. In some intuitive sense, (97a) is a weakened command: that the lights be turned off is clearly perceived to be the desired outcome on the part of the speaker, but the addition of *please* somehow removes the understanding that the speaker considers themselves to have the authority of commanding anything of the sort (again, this informal characterization is not actually meant to be a theory of weak imperatives).

But in (97) we have very different cases too. Take, for instance, the indifference case: what’s removed from the hypothetical basic character of an imperative in (97f)

²³Unless otherwise noted, all examples and labels in (97) come from Kaufmann (2012: 169).

is not just the expression of authority, but also any expression of desire on the part of the speaker, and quite explicitly so.²⁴

We can even move beyond this point and get to the concessive use exemplified by (97g), which seems to convey that the state of affairs represented by the prejacent (the addressee not coming) is in fact in contrast with what the speaker previously intended to be the case. Finally, we have advertisement imperatives like (97h), used in contexts in which the addressee isn't expected to be in a position to act on the utterance of the imperative to verify its prejacent. In all other cases in (97), the speaker is offering the addressee a course of action that they are able to adopt, if they so choose: but the prototypical use of (97h) is an encouragement to play a game where the addressee might end up winning a drum by chance.

The reason we are talking about this here is that *magari* constrains the interpretation of the imperatives it occurs in to a particular subclass of the weak ones: section 2.4.2 attempts to characterize this class, and see whether what we have said about *magari* so far can explain this restricted distribution. Before going there, however, we need a very brief overview of some different approaches as to the meaning of imperatives.

²⁴There would be more to say about the indifference cases such as (97f). As Sabine Iatridou pointed out to me, *I don't care* seems to be necessary in (97f), which calls into doubt the claim that imperatives themselves can have a genuine “indifference” reading. Note that (i) is clearly an inappropriate answer, as opposed to (97f) in the same context. Analogously, (ii) is somewhat degraded in the same contexts in which (97f) is acceptable, and the difference between the two only lies in whether the explicit assertion of indifference precedes or follows the sequence of imperatives that offer two incompatible courses of action.

- (i) A: Do you care which way we go?
B: # (No.) Go left, go right!
- (ii) # I don't care; go left, go right!

What (ii) shows is that there is a seemingly dynamic effect at play: if indifference is explicitly stated first, the sequence of incompatible imperatives is not felicitous. This issue however cannot easily be explained in terms of redundancy—that is, attributing (ii)'s infelicity to the fact that the indifference imperatives' contribution on the CG is vacuous (the speaker having already asserted they don't care which way the addressee chooses to go). If this were the case, the default expectation would be for (iii) and (97f) itself to be infelicitous as well, while in fact they are not.

- (iii) I don't care; go left or (go) right!

Thus, it may very well be mistaken to think that imperatives themselves can express true indifference, and examples such as (97f) remain to be explained: why must indifference be asserted in order for a sequence of two incompatible imperatives to be felicitous? Note that variations of (97f) in which indifference is not stated as explicitly are also good, as long as the statement follows the sequence of imperatives:

- (iv) Go left, go right! As long as you don't go straight...
- (v) # As long as you don't go straight... Go left, go right!

2.4.1 Modals or not?

Any theory of the meaning of imperatives has to take a position on a very fundamental question: what kind of object do they denote? The number of answers to this question in the literature is considerable, and it's well beyond the scope of the present discussion to examine them all. In fact, we won't even need to settle on any particular answer: all we need is to be clear on the minimal desiderata for a theory of imperatives that allows us to make sense of the use of *magari* in these clauses. The upshot is that any theory that treats imperative clauses as modalized statements will do for our purposes.

When it comes to assertions, a natural move to answer that question is to start by observing that whatever their denotation is, assertions are the kind of thing that can be said to be true or false — identifying their meaning with propositions is the consequence of this observation. Intuitively, this property doesn't hold of imperatives (regardless of whether they are weak or strong). In the case of interrogatives, one way of getting off the ground is to recognize that knowing the meaning of a question has to involve knowledge of what counts as a meaningful conversational move following the question — in the canonical case, what a good answer is. The fact that interrogative clauses can be syntactically and semantically embedded in various configurations has been a fecund source of evidence that has heavily informed semantic theories of questions (Karttunen 1977; Groenendijk and Stokhof 1984; Heim 1994; among many others): question embedding predicates provide us with a much more precise “testing environment” for our hypotheses as to the denotation of interrogative clauses.

When it comes to imperatives, the diagnostic potential of semantic embeddability is much reduced, to the point that until recently the supposed impossibility of embedding imperatives was taken to be a defining feature of this type of speech act (see e.g. Han 1998). More recent research has highlighted that imperatives can in fact be embedded in certain environments — not only, as we shall see in §2.4.3, in coordination with declarative or other imperative clauses (see among others Clark 1993; Russell 2007; Kaufmann 2012; von Stechow and Iatridou 2017; Starr 2020; Dawson 2022), but also in the scope of some predicates (e.g. Crnić and Trinh 2009; Kaufmann and Poschmann 2013). However, the quite limited range of constructions that has been claimed to involve embedded imperative clauses makes this angle of tackling the overarching question less straightforward than in the case of interrogatives.²⁵

Conceptually, the issue of embeddability directly bears on the main divide between current theories of imperatives: a divide I will refer to, following von Stechow and Iatridou (2017), as the one between strong²⁶ and minimal theories. The difference between the two families of theories is quite radical: strong theories treat imperatives as modalized assertions (whose performative and non truth-conditional character is guaranteed by

²⁵Condoravdi and Lauer (2012: 57) even suggest that it's precisely this restricted distribution of embedded imperative clauses that might be responsible for the great varieties of uses of imperatives, weak and strong of all kinds (itself a major explanandum): “It is quite conceivable that some speakers take imperatives to denote properties, while other speakers in the same community take them to denote propositions”.

²⁶“Strong” is thus used here in two ways when talking about imperatives: the talk of “strong theories” has nothing to do with strong readings (or interpretations, or uses) of imperatives mentioned on page 96.

conventions of use of various nature), minimal ones consider imperatives devoid of any modal force.

Portner (2007), for example, presents a minimal theory, according to which imperatives denote properties that can only apply to the addressee. What makes imperatives special is that their utterance interacts with a dedicated contextual resource, the To-Do-List of the addressee: just like acceptance of an assertion a , in a Stalnakerian setting, is modeled as the addition of $\llbracket a \rrbracket$ to the Common Ground, acceptance of an imperative like *sit down!* is the addition of the property in (98) to the To-Do-List of the addressee.

$$(98) \quad \llbracket \text{Sit down!} \rrbracket^c = \lambda w. \lambda x : x = \text{addressee}_c. \text{sit-down}_w(x)$$

In the choice point of the division of labor between semantics and pragmatics, an approach along these lines opts for a departure from a propositional denotation and embraces a richer, more structured model of the context of conversation. Associating the interpretation of imperatives with an additional dedicated contextual parameter, the To-Do-List, may seem like a costly move. One thing it does provide, however, is an intuitive and straightforward explanation for the fact that imperatives cannot be agreed or disagreed with.

Strong theories go the other way: the directive force associated with imperatives ensues from the presence of dedicated operators in the semantic representation of the clause. Doing things this way has, as a natural (but not forced) consequence, the identification of imperative denotata with modalized statements, and of the operators characteristic of imperative clauses with modal expressions.

Mostly because of the rich variety of weak uses of imperatives, strong theories usually don't assume that the basic type of imperative operator is universal in force. For example, in some cases the imperative operator is assumed to be a variable-force modal (Grosz 2011), in others an existential modal that is strengthened either semantically (Kaufmann 2012) or as a scalar implicature (Oikonomou 2016, 2022). In analyses of this kind, the performative and non truth-conditional character of imperative utterances has to be somehow guaranteed by use-conditional requirements associated with the imperative operator itself (in the form of presuppositions, in the case of Kaufmann 2012).

An overview of all the different theories of imperatives here could never do justice to any of them. The debate between strong and minimal theories is far from being settled, but since the point of this section is to test what the characterization of the meaning of *magari* in terms of disjunction plus coarseness predicts, I will implicitly subscribe to a theory along the lines of Kaufmann's (2012), whereby imperatives are sentences modified by priority modals, whose interpretation is context dependent the way all modality (and all quantification) is in natural language. This choice is the most natural for us, since I've argued *magari* to be a modifier of modal expressions that needs access to the Kratzerian conversational backgrounds. Whether the underlying quantificational force of the imperative operator is universal or existential should not concern us, because the effect of modification through *magari* will result in a weakening of the quantificational force just like it was observed with propositional attitudes in §2.1. What we really care about is to see whether or not we can explain

the restricted distribution of *magari*-imperatives on the basis of the hypothesis that the exemplification reading is an instance of narrow scope disjunction.

2.4.2 A special subclass of weak imperatives

In a pre-theoretical sense, we may say that imperatives are multiply ambiguous: between weak and strong readings, and between different types of each. Certain expressions, however, can disambiguate between these readings (again, in a pre-theoretic sense). For example, the simple addition of *please* in cases like (97a) is enough to make the imperative a request, which is one of the possible weak uses of a bare imperative clause. Another example that has been discussed in the literature is the disambiguation achieved by the German particles *ruhig* and *bloß* (Grosz 2011: 3). In (99), the two adverbs disambiguate between a strong and a weak reading of the imperative:

- (99) a. *Iss {#bloß / ruhig} den Spinat! Das stört mich nicht.*
 eat BLOSS RUHIG the spinach that disturbs me not
 ‘Go ahead, eat the spinach! That doesn’t bother me.’
- b. *Iss {bloß / #ruhig} den Spinat! Sonst wirst du bestraft.*
 eat BLOSS RUHIG the spinach or else will be you punished not
 ‘Eat the spinach! Or else you’ll be punished.’

We have already mentioned that *magari* imperatives are all weak: but what type of weak imperatives exactly? Inspired by the type of diagnosis exemplified by (99), we want to contrast *magari* with another adverb, the additive *pure* ‘also’.²⁷ The two are the same insofar as they are incompatible with a strong, command-like interpretation of the imperative in which they occur, but crucially they are not equivalent, as the imperative clauses they return are weak but rather different in use conditions. To prove this point we have to find scenarios that discriminate the felicity of each: the three scenarios in (100) show that while there are cases in which both *magari* and *pure* are felicitously used in an imperative, there are also scenarios that rule out one of the two.

- (100) John intends to go get groceries today but he’d have to walk and it’s raining pretty heavily...

²⁷The contrast between *magari* and *pure* in imperatives is also observed and briefly discussed in D’Antuono (2020: 86–88). Unfortunately I am not sure to what extent the insight expressed there is in agreement or disagreement with the characterization of the contrast I am about to propose. It seems that the denotation for *magari* in (85) on page 59 is the one that D’Antuono also assumes to be operative in imperative clauses. First, it’s not clear what D’Antuono takes imperatives to be from a semantic point of view—again, our own minimal commitment is that they are modalized propositions whose performative character is guaranteed by certain presuppositions lexicalized by the imperative modal (Kaufmann 2012). D’Antuono uses the imperative to illustrate that *magari* cannot be “equivalent” to *forse* ‘perhaps’ (an initially plausible idea given *magari*’s epistemic use discussed in Chapter 1—a use that is however not addressed in D’Antuono 2020), as the latter is completely incompatible with any imperative clause. In discussing the contrast with *pure*, D’Antuono (2020: 86) makes the (I think correct) remark that “*magari* makes an imperative more of a suggestion than an order, or even an invitation”.

- a. RAIN-1. ...He thus asks Ann: *Could I maybe take your car?*. Ann replies:
 b. RAIN-2. ...Ann, who has a car, tells him:
 c. RAIN-3. ...Ann has no car, and she advises him:
- (101) a. *Prendi pure la mia macchina!*
 take also the my car
 ‘Go ahead and take my car!’ RAIN-1: ✓; RAIN-2: ✓
- b. *Magari prendi la mia macchina!*
 MAGARI take the my car
 ‘Take my car maybe!’ RAIN-1: #; RAIN-2: ✓
- c. *Vai pure domani!*
 go also tomorrow
 ‘Yeah sure, go tomorrow!’ RAIN-3: #
- d. *Magari vai domani!*
 MAGARI go tomorrow
 ‘Go tomorrow maybe!’ RAIN-3: ✓

Let’s start with (101a), which is felicitous in both RAIN-1 and RAIN-2. The difference between the two scenarios lies entirely in whether or not John expresses a request to Ann. In other words, *pure p!* is felicitous regardless of whether the addressee has explicitly expressed (through the pragmatics of requests) their desire that *p*. This very distinction is, given (101b), critical in determining the felicity of *magari*. The contrast between the two scenarios in supporting (101b) indicates that a *magari* imperative cannot be used in granting permission upon explicit request, but rather it should be a permission that is granted after the speaker has made a guess about the intentions of their interlocutor. We may say that *magari* imperatives are (or can be) interpreted as “unprompted permission”, as opposed to “prompted permissions” such as (101a) in scenario RAIN-1.

Unprompted permission is not the only possible use of a *magari* imperative, as the felicity of (101d) demonstrates. There is no sign in RAIN-3 that John wants to wait until tomorrow to go get groceries, which is why the speech act performed by Ann is described as an advice rather than a permission. One could of course define it as a permission, because the effect of uttering (101d) in a context in which the speaker has the authority to tell the addressee when they are allowed to go to get groceries does amount to permission, but the two notions here must be kept separate. Advice imperatives, here, are those that serve to bring up a possibility that was neither mentioned nor particularly salient, and thus such that the addressee might not have been considering on their own. We see that when it comes to these types of imperatives, *magari* is perfectly felicitous: it is *pure* that is incompatible with the advice/suggestion use, as (101c) shows. The summary from these observations is that *magari* can be used in either unprompted permissions or suggestions, *pure* in permissions in general. The latter adverb, when used in imperatives, feels very similar to the English expression *go ahead*. And in fact we see that the judgments replicate:

- (102) a. {Go ahead (and) / _ } take my car! RAIN-1: ✓; RAIN-2: ✓

- b. {# Go ahead (and) / _ } go tomorrow! in RAIN-3

There is an intuitive reason why *pure* exhibits this distribution, and it relates to its additive character that is transparent in declarative clauses like those in (103). In both cases, *pure* activates alternatives determined by its association — with the subject DP in (103a) and with the VP in (103b) — and presupposes that one among them is a discourse antecedent.

- (103) a. *Pure Anna mi ha chiamato ieri.*
 PURE Ann me has called yesterday
 ‘{Ann too/even Ann} called me yesterday.’
 b. *Anna mi ha pure chiamato ieri.*
 Ann me has PURE called yesterday
 ‘Ann {also/even} called me yesterday.’

As the translations indicate, all uses of *pure* in declaratives can also receive a scalar, *even*-like interpretation, subject to constraints that are not entirely clear to me. I will set this issue aside and claim that the additive nature of the adverb is what makes its use in (101c) infelicitous. The facts in the scenarios in (100) are as follows: John’s plan is to get groceries today, but rain makes it unpleasant enough to realize that he might have to give up on the plan after all. The context entails that using a car would make it possible for him realize his plan without further problems, and Ann happens to own a car. Now, whether or not this desire is expressed by him or not, the use of *pure* in (101a) is felicitous because its prejacent, loosely paraphrasable as *I’m OK with you using my car* has a salient antecedent like *John is OK with using Ann’s car*. If this is the correct interpretation of these data, it would mean that *pure*, when it directly follows the verb in the imperative mood, can associate with the anchor of the priority modal statement that is denoted by the imperative itself.^{28,29} The reason

²⁸This cannot be the whole story of the use of *pure* in imperatives, however. One thing that remains unclear is why this type of association with the anchor of the modal statement forces a weak interpretation of the imperative. It would initially seem that a story along these lines could explain it: by uttering *pure p!* the speaker is acknowledging that the addressee has a positive predisposition toward *p*, by virtue of the additive presupposition associated with *pure*. An acknowledgment of this type could then be said to be incompatible with the pragmatics of commands. However, there is obviously more to a command of *p!* than the agnosticism about the addressee’s attitude toward *p*: most basically, there is the understanding that the speaker’s priorities entail *p*. The permissions formulated with *pure*, on the other hand, miss this fundamental property (they are true weak imperatives).

Interestingly, we see that when the position of *pure* excludes this type of broad association, the strong, command-like interpretation of the imperatives is available — indeed, it’s the most salient interpretation in a case like (i). This is because the only interpretation of (i) in which the antecedent for *pure* is one of the addressee’s desires is one where the addressee intends to write a letter to someone other than Anna.

- (i) *Scrivi una lettera pure ad Anna.*
 write a letter PURE to Ann
 ‘Write a letter to Ann as well!’

²⁹Another property of *pure* is that it cannot be used in negated imperatives:

(101c) is infelicitous in RAIN-3 would then simply be that its acceptance requires accommodation of an attitude ascribed to the addressee that is not salient in, let alone entailed by, the context (in this case, that John would be OK with waiting until tomorrow to get groceries).

A second type of weak imperative that is compatible with *magari* is the advice type, and the best way to illustrate it's to use an example put forward in Schwager (2005) and Kaufmann (2012). Her original example, reported in (104), is particularly interesting because it's characterized by the crucial contribution of *zum Beispiel* 'for example', which for obvious reasons should remind us of *magari*, whose meaning we have here described as exemplificational.

- (104) *Kauf zum Beispiel keine Zigaretten!*
 buy for example no cigarettes
 'For example, don't buy cigarettes.'

Schwager's claim is that (104) is ambiguous between $\neg\Diamond$ buy-cigarettes(addressee)

-
- (i) *Non andare { *pure / _ } oggi!*
 not go PURE today
 (??) 'Go ahead, don't go today!'

This restriction is most likely of syntactic nature, to attribute to the fact that the verb in positive imperatives occupies a higher position in the clause than the verb in the infinitive form that is used in negated imperatives. Evidence for this comes from the distribution of pronominal clitics (Zanuttini 1994), which precede T in declaratives and the infinitive form in the negated imperative, as (ii.b) and (ii.c) respectively show.

- (ii) a. *Anna glielo ha detto.*
 Ann 3SG.DAT 3SG.ACC has said
 'Ann told him/her this.'
- b. *Non dirglielo!*
 not say.INF 3SG.DAT 3SG.ACC
 'Don't tell him/her this!'
- c. *Diglielo (pure)!*
 say.IMP 3SG.DAT 3SG.ACC PURE
 '(Go ahead) tell him/her this!'

Presumably, to convey the meaning we are interested in *pure* has to be in a syntactic configuration in the imperative clause that is simply not available to it if the verb remains in the lower position. Note that *magari* can deliver its advice/permission effect on the imperative without any such restriction, and it can occur in sentence initial and sentence final position (see D'Antuono 2020: for more on the possible syntactic configurations for *magari*).

- (iii) a. *(magari) non dirglielo (magari)!*
 MAGARI not say.INF 3SG.DAT 3SG.ACC MAGARI
 'Maybe don't tell him/her this!'
- b. *(magari) diglielo (magari)!*
 MAGARI say.IMP 3SG.DAT 3SG.ACC MAGARI
 'Maybe tell him/her this!'

and $\diamond\neg\text{buy-cigarettes}(\text{addressee})$.³⁰ To better distinguish the readings, one would think of (104) as an answer to different questions:

- (105) a. What do I have to do to stop smoking?
answer: $\neg\diamond\text{buy-cigarettes}(\text{addressee})$
 b. How could I save money?
answer: $\diamond\neg\text{buy-cigarettes}(\text{addressee})$

The two readings of course fall in the categories of strong and weak respectively but, in Schwager’s (2005) words, they are both “inexhaustive”: in each case, not buying cigarettes is presented as just one obligation or possibility among others. It should not be surprising at this point that *magari* eliminates the ambiguity. The only reading that (106) and its English translation have is the weak one: not buying cigarettes is given as an advice as one of several things the addressee could decide on doing (for instance, if they plan to save money).³¹

- (106) *Magari non comprare sigarette!*
 MAGARI not buy cigarettes
 ‘Don’t buy cigarettes, maybe!’

The obligatory weakness of (106) comes about in the usual way, by virtue of having a disjunction in the scope of a modal (the imperative operator). The inexhaustive character, on the other hand, results from the fact that the disjunction is implicit, in the sense that only one disjunct (i.e., one possible course of action) is overtly expressed and the others are selected among the alternatives by a choice function variable. Uttering (106) conveys that not buying cigarettes is but one of several possibilities precisely because the LF of (106) is one in which not buying cigarettes is one disjunct under the priority modal alongside a number of undisclosed disjuncts.

Together with some basic pragmatic consideration on what’s relevant to contribute to a conversation, the fact that *magari* imperatives are implicit disjunctions under a priority modal explains the distribution. Suppose that we model relevance as (partial) answerhood, as is usual since at least Groenendijk and Stokhof (1984), and that the flow of conversations is in part regulated by questions that are either explicitly asked or salient in the conversational context — in both cases, a Question Under Discussion or QUD (Roberts 1996/2012). To see where this is going, note that this

³⁰These regimentations are meant as an illustration only: Kaufmann doesn’t derive the ambiguity of (104) as an ambiguity of relative scope between negation and a modal operator. Rather, Kaufmann assumes that a basic existential force of imperative clauses is strengthened through a covert exhaustifier (inspired by Zimmermann 2000). Whether or not this exhaustifier strengthens the underlying existential modal before application of the antiexhaustifier *zum Beispiel* ‘for example’ is what determines whether the reading is one of inexhaustive necessity or inexhaustive possibility.

³¹Interestingly, using *vielleicht* ‘maybe’ instead of *zum Beispiel* also is judged (Viola Schmitt and Kai von Fintel, p.c.) to only have this weak interpretation, just like (106):

- (i) *Kauf vielleicht keine Zigaretten!*
 buy maybe no cigarettes
 ‘Don’t buy cigarettes, maybe!’

pretty uncontroversial assumption already provides a clear way of distinguishing between the three scenarios in (101): in RAIN-1 the question *May I take your car?* is explicitly posed, in RAIN-2 it could be perceived as salient, in RAIN-3 it just isn't the QUD (Ann has no car in RAIN-3 anyway). Now, after the distributive inference of the modal over the disjunction is computed, we have the schematic meaning in (107) for a *magari* imperative, whereby the identity of $q \dots q'$ is not recoverable from the utterance itself.

$$(107) \quad \llbracket ! \text{ magari } p \rrbracket \approx \diamond p \wedge \diamond q \wedge \dots \wedge \diamond q'$$

We can see in what sense any *magari* imperative is irrelevant — and thus not felicitous as a conversational move — when its prejacent p answers a QUD. By signaling, through the implicit disjunction, that there are other courses of actions that the speaker would endorse, the effect is just as bizarre as the reply in (108), with the aggravating factor that the other options aren't even expressed so that the interlocutor is presumably left guessing.

(108) A: Can I take your car?

B: I am OK with you taking my car and with you taking the train.

The reason of the sharp contrast between the judgments reported in (101b) is that in RAIN-1 *magari* is infelicitous because the question was posed explicitly just as in (108) above, whereas RAIN-2 there was no explicit question posed, and so (101b) is interpreted as a felicitous answer to a more general QUD like *What would you like me to do?* (for example).

What about the other types of weak imperatives? Regardless of whether and how a general theory of imperatives is capable of deriving these uses, we can see why the implicit disjunction introduced by *magari* is fundamentally incompatible with their conditions of use. Requests and warnings are the clearest case where *magari* is correctly predicted to be infelicitous: if I express a request that my interlocutor do p , how effective would I be if I also conveyed that another unspecified course of action would be a way of fulfilling my needs or desires? Similarly, if I warn my interlocutor of some state of affairs p , how am I being cooperative if I also express warning about another state of affair q that I am not being explicit about?

To conclude the small typology, we are left with acquiescence and indifference. The incompatibility of *magari* with acquiescence uses is of the same nature as the one with prompted permissions: acquiescence is not permission, but it only makes sense as a reaction to a request of some sort. Indifference is a different case. In the example given above (*Go left, go right! I don't care*) two courses of actions that exhaust the space of possibilities are involved. If *magari* were added to either imperative, it would implicitly introduce other courses of action to be endorsed: but which ones? It's hard to build exemplification in these indifference uses without either being redundant (if the implicit disjunct is taken to be the contextual opposite of the prejacent) or irrelevant (for the same reason as with the prompted permission). An effect very similar to indifference, however, is achieved through simple *magari* imperatives: something like (109) is acceptable in scenarios that support (97f), the original indifference case.

- (109) *Magari vai a destra!*
 MAGARI go to right

Once again, the fact that (109) conveys that the speaker is neutral to the option that the addressee go right falls out of coarseness: not one of the speaker’s priorities entails that the addressee goes right—the weakest form of compatibility between going right and the speaker’s preferences is derived.

2.4.3 The special class of IaDs

In the previous section we saw that the implicit disjunction hypothesis provides us with some clue to the understanding of the distribution of *magari* in imperative clauses. Throughout the discussion we have assumed a modal (or “strong”) theory of imperatives, but it’s not self-evident that the distributional insight derived from treating *magari*-modified clauses as disjunctive could not be carried over to a minimal theory. Now we move to a case in which *magari* presents a different type of distributional puzzle for which we have no clear answer. As such, this section will be inconclusive: its intended contribution is to let the discoveries made in this chapter add more questions to a particularly puzzling construction that involves imperative clauses.

“Imperative and Declarative” (IaD) is the very transparent name that Kaufmann (2012: 221) gives to constructions such as those in (110): conjunctions whose first conjunct is an imperative,³² and the second a declarative. A striking feature of IaDs is that they are obligatorily interpreted as a conditional, and as such they are *prima facie* an instance of the bigger phenomenon of conditional conjunction. For example, (110a) is understood to mean something like *If you invite Ann, the party will be a success*.

- (110) a. Invite Ann and the party will be a success! (e-IaD)
 b. Invite Ann and I am certainly not coming! (n-IaD)

There is an important difference between (110a) and (110b). In the former the speaker seems to endorse the course of action expressed by the imperative component (i.e., the speaker endorses the idea of the addressee inviting Ann) while in the latter there is no such endorsement (in fact, the speaker is understood to endorse the opposite,

³²In the case of English, much of the puzzle of IaDs could be made to disappear by embracing an ambiguity analysis whereby the first conjunct in sentences like the ones in (110) is not analyzed as an imperative but instead as a bare VP (see e.g. Russell 2007): this would resolve the thorny question of why such sentences seem to be deprived of obvious directive force (of any strength)—provided a credible story can be made about what these bare VPs mean (note that minimal theories of imperatives are in a better position with respect to this problem, a point stressed in von Stechow and Iatridou 2017). However, such an ambiguity analysis is not tenable for languages where the first conjunct of IaDs displays the morphology that exclusively identifies imperatives in root context—a point that, as von Stechow and Iatridou (2017: 309) note, was already made by in Jespersen (1924: 314)—and Italian is such a language. This argument also applies to treatments like Han’s (1998), where all IaDs are assumed to contain something like a “pseudo-imperative”, a fact responsible for the apparent lack of directive force in IaDs: in a language that has a dedicated morphology for imperatives (as well as a suppletive one for negative imperatives) like Italian, an appeal to a special class of “pseudo-imperatives” is hard to argue for.

that is, not inviting Ann): hence the names “e-IaD” and “n-IaD” respectively (from von Fintel and Iatridou 2017).³³ The very existence of n-IaDs is already a puzzle: even including the limiting case of acquiescence and indifference readings, we can say that the property that all possible interpretations of an imperative clause *p!* have in common is that the speaker is understood to not be opposed (in terms of whatever type of preference) to *p* being the case. Thus, if we are to take n-IaDs such as (110b) at face value, we would have a blatant counterexample to this generalization, since the prejacent of the imperative in the first conjunct, *you invite Ann*, is understood to bring about an unwelcome result expressed by the declarative in the second conjunct, and thus presumably itself expressing an unwelcome state of affairs.

One reason why IaDs are relevant in the present discussion is that *magari* is perfectly compatible with e-IaDs (as one would expect), but not with n-IaDs.³⁴ This point is illustrated by contrast in acceptability in (111).³⁵ It’s not easy to tell what makes (111a) different from its bare version: in the case of matrix *magari*-imperatives it was relatively straightforward to label them as something like “unprompted advice”, but since directive force seems to be missing in IaDs (a puzzle in its own right), the situation is quite different in (111a). For concreteness, let’s stipulate that *magari* in (111a) adds a “here’s an idea” flavor to the IaD (since that’s how I would paraphrase these IaDs).

- (111) INVITATION-1. Cora is helping Dana writing down a list of people to invite to her party. Cora thinks inviting Ann is a good idea since she usually brings good wine, and that her enemy Beth should not be invited.
- a. *Magari invita Anna e ci sarà del buon vino!*
MAGARI invite.IMP Ann and there will be of good wine
- b. i. {# *Magari* / _ } *invita Beth e io non vengo!*
MAGARI invite.IMP Beth and I not come

³³Clark (1993) makes a finer, three-way distinction between “positive” (i.e., endorsing), “negative” (i.e., anti-endorsing) and “neutral” interpretations. An example of the latter is (i).

(i) Open the Guardian and you’ll find three misprints on every page. (Clark 1993: 109)

For the purposes of our discussion a distinction between negative and neutral interpretation is not needed, and so the label n-IaD will stand for both.

³⁴A possible line of explanation as to why *magari* is incompatible with n-IaDs could be to assume that the *magari* that occurs in imperatives retains traces of the bouletic character inherited from Greek and clearly retained in its exclamative use (discussed in §1.B). This reasoning however would come at a high cost in terms of stipulations: even disregarding the fact that imperative-*magari* would have to be completely decoupled semantically from declarative-*magari*, one would have to admit that the bouletic flavors contributed in exclamatives (a strong, *wish*-like attitude) is quite different from the one contributed in imperatives, which as we saw can be quite weak (giving permission or advice). Furthermore, we have seen above that the effect *magari* contributes in imperatives is rendered in languages like English and German by particles that have no bouletic use whatsoever (*maybe, vielleicht* ‘perhaps’).

³⁵The two sentences in (111b) are truth-conditionally identical: we will say more about this fact later. Unless specified, in all the examples to follow nothing changes regardless of whether *magari* is placed at the beginning of imperative, as in (111b-i), or at the end, as in (111b-ii). IaDs are in this no different from normal *magari*-imperatives (see D’Antuono 2020: 86).

- ii. *Invita Beth {# magari / _ } e io non vengo!*
 invite.IMP Beth MAGARI and I not come

The only way to make either example in (111b) acceptable is to crucially alter the scenario given so that the speaker is trying to suggest ways to justify their not attending the party: one way would be to invite Beth. In other words, (111b) has to be turned into an e-IaD in order to be felicitous. Let's now set aside the contrast in (111): before asking what's the issue with n-IaDs we have to try to be clear as to what *magari* does in an e-IaD. How is (111a) different from its bare version? First, consider that *magari*'s illocutionary weakening per se (the fact that *magari*-imperatives are always weak) becomes somewhat irrelevant for the IaD case: due to their puzzling conditional interpretation, IaDs never express a commands to begin with. Nevertheless, we can still apply some diagnostics we have seen above and, in particular, the apparent sensitivity of *magari* imperatives to the preceding discourse.

Scenarios WINE-1 and WINE-2 in (112) make two distinct QUDs salient: in one case, the question is what Dana should do in order to get good wine, and in the other what would happen if Ann is invited. A conditional like (113) is known to be an appropriate assertion in either case (von Stechow 2001): we could say that the QUD salient in WINE-1 asks under which conditions the consequent of (113) is the case, while the one salient in WINE-2 asks what follows from its antecedent. Now, (114) is the IaD version of (113), and we shouldn't be surprised in finding out that it's felicitous in either scenario (that is, given either QUD).

- (112) a. WINE-1. Dana is organizing a party and asks Cora for strategic advice as to who to invite. She wants to get people who would contribute high quality wine to the party. Cora happens to know that Ann is keen on buying expensive wine, so she tells her:
 b. WINE-2. Dana is organizing a party and asks Cora whether she should invite Ann. Cora tells her:
- (113) If you invite Ann there will be good wine.
- (114) *Invita Anna e ci sarà buon vino!*
 invite.IMP Ann and there will be good wine
- (115) *Magari invita Anna e ci sarà buon vino!* (112a), (112b): #
 MAGARI invite.IMP Ann and there will be good wine

Adding *magari* to the IaD-imperative, as in (115), makes it infelicitous in a scenario such as WINE-2 where the salient QUD inquires about what happens if the imperative (the antecedent) is verified. This is interesting but should not be surprising, as it closely mirrors (101b), the example that highlighted how *magari*-imperatives can only express advice or suggestions as long as they are unprompted. After all, it's clear that replying to Dana in (112b) with something like *here's an idea: invite Ann* is not a cooperative conversational move. I argued above that this restriction, in the case of matrix imperatives, can be made to follow from *magari*'s nature as an implicit disjunction and some well-established assumptions about what makes conversational contributions relevant (and thus, ceteris paribus, felicitous) — on the other hand it's

not at all obvious that such restriction should be found in IaDs as well, precisely because it's not clear that we are dealing with matrix imperatives. What however is surprising about (115) is that it doesn't quite work in WINE-1 either, whereas (116), which is simply the first conjunct of the IaD does.

(116) *Magari invita Anna!* (112a): ✓; (112b): #
MAGARI invite.IMP Ann

Focusing on the presence of *magari* in the first conjunct of IaDs (the second conjunct is much less interesting and will be touched upon later on page 113), let's summarize what we have learned so far. First, *magari*-IaDs can never be n-IaDs: that is what (111b) illustrates. Second, there are e-IaDs, like (111a), where *magari* is felicitous and contributes a meaning ("here's an idea") similar to the one found in matrix *magari*-imperatives. At the same time, however, there are scenarios such as (112a) and (112b) that make the (superficially) very same *magari*-e-IaD infelicitous, while being perfectly compatible with (116), the *magari*-imperative that constitutes the first conjunct of the infelicitous IaD. On the basis of this alone it seems clear that we have to say something more about what the IaD construction really is, if we are to stand a chance of understanding this pattern.³⁶

There is one package of assumptions that IaDs make *prima facie* attractive: a minimal (i.e., non modal) analysis of imperatives and a uniform treatment of all IaDs as conditional conjunctions (Culicover and Jackendoff 1997; Russell 2007; Keshet 2012; Klinedinst and Rothschild 2012), with the clause that is morphosyntactically an imperative supplying what is interpreted as the conditional antecedent — that is, a treatment according to which no imperative is uttered at the matrix level. This is the approach favored by von Stechow and Iatridou (2017). On the one hand, a minimal theory by definition doesn't encode directive force in the semantics of the imperative, and therefore seems more naturally adaptable in a construction that has no obvious directive flavor. On the other hand, maintaining that IaDs involve a matrix imperative (rather than one embedded in a conditional conjunction) makes it quite hard to reconcile the existence of n-IaDs with everything else we know about imperatives. A theory along these lines would be what von Stechow and Iatridou (2017) call a "type I" theory, whereby the IaD *p!* and *q* is a sequence of a matrix imperative *p!* followed by the assertion *q* that is modally subordinated (Roberts 1996/2012) in the domain of indices that verify *p*. Under this view, with (114) the imperative *Invite Ann!* is uttered at the matrix level, subject to the variety of interpretations that characterizes all imperatives: it's thus something like *Invite Ann! and if you do that there will be good wine*. It's clear that such an analysis is not tenable in the case of n-IaDs, but von Stechow and Iatridou (2017) reject it altogether,³⁷ in favor of a conditional conjunction ("type-II" in their terminology) analysis.

³⁶The discussion will be based on English IaDs for conciseness, but unless otherwise specified all that is said here holds of IaDs in Italian as well.

³⁷Two main arguments are put forward in von Stechow and Iatridou (2017) against the modal subordination approach for e-IaDs. Following Keshet and Medeiros (2018), however, I think these arguments are not convincing. I will discuss this later in connection to Keshet and Medeiros's (2018) analysis.

Keshet and Medeiros (2018) put forward a very different view, whereby imperatives are modalized proposition—a “strong” analysis directly inspired by Kaufmann’s (2012), in which directive force is guaranteed by the definedness conditions associated with the priority modal IMP—and IaDs are ambiguous between a Speech Act conjunction construal (SC-IaD) and a conditional conjunction (CC-IaD)—also a position already argued for in Kaufmann (2012). The structural difference between the two construals can be reduced to the scope of IMP, as indicated in (117). While SC-IaDs are imperatives conjoined with a declarative clause, CC-IaDs are conditional conjunctions in the scope of the imperative operator:

- (117) a. SC-IaD *p!* and *q*: $[[_{CP} IMP p] \text{ and } [_{CP} q]]$
 b. CC-IaD *p!* and *q*: $[_{CP} IMP [[_{TP} p] \text{ and } [_{TP} q]]]$

This view commits Keshet and Medeiros to the view that all IaDs, including n-IaDs, retain the fundamental character of imperatives, namely the directive force: the fact that they are interpreted as instructions. This point is illustrated by (118) and (119) from Keshet and Medeiros (2018). Under most approaches to IaDs, including the one favored by von Stechow and Iatridou (2017), the equivalence between the n-IaD in (118a) and the Declarative and Declarative (DaD) conditional conjunction in (118b) is expected. But now let’s imagine that the parent who utters this is actually calling their kid to tell them that if they are still watching TV at that moment they are grounded. All that has changed is that the condition expressed by the first conjunct is present-oriented. This can be expressed by (119b), but crucially Keshet and Medeiros (2018) find that the n-IaD version in (119a) is dispreferred.

- (118) a. Still be watching TV when we get back and you’re grounded.
 b. You’re still watching TV when we get back and you’re grounded.
 (119) a. # Still be watching TV right now and you’re grounded.
 b. You’re still watching TV right now and you’re grounded.

The contrast in (119), Keshet and Medeiros argue, is expected if (119a) shares some crucial use conditions with an imperative, presumably due to the presence of an imperative operator that encodes them semantically. Among those, there is the requirement that the time at which the prejacent of the imperative takes place is not entirely in the past (Kaufmann 2012), because the addressee of the imperative must be able to recover an instruction they are in a position to carry out.³⁸ The

³⁸It’s important to stress once again that English morphology can cloud the picture: not everything that looks like an IaD is one. After all, the first conjunct of a conditional conjunction can be even just a DP, such as in Culicover’s (1972) *One more can of beer and I’m leaving*. Thus, apparent counterexamples to the non-past constraint that is claimed to rule out (119a), such as (i) from Clark (1993: 114), are not genuine IaDs for Keshet and Medeiros (2018) because their first conjunct is not an imperative: for example, they don’t retain imperative morphology if they are turned to a third person.

- (i) Life was hard in those days. Say one word out of turn and they’d dock you a week’s wages.
 (ii) Anyone { *say / said } one word out of turn and they’d dock you a week’s wages.

Furthermore, just like Kaufmann (2012: 235) observes for German, (i) cannot be translated in Italian

oddness of (119a) is thus of the same nature as the imperative *#Be watching TV right now!* whose addressee cannot quite comply with what’s demanded or suggested of her (compare with *Be watching TV tomorrow!*).

Let’s see an example of this ambiguity between SC-IaDs and CC-IaDs: an IaD like (120) could be uttered by a threatening gunman or by a photographer directing the person they are doing a photo shoot of. The gunman would mean (120) as a conditional statement, whereas a photographer would presumably be inviting the person to move closer.

(120) Come closer and I’ll shoot!

There are ways to isolate these two readings, however: in (121a), a directive particle like *please* is added to the imperative, and the resulting IaD cannot be uttered by the gunman anymore. According to Keshet and Medeiros (2018), the use of such directive particles is one way to force the SC-construal.³⁹ The mirror image is (121b): adding an NPI to the imperative makes it only acceptable in the GUNMAN scenario — according to Keshet and Medeiros (2018), as an effect of forcing the CC-IaD reading.⁴⁰ If we try to combine both modifications as in (121c), the result is simply infelicitous (for the same point about German, see Kaufmann 2012: 230).

- (121) a. Please come closer and I’ll shoot! GUNMAN: #; PHOTOGRAPHER: ✓
 b. Come even a step closer and I’ll shoot! GUNMAN: ✓; PHOTOGRAPHER: #
 c. # Please come even a step closer and I’ll shoot!

Now, the core of Keshet and Medeiros’s (2018) proposal is that imperatives and conditionals alike license the presence of some covert modal: a priority modal and a future modal⁴¹ respectively. The idea is that the imperative morphology, obviously present in both SC-IaDs and CC-IaDs, is responsible for licensing the presence of IMP, an operator that itself selects for either the priority modal or the future modal. What IMP itself contributes is the package of presuppositions adapted from Kaufmann’s

with an imperative: the only options are a very reduced conditional conjunction similar to Culicover’s (1972) sentence (*One words out of turn and...*), or a full-blown “canonical” conditional.

³⁹One could suspect that the issue with (121a) is actually that it’s weird for the gunman to use an expression like *please*. Keshet and Medeiros (2018) offer other diagnostics for SC-IaDs, such as the use of tag questions immediately following the imperative, as in (i.a), or the use of “periphrastic *do*” in the imperative, as in (i.b) — all these being already known to be incompatible with the “left subordinating *and*” construction (Culicover and Jackendoff 1997: 214). Both these IaDs are good in the PHOTOGRAPHER scenario and infelicitous in the GUNMAN one, just like (121a):

- (i) a. Come closer, will you, and I’ll shoot!
 b. Do both of you come closer, and I’ll shoot!

However, the tag question diagnostic is not applicable in Italian.

⁴⁰That conditional conjunctions (in their terminology: “left subordinating *and*” constructions) license NPIs in the first conjunct but not tag questions or directive particles was already noted and used as a diagnostics by Culicover and Jackendoff (1997: 214). Kaufmann (2012: 228–229) applies these diagnostics to German IaDs with the same effect.

⁴¹See also Keshet (2012) for an analysis of conditional conjunctions relying on the presence of a covert future modal.

(2012) that ensures, among others, that the utterance occurs in a context where a decision problem is to be addressed, that the addressee is in a position to recover an instruction, and the speaker is in some position of authority. This is where the distinction between the two LFs in (117) becomes relevant: let's see how they compare given a concrete example.⁴²

Imagine, as per Keshet and Medeiros's (2018) example, that the decision problem involves the question of how to get to Harlem. The simple imperative in (122b) addresses the decision problem by expressing that all the worlds in which the addressee's goals are best fulfilled are worlds in which they take the A train. What about the IaD in (122a)? That one is clearly an n-IaD: in Keshet and Medeiros's (2018) analysis, the conditional conjunction itself is responsible for licensing FUT, a universal modal that is restricted by the first conjunct and has the second conjunct as its scope, just like the antecedent and the consequent do in ordinary conditional constructions respectively.

⁴²As promised in footnote 37, let's now see how Keshet and Medeiros argue that von Fintel and Iatridou's (2017) reasons to dismiss a type I analysis (that is, the possibility for e-IaDs to be Speech Act conjunctions with modal subordination) are flawed. First, von Fintel and Iatridou (2017) observe that under a type I analysis the contrast in acceptability in (i) is not expected.

- (i) a. Invest in this company and you will become rich!
- b. ?? You must/have to/should invest in this company and you will become rich.

However, Keshet and Medeiros (2018) point out that IaDs such as (i.a) just receive a natural CC-IaD interpretation: if an SC-IaD interpretation is forced through what they call "discourse-active words" like *already* or *just*, the DaD version with overt modality in (ii.b) becomes acceptable. Furthermore, they argue that the contrast disappears with IaDs that are more naturally read as SC-IaDs, such as (iii.a)

- (ii) a. Invest in this company already and you will become rich!
- b. You must/have to/should invest in this company already and you will become rich.
- (iii) a. Take out the trash, (please,) and then you can watch TV!
- b. You have to take out the trash, and then you can watch TV.

Finally, a second reason to doubt the modal subordination analysis is the fact that IaDs don't seem to allow for what von Fintel and Iatridou (2017) call "polarity switch", illustrated by (iv). The second clause in (iv) is interpreted as the consequent of an antecedent that is the complement of the prejacent of the first clause: what (iv) says is that if you do go to Eataly, you'll get ripped off. On the other hand, such switch is impossible with IaDs: the only available interpretation of (v) is the less reasonable one according to which if you don't go to Eataly, you'll get ripped off. The absence of the more reasonable reading for (v) shows that no polarity switch is available.

- (iv) {Don't / You shouldn't} go to Eataly! You'll get ripped off.
- (v) Don't go to Eataly and you'll get ripped off!

Keshet and Medeiros (2018) however point out that modal subordination conjunctions without imperatives pattern with IaDs in not supporting such polarity switch, as the fact that to the extent (vi) makes sense, it can only mean that if you don't go to Eataly you'll get ripped off, just as (v). The lack of polarity switch for modal subordination in conditional conjunction in general, while of unclear origin (Keshet and Medeiros suggest it having to do with competition with the disjunctive alternative), weakens the argument provided by the contrast above.

- (vi) You shouldn't go to Eataly, and you'll get ripped off.

The way the decision problem presupposed by IMP is targeted by (122a) is indirect, in the sense that the conditional in (122a) is a partial answer to the question *How do I get to Harlem?* — it doesn't offer a complete answer like (122b) does, but it does exclude one answer, namely *take the A train*, by asserting that all the worlds in which that instruction is carried out are not desirable. When it comes to SC-IaDs, on the other hand, they behave exactly like (122b), with the addition of a modally subordinated declarative.

- (122) a. [IMP FUT [take the A train, and you'll be there by midnight]]
 b. [IMP MOD_{priority} [take the A train]]

Now it's time to go back to *magari*-IaDs. One of the striking facts about them, as we said, is that they can only be e-IaDs, a fact that is on the face of it hard to reconcile with all we have said about *magari*. This becomes especially problematic if we take the distinction between e-IaDs and n-IaDs to be grammatically relevant, or if we seek to assign the same structure to all IaDs. But a rejection of these two positions is at the core of Keshet and Medeiros's (2018) analysis that we have just sketched: the distinction between endorsing and non-endorsing IaDs is not grammatically relevant — the relevant distinction is between SC-IaDs and CC-IaDs, and n-IaDs can only be of the latter type. The natural question is now whether *magari* is incompatible with CC-IaDs in general: if the answer is yes (and Keshet and Medeiros are correct), then the factor regulating the distribution of *magari* in IaDs has to be related with the difference between the two structures in (123).

- (123) a. [CP IMP FUT [[TP (MAGARI) *p*] and [TP *q*]]] (CC-IaD)
 b. [[CP IMP MOD_{priority} (MAGARI) *p*] and [CP *q*]] (SC-IaD)

For completeness, it should be noted that *magari* can always modify the second conjunct, which is interpreted as the conditional consequent: in this configuration, its contribution is again of epistemic-like⁴³ character (just like for regular conditionals, as noted on page 89), since *magari* here is parasitic on the modal selected by IMP, as illustrated in (124). For example, the n-IaD in (125) expresses a conditional statement that is only true if moving the Rook doesn't automatically put the player's own King in check (which would make Rook to g8 actually illicit). What (125) means is simply that if the addressee moves the Rook to g8, it's possible that the opponent will check their King.

- (124) [CP IMP [FUT [MAGARI [[TP *p*] and [M_{TP} *q*]]]]]
 (125) *Sposta la torre in g8 e magari ti farà scacco!*
 move.IMP the tower in g8 and MAGARI to you will do check
 'Move the Rook to g8 and maybe (the opponent) will check your King!'

⁴³Whether or not "epistemic" is the correct characterization depends on how exactly one decides to characterize the modal flavor of FUT. What's important here is that a disjunction under a future operator conveys indeterminacy.

Adopting Keshet and Medeiros’s (2018) account, we can take (125) as a case in which the presence of *magari* causes the scope of FUT to consist of a disjunction between the proposition expressed by the second conjunct and some of its alternatives — a case analogous to how the “epistemic *magari*” was accounted for in §2.3. A paraphrase would be that (125) presupposes the contextual saliency of a decision problem (what to move where), an authority status of the speaker (the speaker is assisting the addressee in playing), that the Rook hasn’t already been moved (an instruction as to be recoverable), and asserts that all the futures courses of events in which the addressee moves the Rook to g8 are either such that the King will be put in check or such that something else happens.

Now consider (126a): just like reported in Kaufmann (2012: 229) for its German counterpart, it’s a bad imperative due to the unlicensed NPI *anche solo* ‘even only’.⁴⁴ The licensing conditions are met, however, in a conditional conjunction, which makes the menacing IaD in (126b) acceptable: a scenario for (126b) could be one where it’s uttered by someone threatening to detonate a bomb if anyone moves. Intuitively, what (127a) would be expected to mean is something like: *if you move or do something else, I’ll press the button*.

- (126) a. # *Fa’ anche solo un passo in avanti!*
do.IMP even only a step to forward
‘Come even just a step forward!’
- b. *Fa’ anche solo un passo in avanti e schiaccio!*
do.IMP even only a step to forward and I press
‘Come even just a step forward and I press the button!’

Could the badness of (127a) be due to the fact that this is forced to be a CC-IaD? If that’s the case, to make *magari* acceptable, we need to make it at least possible for the IaD to be a speech act conjunction by removing the NPI. And sure enough, (127b) is felicitous and could be uttered by a photographer who is unsatisfied with the current position of the subjects. This is a clear case of the “here’s an idea” speech act: with (127b) the photographer addresses one of the subjects and offers an idea to improve the composition of the picture. It would seem, thus, that *magari* for some reason cannot be interpreted if placed in the first conjunct of a CC-IaD: something would be responsible for making (123a) ungrammatical.

- (127) a. # *Magari fa’ anche solo un passo in avanti e schiaccio!*
MAGARI do.IMP even only a step to forward and I press
- b. *Magari fa’ un passo in avanti e schiaccio!*
MAGARI do.IMP a step to forward and I press
‘Maybe come a step forward and I’ll press the button!’

⁴⁴Attributing the badness of (126a) to the presence of an unlicensed NPI should arguably commit me, from a theoretical point of view, to mark it as ungrammatical rather than as non specifically unacceptable (that is, with a ‘*’ rather than with a ‘#’). Doing this, however, would wrongly suggest that there is a qualitative difference in the judgment introspected and collected between (126a) and, for instance (127a).

At this point it becomes relevant to recall what we saw in §2.3.3: *magari* cannot modify a modal operator whose restrictor it is adjoined to (the antecedent of a conditional or, in this case, the first conjunct of a conditional conjunction). Note that conditional conjunctions by themselves, like (128), are fine with having *magari/by any chance* in their first conjunct — projecting the non-local meaning that was discussed in §2.3.3. The issue is the IaD: if Keshet and Medeiros are right, the culprit should be IMP and the definedness conditions associated with it. I have no answer as to why *magari* is outright banned in the first conjunct of a CC-IaDs.

(128) Mary by any chance starts snoring, and Beth moves to the couch.

Can we learn anything insightful from the badness of *magari* in CC-IaDs can provide some evidence that indeed an imperative operator is present in IaDs? Let's take the impossibility of the structure in (123a) on the basis of examples like (127a) as a given. A natural question to ask is why examples such as (127a) cannot have a structural description like either (129a) or (129b), with *magari* modifying IMP or some higher modal respectively. After all, unlike with ordinary conditionals where the antecedent is linearly delimited on the surface by *if* (always obligatory in Italian), in with CC-IaDs it could in principle be the case that a sentence initial *magari* is adjoined outside of the first conjunct and take scope over the entire conditional conjunction.

- (129) a. $[_{CP} IMP [_{MAGARI} [_{FUT} [[_{TP} p] \text{ and } [_{TP} q]]]]]$
 b. $[_{MAGARI} [_{CP} IMP FUT [[_{TP} p] \text{ and } [_{TP} q]]]]]$

One reason why (129a) may not be an option is that IMP isn't a quantificational expression at all — it's not a modal: all it does is selecting a modal introducing the presuppositions that characterize the imperative speech act. What about (129b)? The question in that case would be, obviously, what could *magari* modify in that position. In §2.3, we exploited the idea that a universal doxastic modal, labeled K after Meyer (2013), is associated with any assertion to bring Chapter 1's data into the fold of the more general exemplificational effect of *magari*.

It would seem conceptually strange at first, on the basis of assertion and directive expressions being fundamentally different speech acts, to suppose that imperatives too are obligatorily in the scope of K. The ambition of a strong theory of imperatives like Kaufmann's (2012), however, is to confine the difference in the presence of a special type of modal operator, here IMP, which guarantees the performativity of the utterance by requiring that the context satisfy some crucial properties (authority of the speaker, existence of a salient decision problem and others). One could thus entertain the possibility that indeed K outscopes IMP, in which case the presuppositions associates with IMP project across the speaker's doxastic alternatives. But before even asking what prediction this would make for us in the cases of CC-IaDs such as (129b), it should be pointed out that matrix imperatives modified by *magari* never have a reading whereby the priority statement is embedded under (coarse) doxastic possibility. So, whether or not a modal like K embeds imperatives, we have reason to think *magari* can never modify it in that configuration.

Let's however suppose for the sake of argument both that an LF along the lines of (130b) is possible, whereby examples like (127a) come with a K taking maximal scope

and modified by *magari*. The question would be in which context such an assertion would be appropriate. Indeed, embedding IMP under what is effectively (coarse) doxastic possibility raises questions as to how this is compatible with presuppositions it introduces, which are there to reproduce directive force.

- (130) a. {# *Magari* / _ } *multami e te ne pentirai!*
MAGARI fine me and you of it will regret
‘Fine me and you’ll regret it!’
b. $K[[\text{IMP FUT [you fine me and you regret it]] \vee \dots \vee p']$

There is one more reason to suspect that in fact no K can outscope IMP — and thus the possibility of an LF like (129b) is trivially ruled out. Recall that (128) shows that *by any chance* (and *magari*) can be in the first conjunct of a conditional conjunction (in the case of English *by any chance*, this is possible because NPIs are licensed in that position, as seen above), and when it does it seems to have the same function as when it’s in the antecedent of an ordinary conditional. As discussed at length in §2.3.3, in this configuration *by any chance/magari* conveys that the proposition denoted by the antecedent is coarsely possible. It’s tempting to see a connection between the ability of *by any chance/magari* to provide this seemingly non compositional contribution and the presence of a high scoping doxastic modal such as K. If this connection is on the right tracks, the ban on *magari* in CC-IaDs could be the result of two factors that are in principle independent of each other: first, IMP cannot be embedded under other scope-takers (K or possibly any other⁴⁵) and second, the type of non compositional meaning contribution that occurs when *magari* is in the restrictor of a modal is dependent of the availability of a higher modal. In ordinary conditionals and conditional conjunctions like (128), this modal is K, hence coarse epistemic possibility is conveyed.

Finally, let’s go back to the simpler case of SC-IaDs. If the LF of (127b) is along the lines of (123b), what we have is modal subordination under a disjunctive statement, since we have been working on the assumption that *magari* in imperatives is no different than in other environments we’ve considered and its effect can be described with the schema in (131). The IaD in (127b) should thus receive an interpretation according to which there are other (undisclosed) courses of actions other than taking a step forward after which the speaker will press the button. The classic cases of modal subordination clearly indicate that this is the expectation: in both cases in (132) the understanding is that whichever beast comes in, that beast would eat us both. Why would the implicit disjunction introduced by *magari* behave any differently?

(131) $magari p! \approx \text{IMP}_{\text{coarse}}[p \vee \dots \vee q]$

- (132) a. A wolf or a tiger might come in. It would eat us both.
b. Some beast might come in. It would eat us both.

⁴⁵An interesting falsification of this conjecture could come from the behavior of the obligatory wide scope disjunction formed through *khi* in Tiwa, which Dawson (2022) argues to outscope the directive force of imperative clauses (thus, outscoping what we have here labeled as IMP).

However, it seems like it does behave differently, and (127b) is just not a good example to show it. The inference we would predict from (133) that Ann already has the golf clubs in a context in which she chooses to do something else than playing golf should make the IaD at least as weird as (134)—under the assumption that tigers, unlike wolves, do not in fact howl.

- (133) GOLF. Ann has to choose an extracurricular activity for school, and she's inclined to choose one of the many sports the school offers. Her mom points out that if she chooses golf, she can use her old clubs—no need to buy new ones.

Magari gioca a golf e così hai già le mazze.

MAGARI play golf and so you have already the clubs

'Here's an idea: choose golf and you already have the clubs!'

- (134) A wolf or a tiger might come in. ?? It would howl and then eat us.

In other words, the problem seems to be that the second conjunct is subordinated only under the disjunct that is the prejacent of *magari*: importantly, this property holds outside of IaDs as well. The sequence in (135a), uttered while assisting a rookie chess player, should be misleading if in fact Rook to g8 were the only move currently available to the player to check the opponent's King—but it isn't. The same point is illustrated by the nearly identical (135b), this time an instance of the epistemic *magari* modifying K.

- (135) a. *Magari sposta la torre in g8. Faresti scacco.*

MAGARI move.IMP the tower in g8 you'd do check

'Maybe move the Rook to g8. You'd check the King.'

- b. *Magari sposta la torre in g8. Ti farebbe scacco.*

MAGARI move.3S the tower in g8 to you he'd do check

'Maybe they'll move the Rook to g8. They would check your King.'

I don't know why only the overt disjunct is able to modally subordinate subsequent discourse. Any explanation of this fact, assuming the general correctness of the approach taken in this chapter, has to be framed in a more general theory of phenomena adjacent to modal subordination.

Another strange property of modal subordination under *magari*-imperatives emerges with IoDs—the disjunctive version of IaDs. Robust observations on the interpretation of disjunction (which are sometimes encoded in the semantics of *or* in dynamic theories of meaning) support the idea that these constructions are interpreted as having the second disjunct modally subordinated under the complement of the context set resulting from update by the first one. In the case of (136), the assertion is that if the command of eating the soup is not complied with, the result is for the addressee to get grounded.

- (136) *Mangia la minestra o ti metto in castigo.*

eat.IMP the soup or you I put in punishment

'Eat this soup or you're grounded.'

- (137) ?? *Magari mangia la minestra o ti metto in castigo.*
 MAGARI eat.IMP the soup or you I put in punishment

The interesting fact is that *magari* is never acceptable in IoDs. Take (137) as an example: given all we’ve said so far we would expect it to mean something like *maybe eat the soup — and if you don’t eat the soup you’re grounded*. It’s not obvious what makes (137) bad. On the one hand, IoDs in Italian seem to me to have a rather restricted distribution, being confined only to cases in which strong authority is being exercised: in (136), unlike many SC-IaDs, there is no understanding of the imperative as anything less than a command. If this restriction on IoDs is real, it would presumably make the construction incompatible with the low scope disjunction imperative expressed by *magari* that was previously characterized as advice or unprompted permission.

In order to have something that would resemble a “weak” IoD, adversative connectives such as *sennò/altrimenti* ‘otherwise’ must be used instead of “plain” disjunction.⁴⁶ For example, if I say (138) to recommend a book to a friend so they’ll have better chances to pass an exam, the *or* version feels degraded.⁴⁷ Interestingly, *magari* can be added to the imperative in (138), if the right connective is used (the same is true of other adverbs used in imperatives: for example, *pure* ‘go ahead’ that was discussed in §2.4.2 is perfectly compatible provided its own felicity conditions are met).

- (138) *Usa questo libro { altrimenti / ?? o } non passi l’esame.*
 use.IMP this book otherwise or not you pass the exam
 ‘Use this book or you won’t pass the exam!’

One aspect of IoDs that is probably relevant in this regard is that “genuine” IoDs (meaning, the ones built through *o* ‘or’ rather than *altrimenti* ‘otherwise’) are incompatible with weak interpretations.

2.5 Conclusion

We started out by noting that *magari* has an epistemic flavor when it’s unembedded, and contributes an exemplificational reading when instead it’s interpreted in the scope of various intensional operators. We took this as a clear reason to abandon the hypothesis that this adverb is an epistemic modal. We went further, and we also abandoned the idea that *magari* contributes modality at all: instead, what we have is a modifier of whatever modal expression it has access to, imposing that its modal parameters are coarse with respect to the prejacent.

On the assertive level, the contribution of *magari* was argued to be tightly connected with disjunction, a move that allows us to offload large part of the exemplificational meaning—namely, the weakening of the quantificational force of the

⁴⁶Sabine Iatridou and Vina Tsakali report to me a similar preference for Greek.

⁴⁷To the extent that the simple disjunction *o* is acceptable in examples such as (138), it forces a command interpretation like the one that is natural for (136). The judgment for (138) reflects a scenario in which the IoD is uttered by a friend who is recommending a particular book.

embedding expression—onto the well known phenomenon of the distributive inferences arising whenever disjunctions are interpreted in the scope of universal or existential operators (a phenomenon we have characterized as a scalar implicature, following, among others, Kratzer and Shimoyama 2002; Alonso-Ovalle 2006; Fox 2007; Crnič, Chemla, et al. 2015). Furthermore, assigning to *magari* the role of introducing (implicit) disjunction explains the truth conditional effect of its attachment height inside of a given intensional scope domain, and provides for the straightforward coverage of Chapter 1’s empirical ground, under the independently motivated hypothesis that each assertion comes with a universal doxastic operator that takes maximal scope (among others, Alonso-Ovalle 2006; Meyer 2013). A final but important confirmation of this strategy was found in the particular type of imperative clauses that *magari* is compatible with.

In §2.3.3 we also saw that the mechanism of disjunction introduction and parasitic coarseness is dependent on *magari* being adjoined in the scope (rather than in the restrictor) of a locally accessible modal. That’s not the case when *magari* takes scope over the antecedent of a conditional: in this configuration it is translated in English by *by any chance* and conveys coarse epistemic possibilities restricted to the content expressed by the antecedent in a non-local manner. A fuller picture of the phenomenon has to involve the use of *magari/by any chance* in questions, and that is the focus of Chapter 3.

To conclude, we should reflect on the path so far. The way we first got to coarseness was tightly connected to the “epistemic use” of *magari* (borrowing from the descriptive talk under the pretense that we are dealing with some form of polysemy). The driving force that led us there was the discovery that there exists such a thing as epistemic possibility with an antievidential character, and the desire of modeling it in a way that was empirically adequate and with as little stipulation as possible. The fact that Kratzer’s theory of natural language modality already employs premise sets, and that we can make a novel use of the stereotypical premise set associated with epistemic modality to state the antievidential condition was the whole reason we chose to associate *magari*’s meaning with coarseness. What we have seen in this chapter is that we could have reached the same position starting from a different angle—the “exemplificational use” of *magari*—and eventually we would have derived the antievidential effect as a trivial consequence of imposing that no collection of individual premises favors worlds that verify the prejacent.

Chapter 3

Coarseness in Questions

The investigation of *magari* has developed through Chapters 1 and 2 holding one thing constant: the coarseness presupposition, which is satisfied of a modal base, an ordering source and a proposition only if no subset of the ordering source selects a set of best worlds from the modal base that entails the proposition. Coarseness is a notion that, by its own definition, cannot exist in isolation from modality as conceived in Kratzer’s (1981b) classic treatment, whereby modal statements are quantifiers whose domain of quantification is sensitive to a notion of idealness determined by a combination of contextual parameters — the conversational backgrounds. The crucial observation that opened Chapter 2 was that which conversational backgrounds coarseness is required of depends on which modal quantifier *magari* is interpreted in the scope of. As a consequence of this, *magari* was taken to be parasitic on modal expressions, feeding them an implicit disjunction and imposing that their conversational backgrounds be coarse with respect to their prejacent. Under this view we were able to expand our understanding of *magari*’s contribution beyond declaratives in §2.4.2, predicting under which contextual conditions *magari* can modify an imperative clause.

There was however a wrinkle in the whole story, which was briefly explored in §2.3.3: when *magari* appears in the antecedent of a conditional, it doesn’t seem to be modifying any local modal expression in an integrated way. Rather, what is observed is the non at-issue expression of coarse epistemic possibility of the kind that was discussed in Chapter 1 in relation to the antecedent proposition. In other words, *magari* in this configuration (where it’s translatable with English *by any chance*) doesn’t seem to affect its environment in a compositional way, nor interact with the descriptive meaning of the whole assertion.

$$(1) \text{ if } [magari\ p],\ q \approx [magari\ p] \wedge \text{if } p,\ q$$

In this chapter we will see another environment that poses the same compositional issue: interrogative clauses. There too, *magari* is translated with *by any chance* (but see the end of §3.2 for an interesting difference) — a coincidence that cannot be ignored. The first thing we’ll do, in §3.1, is to see how the fact that an exemplificational

effect¹ is not detected when *magari/by any chance* occurs in interrogatives may bear on the issue of what a question is from a semantic and a pragmatic point of view. The main goal, however, is to explain how exactly expressions like *by any chance* qualify a question, and in order to do that one has to delve into the broader range of phenomena that have to do with the additional content that is conveyed by asking a question beyond the bare raising of an issue. All of this will be shown to be relevant in subtle ways as to the issue at hand, and once again coarseness will resurface in its by now most familiar form: antievidentiality (i.e., the signal that the epistemic anchor considers the prejacent of *magari* to be possible but has knowledge of facts that supports that possibility).

Interrogative clauses come in various forms. A quick examination shows that while matrix and embedded polar questions are generally compatible with *by any chance/magari*, alternative questions and *wh*-questions are not.²

(2) Polar questions:

- a. *Ann vive a Tallahassee magari?*
Ann lives to Tallahassee MAGARI
'Does Ann live in Tallahassee by any chance?'
- b. *Beth si chiede se magari Ann viva a Tallahassee*
Beth herself asks if MAGARI Ann lives to Tallahassee
'Beth wonders whether Ann lives in Tallahassee by any chance.'

(3) Alternative questions:³

- a. *Ann vive in Florida o no { _ / # magari }?*
Ann lives in Florida or no MAGARI
'Does Ann live in Florida or not { _ / # by any chance}?'
- b. *Ann vive a Tallahassee o Pensacola { _ / # magari }?*
Ann lives to Tallahassee or Pensacola MAGARI
'Does Ann live in Tallahassee or Pensacola { _ / # by any chance}?'
- c. *Beth si chiede se { _ / # magari } Ann sia single o no.*
Beth herself asks if MAGARI Ann is single or no
'Beth wonders whether Ann is single or not { _ / # by any chance}.'
- d. *Beth sa se { _ / # magari } Ann abbia mangiato la pizza o la torta.*
Beth knows if MAGARI Ann has eaten the pizza or the cake
'Beth knows whether Ann had pizza or cake { _ / # by any chance}.'

¹The exemplificational effect is the particular kind of truth conditional weakening that results from interpreting *magari* in the scope of other modal operators. The empirical profile of exemplification is discussed in detail in §2.1.

²As was the case in §2.3.3, I will use *magari* and *by any chance* interchangeably: unless otherwise specified, the two expressions are to be considered equivalent in the context of this chapter.

³Examples (3b) and (3d) are of course acceptable if the questions they contain are read as disjunctive polar questions rather than alternative questions.

- (4) *Wh*-questions:
- a. *Chi è venuto* { _ / # magari }?
 who is come MAGARI
 ‘Who came { _/ # by any chance}?’
 - b. *Quale studente è stato bocciato* { _ / # magari }?
 which student is been failed MAGARI
 ‘Which student failed the exam { _/ # by any chance}?’
 - c. *Dove vive Ann* { _ / # magari }?
 where lives Ann MAGARI
 ‘Where does Ann live { _/ # by any chance}?’
 - d. *Beth si chiede chi* { _ / # magari } *sia venuto*.
 Beth herself asks who MAGARI is come
 ‘Beth wonders who came { _/ # by any chance}.’

The distinction between polar vs. non-polar questions however is not the only interesting one for our purposes. Just like in §2.4 characterizing why only certain “types” of imperatives are compatible with *magari* provided evidence for the disjunction hypothesis, the main empirical focus of this chapter is to see under what conditions *magari/by any chance* is acceptable in polar questions. In §3.2 we’ll test the idea that *magari/by any chance* in questions conveys coarse epistemic possibility relative to the propositional preajcent. While this discussion complements the brief empirical points made about *magari* conditional antecedents in §2.3.3, here we get to investigate the import of coarse epistemic possibility in greater detail, since polar questions, whether grammatically marked as “biased” or not, all come with rather sophisticated use conditions that relate to epistemic and evidential states. This is the topic of §3.3, where we’ll see a variety of ways in which questions are biased in English and Italian and how *magari* and *by any chance* interact with this.

Before moving on we should note that *by any chance* clarifies one aspect that would be easier to miss in the case of Italian. A rather quick, albeit mistaken, way of explaining the distribution exemplified above would be to assume that the questions modified by *magari* are not denoted by “real” interrogative clauses but rather by so called rising declaratives (Gunlogson 2003). This hypothesis is *prima facie* plausible in the case of (5), since in Italian polar questions and declaratives are only distinguished by intonation, as well as, arguably, more subtle use-conditional distinctions (see among others Büring and Gunlogson 2000; Farkas 2020). If this hypothesis could be corroborated, the ban on *magari* in alternative and *wh*-questions would trivially follow. There are multiple reasons, however, to dismiss it outright. First, *magari* can be in an embedded polar question just like *by any chance* as illustrated by (2b)—allowing rising declaratives to be the complement of rogative and responsive predicates and somehow deliver the right denotation to derive the correct truth conditions is not an option that seems in any way practicable. Second, the syntactic distinction between declarative and polar interrogative clauses is overt in English through subject-auxiliary inversion, and the equivalence of *magari* and *by any chance* makes it hard to suppose that a ban on interrogative clauses altogether can be operative only in Italian. Note

that it's an interesting fact in its own right that some speakers do accept *by any chance* in rising declaratives (whereas everyone rejects it in normal declaratives), as (6a) shows.

- (5) *Anna ha gatti magari?*
 Ann has cats MAGARI
 'Does Ann have cats by any chance?'
- (6) a. Ann has cats { _/ % by any chance}? (rising declarative)
 b. Does Ann have cats by any chance? (polar question)

3.1 Modifying anything?

We come to the question of what *magari* does in examples such as (7) with a certain set of expectations acquired through the investigation of the exemplificational use of *magari*. First and foremost, we are inclined to wonder whether the logical form of (7) includes an instance of a wide scoping modal operator that is modified by *magari* in the now familiar way. Such operator, we concluded, is the universal epistemic modal *K* in the case of assertion, and, in the case of imperative clauses, a special type of priority modal lexicalized by imperative morphology. Do we have a plausible candidate for an operator that is definitional of matrix interrogatives such as (7) and its preajacent?

- (7) *La tua patente è falsa magari?*
 the your driver's license is fake MAGARI
 'Is your driver's license fake by any chance?'

In fact, the case for the existence of such operators has been made in various forms in the literature, and its immediate justification comes from the fundamental properties that characterize the speech act type to which questions belong. On a very intuitive level, questions determine the continuation of a conversation; unlike assertions, they are not the sort of utterance that can be said to be true or false; at least in the canonical⁴ case, questions are uttered precisely in order to influence the addressee(s) into providing some information, in the form of an answer. Another way

⁴Following Farkas (2022), I take the four properties below to be definitional of what makes a question a "canonical":

- (i) Default assumptions accompanying question acts (from Farkas 2022: 297)
- a. Speaker ignorance: The speaker's epistemic state is neutral relative to the possible resolutions of the issue [they raise].
 - b. Addressee competence: The speaker assumes that the addressee knows the information that settles the issue [they raise].
 - c. Addressee compliance: The speaker assumes that the addressee will provide this information in the immediate future of the conversation as a result of the speaker's speech act.
 - d. Issue resolution goal: It is assumed that the main aim the speaker pursues when raising an issue is to have it resolved in the immediate future of the conversation.

of putting it (in a very idealized form) is to say that asking a question introduces a condition of relevance on whatever assertive act occurs immediately after it. This way of looking at questions makes it clear that they are in some very important sense a directive speech act, and so they have been traditionally categorized (among many others, Searle 1976; Bach and Harnish 1979): that is, they are “attempts [...] by the speaker to get the hearer to do something” (Searle 1976: 11). A major question in this regard is how this directive force originates.⁵ Conceptually, we have at least two ways we can choose to go. We could take the intuition about the directive nature of questions at face value and directly encode the request-of-information component; we could also choose to formulate the directive effect as a pure consequence of how asking a question affects the state of a conversation. These two ways correspond to what von Fintel (2021) calls the “imperative family” and the “structured context family” of theories.

The space of possible approaches in each family is vast, and a general evaluation of them is way beyond the scope of the present discussion. However, there are possible formulations of a theory in the “imperative family” that leave us wonder what a parasitic coarseness effect in (7) would look like. Take as an example Sauerland and Yatsushiro (2017), a recent attempt to motivate the presence of a complex imperative-like modal operator (largely based on Truckenbrodt 2004) in the logical form of interrogatives. While the internal structure of such an operator is crucial for Sauerland and Yatsushiro, whose narrow interest is providing a compositional account of “*remind-me* questions”, we can paraphrase the proposal very roughly as follows: a matrix interrogative of the form $p?$ expresses the request that the addressee make the true answer to $p?$ common ground. Sauerland and Yatsushiro (2017) explicitly adopt Kaufmann’s (2012) entry for the imperative operator — a universal priority modal — for this purpose. Now, it should be noted that coupling the question force operator and the imperative operator together too tightly invites problematic questions such as: do we have evidence of “weak questions” just like we do of weak imperatives? That is, do we have cases in which asking a question is perceived as a mere invitation, advice or permission to make the true answer common ground, so that non-compliance (that is, not answering) is pragmatically completely unmarked? It seems to me that the answer is no (a point already made in von Fintel and Iatridou 2019).⁶ However weak imperatives come about in a “strong theory”, if the same modal is operative in interrogatives and imperatives we would expect weak directive force to be a possibility

⁵A different but equally important question is, of course, what to do when an utterance with the grammatical makeup of an interrogative lacks this directive force. Any theory would have to deal with outliers (a state of affairs that is reminiscent of how imperative clauses have a very broad range of use) and, depending on how exactly the grammaticalized directive force is defined, so called “rhetorical questions” could be an example of outliers in this sense. More cogently, however, the issue arises with the family of phenomena that von Fintel and Iatridou (2024) label “unasked questions”, an umbrella term that is meant to cover a variety of closely related types of interrogatives (Eckardt 2020; Farkas 2022; Gärtner and Gyuris 2023; von Fintel and Iatridou 2024), whereby the utterer is not expecting any addressee to provide an answer. For the present discussion, however, we can set aside all such cases in which directive force seems to be lacking or in any way altered from the idealized canonical case. Furthermore, as we will see later, *magari/by any chance* in questions are always strongly biased in favor of uses where the utterer is seeking information from their addressee.

⁶Note that none of these uses, at first blush, would be related to the phenomenon of unasked questions mentioned in footnote 5.

in questions as well: something more would have to be said as to why this doesn't seem to be the case.

This brings us directly to (7). The question that arises as to *magari* is why it cannot modify the imperative modal in interrogative clauses just like it does in imperatives (or for that matter, like it modifies K in declaratives). In other words, we should expect (8) to be a possible configuration for *magari* in a simplified LF under Sauerland and Yatsushiro's (2017) account.

(8) [[IMP *magari*] [CG [is your driver's license fake?]]]

Given what we have learned in Chapter 2, if (8) were possible, (7) should be something like a *suggestion* to make it common ground whether your driver's license is fake. But of course, as (7)'s translation makes clear, this would be a very incorrect rendition of its use conditions. For instance, (7) is felicitous — albeit perhaps slightly marked in a way to be made more precise in §3.2 — if uttered by a police officer who just pulled over a driver: this is a scenario in which the providing of information is demanded, not merely suggested. The absence of such “weak” reading of (7) of course isn't by itself an argument against Sauerland and Yatsushiro (2017) or any other account that locates directive force in questions in the presence of an imperative-like operator — after all, *magari* could be prevented from being able to modify such operators for independent reasons. On the other hand, the issue of the missing “weak” reading of (7) doesn't force us to radically revise our assumptions about *magari*, precisely because encoding directive force through dedicated operators, the approach exemplified here by Sauerland and Yatsushiro's (2017) proposal, is not the only available option.

Stalnaker's (1978) model of conversation that we sketched in §1.3.1 and its derivatives allow us to define the effect of uttering a declarative without encoding the assertive force associated with it in the logical form of the declarative itself. We can capture the role of questions in a conversation just as elegantly in this model if we model the meaning of interrogative clauses, at least at some level of analysis, as a set of propositions. Just like using sets of indices of evaluation is a fruitful way of modeling the meaning of declarative clauses because it reflects the intuition that knowing the meaning of an assertion is knowing its truth conditions, using sets of propositions provides us with a way of leveraging on the intuition explicitly advanced in Hamblin (1958: 162) that “[k]nowing what counts as an answer is equivalent to knowing the question”. Following the argument to its conclusion, we can say that the set of propositions a question denotes is the set of its possible answers (also commonly referred to as its “Hamblin set”). This intuition has been applied and implemented compositionally in different ways not only for matrix interrogatives (Hamblin 1973) but for embedded ones too (Karttunen 1977), whose denotation can be directly probed into by observing how they contribute to the truth-conditional meaning of the construction in which they are embedded.

Now that we have identified the denotation of a question with its possible answers, we can go back to the issue of how we can integrate the notion that asking a question imposes constraints on the continuation of a conversation with the Stalnakerian model. The key fact in this regard is that from any given set of propositions P we derive

an equivalence class on, and thus a partition of, the domain of possible worlds:⁷ two worlds w and u are equivalent iff for every $p \in P$, $p(w) = p(u)$. Now, just like the effect of updating the context set c with a proposition p returns a context set $c' = c \cap p$, updating c with a question $Q = \{p, \dots, p'\}$ returns a partitioned context set $c' = \{\{w \mid \forall p, p' \in Q : p(w) = p'(w)\} \mid w \in c\}$. Take (9) as an example, chosen for its simplicity. Partitioning the context set with (9) means dividing it into two subsets (since there are two mutually incompatible answers): the set of worlds in which the coin landed tails, and the set of worlds in which the coin landed heads.

$$(9) \quad \llbracket \text{Which side did the coin land?} \rrbracket = \{\lambda w. \text{land-tails}_w(c), \lambda w. \text{land-heads}_w(c)\}$$

Obviously, the person who asks (9) wants to know which way the coin landed: we can now model this by saying that they want to know which of the two cells of the context set partitioned by (9) contains the actual world. By partitioning the context set, a question makes a certain class of assertions relevant, in Lewis's (1988) sense: those that denote a set of worlds that corresponds to the union of some cells in the partition. Asking the question is thus understood as providing an indication of how the context set ought to be shrunk by a cooperative interlocutor, namely by removing from it as many cells of the partition induced by the Hamblin set as possible. In the simple case of (9), any assertion denoting a proposition that is incompatible with either cell of the partition is relevant.

While this of course is still very far from being a semantic theory of questions that meets any minimal standard, the takeaway from this section can be formulated already. If the logical form of interrogative clauses involved the presence of an imperative-like operator, the absence of a suggestion/permission reading of (7) would surprise us. The fact that readings of this sort don't exist can mean two things: either our expectations about *magari* are incorrect, or matrix interrogatives don't have a logical form that provides such imperative-like operator for *magari* to modify. In §3.2 we are going to see some positive argument in favor of the latter option: the semantic contribution of *magari/by any chance* in examples such as (7) has some important properties in common with the *magari* that occurs in declaratives.

This chapter is mostly concerned with polar questions, given the distributional fact illustrated in (3) and (4). Whether the Hamblin set denoted by a polar interrogative is a singleton or not is somewhat of an open question. Hamblin's intuitive characterization of what a question denotes would lead us to assume that in fact (10b) is the correct

⁷While in the Hamblin/Karttunen approach to the semantics of questions the denotation of an interrogative clause is the set of answers and partitions are derived from it, the approach initiated in Groenendijk and Stokhof (1984) takes the partition itself to be the denotation of the interrogative. Groenendijk and Stokhof's main empirical motivation was related to the inability of Karttunen's (1977) proposal to capture exhaustivity inferences that arise with certain question-embedding predicates such as *know* (but see Heim 1994 for an argument that an amended Hamblin/Karttunen system is empirically preferable because it replicates Groenendijk and Stokhof's results but improves on them in the case of predicates such as *surprise* that give rise to different exhaustivity inferences). Since here we are just addressing the distinction between the "imperative family" and the "structure context family" of theories, the empirical facts that bear on the choice point of having Hamblin sets or partitions as the denotation of questions don't concern us much. As for the rest of the chapter, I will assume a Hamblin/Karttunen approach for concreteness, since none of the phenomena we will discuss has any bearing on this choice, as far as I can tell.

way to go, and this is also what Hamblin’s (1973) and Karttunen’s (1977) accounts derive. We have however seen that in a “structured context” approach to the semantics and pragmatics of interrogatives what really matters is not the Hamblin set itself, but rather how it partitions the context. Crucially, both Hamblin sets in (10) induce the same partition on the context.

- (10) $\llbracket \text{Did the coin land tails?} \rrbracket =$
- a. $\{\lambda w. \text{land-tails}_w(c)\}$
 - b. $\{\lambda w. \text{land-tails}_w(c), \lambda w. \neg \text{land-tails}_w(c)\}$

While the non-singleton option in (10b) is in some sense the more “natural” one from a conceptual point of view (if we take the denotation of a question to be the offering of possible reactions), a number of empirical arguments have been advanced in favor of the singleton analysis, which is maintained by, among others, Roberts (1996/2012), Biezma and Rawlins (2012) and Roelofsen and Farkas (2015). This is also the analysis I will assume, for concreteness. The evidence in favor of it points to asymmetries either between the two polar alternatives⁸ or between a polar question like (10) and an alternative question like (11) for which the mapping to a denotation like (10b) is more transparent. First, only the answer that corresponds in polarity with the propositional prejacent can be targeted as a discourse referent or by response particles; neither continuation in (12) can felicitously follow (11).

- (11) Did it land tails or not?
- (12) a. Did it land tails? If so, I won.
b. Did it land tails? (Thankfully,) yes.

Furthermore, polar questions are subject to use conditions that crucially refer to one polarity of the answer. We will see this in more detail when we discuss bias in §3.3, but to see a concrete example consider (13) from Buring and Gunlogson (2000: 7). If both answers have the same status in the denotation of the question, contrasts like (13) are hard to make sense of.

- (13) WET COAT. A enters S’s windowless computer room wearing a dripping wet raincoat.
- a. S: What’s the weather like out there? Is it raining?
 - b. # S: What’s the weather like out there? Is it sunny?

The conclusion from facts like these is that if a non-singleton account is adopted, something has to be said about why the two members of the Hamblin set have a different status.⁹ If instead a singleton denotation is assumed, the asymmetry is

⁸The asymmetric status in the discourse between the two answers to a polar question plays an important role also in theories that do not subscribe to a singleton Hamblin set analysis, such as, for example, Farkas and Bruce’s (2010).

⁹Indeed, this “something” that gives a special status to the answer that matches in polarity the propositional prejacent of the question is what in the Inquisitive Semantics literature goes under the name of “highlighting” (Roelofsen and Gool 2010; Roelofsen and Farkas 2015; Farkas and Roelofsen 2017). The notion of highlighting is not specific to polar questions, but is more general and applies to *wh*-questions as well (see for example Theiler 2020 for an analysis of some German discourse particles that relies on the notion of “highlighting” across question and clause types).

encoded in the meaning of the question, and is inherited for free by whatever the analysis of the use conditions that cause the contrast in (13) is.

The second type of evidence that might favor a singleton Hamblin set analysis is based on the assumption that the non-singleton in (10b) would seem to be a more natural denotation for the alternative question in (11). As illustrated in great detail in Bolinger (1978), polar questions like (10) and alternative questions constructed from the two polar alternatives like (11) are different in a number of ways (which in turn, again, suggests that they ought to denote different objects). First of all, (11) cannot be answered with a *yes* or *no*. Second, (11) gives rise to what Biezma (2009) calls a “cornering effect”, which is pretty salient in contrasts like (14).¹⁰ These contrasts are far from being automatically accounted for by the choice of (10a) over (10b), but they do make the move of encoding the distinction semantically intuitively appealing.

- (14) a. Will you marry me?
 b. Will you marry me or not?

Finally, it’s relevant to point out here that the class of interrogatives *by any chance* can modify is exactly the same as the one *doubt* can embed.¹¹ Biezma and Rawlins (2012) explicitly take this fact illustrated in (15), among others, as a corroboration of their claim that polar questions denote a singleton Hamblin set.

- (15) (from Biezma and Rawlins 2012: 395)
 a. Alfonso doubts that it is raining.
 b. Alfonso doubts whether it is raining.
 c. * Alfonso doubts whether it is raining or not.
 d. * Alfonso doubts whether it is raining or snowing. (alternative Q)
 e. * Alfonso doubts what the weather is.

3.2 Traces of antievidentiality, again

In this section I will try to motivate the role of antievidentiality in the meaning of *by any chance* and *magari*. The two expressions are however not perfectly synonymous: I

¹⁰Interestingly, Bolinger (1978: 95–97) offers a series of contrasts which suggest that the differences between polar and alternative questions are detectable when comparing questions embedded by *if* and *whether* respectively. The sharpest of these contrasts is (i), which Bolinger credits to a Michael Anthony (I changed the judgment mark from ‘*’ to ‘#’ for consistency).

- (i) a. I asked Joan if she would marry me but she refused.
 b. # I asked Joan whether she would marry me but she refused.

¹¹Italian *dubitare* ‘doubt’ is anti-rogative (i.e., it cannot embed questions), so this argument cannot apply to *magari*:

- (i) *Alfonso dubita che stia piovendo.*
 Alfonso doubts that is.IND raining
 (ii) * *Alfonso dubita se { sta / stia } piovendo.*
 Alfonso doubts if is.IND is.SUBJ raining

will first focus on the former, and then the latter.

Asher and Reese (2007: 15) say about *by any chance* that it’s an “expression of epistemic uncertainty [that] only selects neutral questions”. The second part of this characterization has to do with the fact that, as was already observed in Sadock (1971), *by any chance* cannot occur in questions such as *Doesn’t Ann live in Florida?* which convey an epistemic bias in favor of the positive answer on the speaker’s part (we’ll see more about this in §3.3). What we need to be clearer about is the first part of Asher and Reese’s (2007) characterization, namely that *by any chance* expresses epistemic uncertainty.

Since the lack of certainty on the speaker’s part about the subject matter of the question is part of the definition of a canonical matrix polar question (Farkas 2020), we should expect the use expressions that merely signal epistemic uncertainty to be redundant in those environments — a point we already made in relation to indicative conditionals in §2.3.3. Alternatively, an expression signaling epistemic uncertainty could be used as a disambiguating strategy in contexts that do not entail the expectation that a given question is canonical. For example, we can imagine a teacher using *by any chance* to signal that what they are asking their student is not a “quiz” question but they are actually in need of information they don’t possess:

(16) Is this function differentiable by any chance?

To the extent that a question like (16) can be asked in a classroom setting, it seems that it’s not an unambiguous information-seeking question — it would be extremely weird, for instance, if someone were to judge the math teacher as incompetent because they asked (16).

The idea that only bare epistemic uncertainty is conveyed thus seems not too promising. Šimík (2024) suggests, talking about Czech *náhodou* ‘by any chance’, that these expressions signal the remoteness of the possibility expressed by the propositional prejacent. Šimík takes the contrast in (17) to indicate that *náhodou* requires the “outer negation” (Ladd 1981) *ne* (whose status as outer negation is independently motivated) to be licensed in the question.¹²

(17) (adapted from Šimík 2024):

- a. *Nemá Max náhodou {nějaké / *žádné} námitky?*
 NEG.has Max by chance DET.PPI DET.NCI objections
 ‘Does Max have any objections, by any chance?’
- b. *Má Max { _ / *náhodou} nějaké námitky?*
 has Max by chance DET.PPI objections
 ‘Does Max have any objections?’

For independent reasons, Šimík takes such outer negation to lexicalize an epistemic operator he calls FALSUM¹³ that presupposes the prejacent to be possible.

¹²See footnote 22 on page 141 for more on the term “outer negation”.

¹³Šimík (2024) claims this is inspired by Repp’s (2013) FALSUM, itself a minimal modification of Romero and Han’s (2004) VERUM, which we will come back to in §3.3. Actually, (18) is a very different operator from Repp’s (2013) FALSUM, which asserts that the epistemic anchor is sure that

(18) Šimík’s (2024) FALSUM (slightly adapted):

$$\llbracket \text{FALSUM}_i \rrbracket^{w.g} := \lambda p : \exists w' \in \text{Bel}_w(g(i))[p(w') = 1]. p \notin \text{CG}_w$$

How (18) and its at-issue component deliver the result Šimík intends to get is irrelevant here: what is relevant is Šimík’s hypothesis that *náhodou*’s function “is to ‘loosen’ the default stereotypical ordering source (Kratzer 1991) of the epistemic modal contributed by [18] so as to include more remote (less likely) possibilities in the quantification domain of the modal”. To reach the intended effect of widening the domain of quantification, *náhodou* has to express a signal that the operative ordering source is a subset of the default one: by excluding certain premises, more worlds end up being epistemically “good enough” to be taken under consideration. However (18) is supposed to deliver the desired effect in combination with the semantics of the interrogative, the idea is clear: using *náhodou* marks the propositional prejacent of interrogative as a somewhat remote possibility. Indeed this is the first thing that comes to mind when looking at *by any chance*, but we shall see now, as we briefly did in §2.3.3, that the real contribution is coarse possibility, which in its epistemic flavor gives rise to the antievidential effect.

The first thing to note is that *magari/by any chance* are perfectly felicitous when the propositional prejacent of the question is far from being a “remote” possibility. A question like (19) can be asked about a crucial roulette spin, even though it’s clear that the chance of the result being red is just about 50%. Indeed, if *by any chance* signaled something about the possibility being remote, the inference from (19) should be that the person who asks believes that the roulette is rigged against red.

(19) Did it come up red by any chance?

The reliable way to get to a correct description of *by any chance*’s contribution would be to find scenarios that render an otherwise perfect question odd or infelicitous — this is how we pinned down the antievidential character of *magari* in §1.1.2. For antievidentiality specifically, such cases are harder to do in the case of questions than in the case of assertions, presumably because asking a (canonical) question is by definition something that is done from a position of ignorance, and thus the effects of conveying lack of evidence are harder to detect. We can however come close enough to it.

For example, (21) feels odd if Beth asks it at 4pm, whereas it sounds something like she would ask shortly after 5pm.

(20) SURGEON-1. Ann is a surgeon with a very regular shift: every day she leaves the hospital at 5pm. Her wife Beth calls the hospital to know whether Ann is there.

(21) Is Ann (still) there by any chance?

It’s clear that what counts as evidence here — as was in Chapter 1 — is the fact that Beth can rely on some stereotypical fact about Ann (her leaving every day at 5pm) to

in all the worlds compatible with their conversational goals the prejacent (i.e., the question radical) is not to be added to the common ground of the conversation. Šimík (2024) claims that (18) is better suited to model bias in Czech polar questions, a claim I take no position about.

ground her guess that she is at the hospital at 4pm. The person who is taking the call shares this knowledge, and expects Ann’s wife to be informed to that effect too, and thus the effect of slight oddity if she’s expected to reply to (21). On the other hand, at 5:10pm Beth has no reason to suspect that Ann is still at the hospital, and thus the question becomes perfectly normal.

Note that if the question in SURGEON-1 is something like (22), whose propositional prejacents is the exact opposite of the one in (21), the judgments are completely reversed: now (22) is odd for Beth to ask at 5:10pm and perfect at 4pm. This corroborates the intuition that *by any chance* has nothing to do with epistemic uncertainty per se, but rather with the ability of providing a reason to suspect that its prejacents be the case.

- (22) Has Ann (already) left by any chance?
- (23) SURGEON-2. Ann Grant is a surgeon with a very regular shift: every day she leaves the hospital at 5pm. The police want to get ahold of her because she might know something of interest to them. So they call the hospital she works at to find out whether she’s there at that moment (they have no clue what her schedule is).
- (24) Is Dr. Grant there by any chance?

Now compare this judgment with (24): in SURGEON-2 that question feels felicitous no matter when it’s asked. Clearly, the crucial difference between the two scenarios is that in one case it’s Ann’s own wife who is calling, in the other one it’s a stranger. What’s wrong with Beth asking (21) at 4pm? The person who is taking the call expects Beth to have at least a rough knowledge of Ann’s work schedule, and definitely to know that on that day Ann is supposed to be there at 4pm. This expectation of knowledge is exactly what’s missing in SURGEON-2 — making (24) felicitous at any time. On the other hand, it’s appropriate for Beth to ask (21) at, say, 5:10pm because if anything the expectation is that she’s not there. Note that while SURGEON-1 could provide an argument for treating *by any chance* as a sort of “weak” anti-bias, the case of the police calling in SURGEON-2 weakens the argument substantially: the cop asking (24) is not perceived as expecting her not to be there. In this, the two scenarios are radically different: the person who asks in SURGEON-1 has reasons (since they know Ann’s normal daily schedule) to expect one answer rather than the other (depending on the time of the day the questions is asked), whereas in SURGEON-2 they are presumed to have no expectation either way.¹⁴

¹⁴The fact that we are now dealing with questions gives us a new argument in favor of the choice of treating the antievidential effect as something unrelated to “true” evidentiality (that is, not modeling it as a variant of what typology usually classifies as “evidential”). It’s been observed (Garrett 2001; Speas and Tenny 2003: among others) that evidential expressions in natural language often display the so called “interrogative flip” or “origo shift” (but not always: San Roque et al. 2017; Bhadra 2020): the anchor of the evidential (or the origo, the source...) is typically understood to be the speaker in declarative clauses, but it flips to the addressee when the same evidential expression is found in a question. Take (i) as a concrete example.

- (i) Interrogative flip with Cheyenne reportative evidentials
(from Murray 2017: 45–46)

Another effect that arises with *magari/by any chance* in questions has something to do with indirectness or politeness. We have already observed this in relation to the conditional case in §2.3.3, but the effect is even clearer here. Suppose I have a new coworker who has an Italian accent and other things about them make me suspect that they are in fact Italian. If I wanted to find out by asking them directly, it would be much less rude for me to ask (25) rather than the “plain” question unmodified by *by any chance*.

(25) Are you Italian by any chance?

The politeness of asking (25) instead of the plain *Are you Italian?* is that in the former case I will signal that I have no reason to suspect that my interlocutor is in fact Italian: signaling the opposite would presumably be rude, because it would raise the suspicion that I am acting on bias or stereotypes on what it means to be from a certain place in the world. If I, on the other hand, signal that my interlocutor’s being Italian has the status of a mere guess as far as my knowledge is concerned I indirectly negate that I am acting on stereotypical assumptions about my interlocutors nationality. This behavior is a bit hypocritical, to be sure, but politeness itself may be little more than socially accepted (and indeed expected) hypocrisy after all.

Finally, let’s look at one case in which *by any chance* modifies an embedded interrogative, using *know* for simplicity, whose denotation in (27a) takes a proposition as first argument. In the case of question-embedding *know*, we can assume that this proposition is the one an operator such as the one in (27c) maps the Hamblin set of the embedded interrogative to (Heim 1994). What (27c) returns in w is the set of all possible worlds u that are identical to w with respect to the truth value they assign to each proposition in the Hamblin set. The entries in (27), with the simplest syntactic assumptions and Heim and Kratzer’s (1998) rules of composition, predict (26) to be true if and only if Beth knows that Ann is single if she is single and that she isn’t if she isn’t.

(26) Beth knows whether Ann is single.

- (27) a. $\llbracket \text{know} \rrbracket^w := \lambda x. \lambda p : p(w) = 1. \text{Bel}_w(x) \subseteq p$ (s → t) → e → t
 b. $\llbracket \text{whether Ann is single} \rrbracket = \{\lambda w. \text{single}_w(a)\}$ (s → t) → t
 c. $\llbracket \text{ANS} \rrbracket^w := \lambda Q. \lambda u. \forall p [p \in Q \rightarrow p(w) = p(u)]$ ((s → t) → t) → s → t
 d. $\llbracket \text{ANS} \rrbracket^w((27b)) = \{u \mid \text{single}_w(a) = \text{single}_u(a)\}$

-
- a. *Ná-hó'táhevá-máse.*
 1-win-REPORTATIVE.1SG
 ‘I won, I hear.’
 b. *Mó=ná-hó'táhevá-máse?*
 Q=1-win-REPORTATIVE.1SG
 ‘Given what you heard, did I win?’

Clearly, our explanation of the politeness effect and the contrast brought about by the difference between SURGEON-1 and SURGEON-2 only stand if such interrogative flip doesn’t take place with *by any chance*: it’s crucial that, just like with the *magari* assertions, it’s the speaker’s absence of “evidence” that is signaled.

- (28) We just wanna know...
- a. ...whether you were home at 9pm.
 - b. ...whether you were home at 9pm by any chance.
 - c. ...whether you were somewhere other than home at 9pm.
 - d. ...whether you were somewhere other than home at 9pm by any chance.

Imagine the following situation: there was a murder in Ann’s apartment complex and the day after she’s being brought in for questioning by the police. In this scenario, the assertions in (28) are nearly indistinguishable as interview starters. For one thing, this highlights the fact that *by any chance* doesn’t really convey that its propositional prejacent has the status of a “remote possibility”. If that were the case, for instance, some difference between (28a) and (28b) should follow from the fact that an ordinary context entails that someone being in their own home at 9pm is far from being a remote possibility. On the other hand, if the difference between the two is that (28b) signals that the cops have no reason to suspect Ann was in fact home at that time, it’s clear why the two are hard to tease apart truth- and use-conditionally in this scenario. Importantly, the interview starting with any of the claims in (28) is not a reason for Ann to be more worried than when she entered the room.¹⁵ Now notice that on the contrary, any of the interview starters in (29) provides much stronger reason for Ann to be concerned.

- (29) We just wanna know...
- a. ...whether you’ve got anything to do with the murder.
 - b. ...whether you’ve got anything to do with the murder by any chance.
 - c. ...whether you’re innocent of the murder.
 - d. ...whether you’re innocent of the murder by any chance.

¹⁵Interestingly, replacing *wanna know* with *wonder* in (28) can change the character of the interview starter: there is a reasonable way of interpreting (i) as being more antagonistic than (28a).

- (i) We’re just wondering whether you were home at 9pm.

A tentative explanation for this is that *wonder* cannot be simply equated to *want to know*: *wonder* comes with the inference (whose grammatical status isn’t clear to me) that an answer to the question that is the object of *wonder* is not readily accessible. Note that in fact the parenthetical “I wonder” is one strategy that English has to formulate unasked (or non-intrusive) questions (Farkas 2022; von Fintel and Iatridou 2024), the class of non-canonical questions briefly addressed in footnote 5. This is arguably more transparent in Italian, which lacks a dedicated predicate for *wonder* and expresses the same meaning with a reflexive *ask*: (ii) is the translation of (i).

- (ii) *Ci stiamo chiedendo se tu fossi a casa alle nove.*
 ourselves are asking if you were.PST.SUBJ home at 9pm

The more hostile character of (i) and (ii) in the interrogation scenario comes from the fact that an answer would be readily available from Ann, and using expressions that suggest otherwise might indicate that her truthfulness is being implicitly questioned (in other words, the suggestion is that the assumption of Addressee compliance from Farkas’s definition of canonical questions reported in footnote 4 is missing).

More confirmation comes from the little paradigm below. A teacher asserting (iii.a) in front of a student might be understood as just seeking information so that they know what to presuppose in their explanation or not: but by asserting (iii.b) they clearly convey some epistemic bias in favor of the negative answer. Such bias is much less strong, if not absent, in (iv.b) — indeed the two examples in (iv) feel very hard to tease apart pragmatically — and the most intuitive explanation for this contrast is that what’s going on with (iii.b) is the signal that no truthful answer by the student is expected.

- (iii) a. I wanna know whether you did the readings.
b. I’m wondering whether you did the readings.
- (iv) a. I wanna know whether Beth did the readings.
b. I’m wondering whether Beth did the readings.

Kai von Fintel points my attention to (v.b), which he notes can perform the same function as a matrix polar question like *Do you know my friend Beth?* in preceding some claim about this friend Beth. This case is quite different from (iii) in that there is no detectable signal as to the expected truthfulness of the interlocutor with (v.b). Imagining for all these examples an out-of-the-blue scenario, note that (v.a) is far from unmarked — it is in fact bizarre. While (v.b) would be replied in the positive or the negative, (v.a) would typically elicit a reply along the lines of *why are you asking me this?* Impressionistically, what differentiates this case from (iii) and (iv) is that, canonically, (v) is uttered when the issue raised by the embedded question is not what’s actually at issue in the conversation but merely serves as a conversational “bridge” to the subsequent speech act. For example, (v.b) or uttering of the embedded interrogative as a matrix polar question are compatible with the speaker actually not caring whether who they’re speaking to knows Beth or not — they are just setting the stage for saying something related to Beth. On the other hand, (v.a) explicitly states the desire of knowing the answer to the question and thus cannot be understood as a “bridge” discourse move.

- (v) a. I wanna know whether you know my friend Beth.
b. I’m wondering whether you know my friend Beth.

Using *wonder* in the past tense is merely asserting that at some point in the past you wanted to know the answer to (vii), thus giving your interlocutors the option to satisfy your desire for knowledge without being pragmatically compelled to. This is why (vi) is odd in the interrogation scenario: this “indirect” strategy of eliciting information is presumably at odds with the pragmatics assumptions that underlie an interrogation scenario where the whole point of the conversation is a unidirectional flow of information.

- (vi) We were wondering whether you were home at 9pm.
- (vii) Were you home at 9pm?

Presumably one could maintain a lexical meaning for *wonder* *Q* that is simply “want to know the answer to the question *Q*” and derive the inference that such knowledge is not directly accessible in the conversation in pragmatics terms, although this would arguably require to spell out how competition between different speech acts is regulated (on the assumption that the inference derives from competition with the interrogative speech act *Q?*). It’s however not clear that this strategy can be pursued in the face of the stark difference between (i) and (28a) in the interrogation scenario. Ultimately, contrasts such as these may very well have to be looked at from the angle of unasked questions, since at least in some languages felicitous use of unasked questions markers doesn’t seem to require the interlocutor to be unable to provide an answer. This is the case for Greek *araye*, as von Fintel and Iatridou (2024) report crediting Despina Oikonomou:

- (viii) *Oli pistevun oti ime enoxi. To pistevis ke esi araye*
all believe that am guilty it believe and you ARAYE
‘Everybody thinks I am guilty ... do you believe it too UQ?’

Intuitively, this is because (28) is perfectly compatible with it being common ground of the conversation that Ann has nothing to do with the murder, whereas all the assertions in (29) suggest precisely the opposite: the cops in the latter case express the desire to know the answer to a question that is very directly about Ann’s guilt or innocence of the murder (as opposed to something that may only relate to her usefulness as a witness). Given that, the signal conveyed by *by any chance* in (29b) and (29d) is saliently perceived as disingenuous: in cases such as (25) this is conventionalized as politeness, in others it reveals a certain bad faith on the part of the questioner. Finally, note that just like with the conditional data seen in §2.3.3, the coarse epistemic possibility conveyed by *by any chance* is not at issue and is not semantically embedded. What makes *by any chance* (30) infelicitous in (30) is that its meaning contribution conflicts with the at-issue meaning (namely, that the speaker’s beliefs entail the true state of affairs pertaining to Ann’s status as single). This is confirmed by the contrast with (31), which of course replicates with *magari*.

(30) I know whether { *_* / # *by any chance* } Ann is single.

(31) I don’t know whether { *_* / *by any chance* } Ann is single.

Now let’s turn to *magari*. While *magari* patterns with *by any chance* antievidential character in all we have seen so far, *magari* seems to be subject to slightly stricter use conditions. To see why, consider (32), which Sabine Iatridou (p.c.) offers as a case that is potentially problematic for the antievidential hypothesis. The scenario against which (32) should be interpreted is one where reference is made to a phone call: crucially, (32) is perfectly acceptable even if the context entails that Ann can see the phone number of who calls her. In fact, no inference is drawn from (32) that this knowledge is unavailable to Ann.

(32) *Ann to Beth*: Did you call me *by any chance*?

What is going on with (32), I suspect, is just a form of epistemic distancing that has “politeness” reflexes that are similar to the one associated with (25). A more concrete and general characterization of the politeness of *by any chance* in examples such as (32), could be along these lines: by signaling antievidentiality, the speaker conveys that their private beliefs don’t entail a lot of information about what the addressee is up to, either episodically or habitually. This characterization is supported by the fact that if we change (32) to (33), the inference is precisely that a record of the incoming calls is unavailable to Ann. The crucial difference between the two cases is, of course, that in (33) the distancing effect just outlined cannot take place.

(33) *Ann to her secretary John*: Did Beth call me *by any chance*?

(34) *Ann to Beth*:

Mi hai chiamata { # *magari* / *_* }?
 me have called MAGARI
 ‘Did you call me?’

What’s interesting is why, as (34) illustrates, *magari* is somewhat odd in the same scenario. The reason is not, as one might initially suspect, that *magari* disallows whatever effect is behind the polite character of (32). Rather, what’s going on is that *magari* in matrix interrogatives is odd across the board if the questioning is out-of-the-blue.¹⁶ The same judgment about *magari* applies to all the other examples of matrix questions we’ve seen in this section. To verify this, we can observe how a question along the lines of (34) improves if it’s embedded in a dialogues.¹⁷

(35) B: Oh, hi Ann! I’ve been meaning to talk to you.

A: *Mi hai chiamata ieri magari?*
 me have called yesterday MAGARI
 ‘Did you call me yesterday by any chance?’

Ann’s question in (35) is perfectly felicitous and in fact preferable to the bare alternative formulation, which suggests Ann has some reason to think she did in fact receive a call from Beth. The addition of *magari*, as predicted, removes this suggestion and the conversation is more natural as a result. I don’t know what this difference between *magari* and *by any chance* is due to. What matters for us, as a conclusion of this section, is that we have reason to think that both *by any chance* and *magari* act on questions like they were argued to in the case of conditional antecedents in §2.3.3, namely conveying antievidentiality on the part of the speaker.

3.3 Questions and biases

The pragmatic characterization of matrix questions sketched in §3.1 is designed to capture the essential answerhood conditions of an interrogative speech act, and as such is very bare-bones. A speaker can however use a polar question to raise an issue and at the same time convey that their mental state or aspects of the context of utterance are not neutral as to its resolution — in other words, they can convey bias

¹⁶In other words, *magari* in questions seems to be subject to some discourse anaphoricity requirement much in the same way other particles (semantically unrelated to *magari*) are. For example, see Theiler (2020) and references therein for a discussion of the discourse anaphoricity of German *denn*:

- (i) (adapted from Theiler 2020: 327)
 - a. *Approaching a stranger on the street:*
 Excuse me, is it { _ / # *denn* } Monday today?
 - b. A: Can you put out the garbage later today?
 B: is it { _ / *denn* } Monday today?

¹⁷Note that on the basis of examples like (35) we have to exclude that the difference between *by any chance* and *magari* is due to the latter applying to rising declaratives only — a conclusion that is also at odds with the fact that *magari* can modify embedded interrogatives just like *by any chance* in the examples in (28) and in footnote 15. In general, “[rising declaratives] are not appropriate in situations where the questioner is supposed to be neutral or ignorant” (for examples and further discussion see Gunlogson 2002: 124), which are precisely the kind of questions we’ve been examining so far.

(Ladd 1981; Büring and Gunlogson 2000; Romero and Han 2004; Asher and Reese 2007; Reese 2007; Repp 2013; Romero 2015; Goodhue 2022). In the next three sections we'll explore the interaction of *by any chance/magari* with three types of bias, starting with what's usually referred to as the “evidential bias” (Sudo 2013) that characterizes all polar questions. In §3.3.2, we'll move to what's arguably the most famous case of grammatically encoded bias that is associated with high negation, which I will refer to as “speaker bias” (contra much literature, and following Goodhue 2022). Finally, in §3.3.3, *magari/by any chance* will be used as a diagnostics to examine the properties of a less discussed bias, the one introduced by the adversative particle *but*.

3.3.1 Evidential bias

Büring and Gunlogson (2000) make a striking observation on the basis of contrasts such as (13), already mentioned on page 128, about formally unmarked polar questions (that is, about matrix interrogatives that don't have any marking of bias). The contrasts in (36) and (37) make the same point.¹⁸ Under the assumption that the properties of being married and being a bachelor cover the space of possibilities and are each equivalent to the negation of the other, the oddness of (36b) is completely unexpected.

- (13) WET COAT. A enters S's windowless computer room wearing a dripping wet raincoat.
- a. S: What's the weather like out there? Is it raining?
 - b. # S: What's the weather like out there? Is it sunny?
- (36) a. Oh I see you wear a ring. Are you married?
 b. # Oh I see you wear a ring. Are you a bachelor?
- (37) *Ann asking Beth who is writing with her left hand on a piece of paper in front of her:*
- a. Are you left-handed?
 - b. # Are you right-handed?

The problem with (36b) and (37b) is very intuitive: these questions are asked in a context that provides salient and rather compelling evidence in favor of the negative answer. This leads Büring and Gunlogson (2000) to propose that positive polar questions (PPQs) are subject to an Evidence Condition.

- (38) From Büring and Gunlogson (2000: 7):
- a. Evidence Condition on PPQs *p?*: There is no compelling contextual evidence against *p*.
 - b. Contextual Evidence: Evidence that has just become mutually available to the participants in the current discourse situation.

¹⁸I owe the example in (36) to Sabine Iatridou (p.c.), who attributes it to Floris Roelofsen.

As Buring and Gunlogson (2000) stress, this condition makes no reference to anyone’s private beliefs or preconceptions (unlike, for instance, the speaker bias we’ll discuss in §3.3.2): all that matters is the evidence that the context provides. It’s clear that *by any chance* saves neither (36b) nor (37b) in their respective scenarios — in fact, it seems to have no effect at all. This is expected, as the antievidential signal that results from coarseness is weak: it doesn’t convey that evidence exists against the prejacent, but merely that no evidence exists in its favor. To the extent that *by any chance/magari* makes (36a) and (37a) odd, it’s because the respective scenarios provide evidence that is salient and strong enough that accommodating coarseness by applying contextual restriction on the stereotypical ordering source is hard to do.¹⁹ Again, this is quite expected.

What about low negation questions (LNQs)? They seem to be also subject to a condition on contextual evidence (Buring and Gunlogson 2000; Sudo 2013; Goodhue 2022), but one that is quite different. The scenario HUNGRY and SATIATED are such that the only salient fact in them can be taken to be evidence that is relevant as to the propositional prejacent of the questions in (41), but certainly cannot be said to be contextual evidence as compelling as the one in (36) and (37). For instance, the generous portion on Beth’s tray in HUNGRY can be interpreted as evidence that she has skipped breakfast. Now, observe that the PPQ (41a) is unmarked²⁰ in either scenario, and this is compatible with Buring and Gunlogson’s (2000) characterization: no compelling contextual evidence exists against Beth having had breakfast.

- (39) HUNGRY. Ann and Beth are both in the cafeteria around lunch time. Ann sees Beth leave the cashier with two trays loaded with food and asks her:
- (40) SATIATED. Ann and Beth are both in the cafeteria around lunch time. Ann sees Beth leave the cashier with just a bottle of ice tea on her tray, and asks her:
- (41) a. Did you have breakfast this morning? (39): ✓; (40): ✓
 b. Did you not have breakfast this morning? (39): ✓; (40): ??

Things are crucially different with the LNQ in (41b) — a fact that, once again, would be impossible to explain purely in terms of the semantics of questions sketched in §3.1.²¹ The LNQ is odd in SATIATED, which suggests that the contextual evidence requirement is stronger for LNQs than it is for PPQs. As (42) states, (41b) is infelicitous in SATIATED because that context doesn’t supply any evidence that Beth in fact did not have breakfast on that day. On the other hand, the facts of HUNGRY can be

¹⁹In fact, this way of satisfying coarseness of *by any chance* and *magari* might actually not be available with interrogative clauses, as we will see on page 152.

²⁰Asking (41a) can still be pragmatically odd to the extent that it’s a question that can naturally be answered as *That’s none of your business*: by “unmarked” I mean that any pragmatic infelicity associated with it in the given scenarios doesn’t seem grammatical in nature.

²¹To the extent that (i) is acceptable, or at least better than (41b) in SATIATED, we can be sure PPQs and LNQs are indeed subject to different evidence conditions. Many speakers I have consulted don’t find (i) as odd as (41b) in that scenario.

- (i) Did you skip breakfast this morning?

understood as suggesting that the propositional prejacent of (41b) is true, namely that Beth skipped breakfast.

(42) Evidence Condition on LNQs *not p?*: There is contextual evidence against *p*.

There is a certain tension between the condition in (42) and antievidentiality: if the propositional prejacent of *by any chance* is *not p*, (42) requires that contextual evidence supports *not p*— but the antievidential effect pulls in the other direction, namely that the speaker has no knowledge of fact that would count as evidence for *not p*. However, we can see that adding *by any chance* to (41b) leaves the judgment essentially unaltered:

(43) Did you not have breakfast this morning by any chance? (39): ✓; (40): ??

While (43) might have an ironic character that (41b) lacks, its acceptability suggests that maybe the contextual evidence that matters for the licensing of LNQs is not the type of evidence that is identifiable on the basis of the epistemic conversational backgrounds. If we move back to scenarios in which the evidence is more compelling and undeniable than it is in HUNGRY, we see a stronger ironic effect of *by any chance*, which somehow vindicates the antievidential requirement:

(44) Oh I see you wear a ring. Are you not a bachelor { _ / by any chance}?

Now compare these vaguely ironic questions with the one in the dialogue below, where *by any chance* is just bizarre.

(45) *Ann telling Beth about her search for Cora:*

A: I went to the department, but all the lights were off and I didn't see anyone.

B: Was Cora not there { _ /?? by any chance}?

A: No! Only later I found out she was at a friend's house.

What's the difference between (45) on one hand and (44) and (43) on the other? These three cases differ in the status the crucial, coarseness falsifying information has in the context. In HUNGRY, the evidence that supports the prejacent is not only quite indirect and circumstantial, but also not verbally acknowledged in the conversation. This is in stark contrast with (44), where the speaker themselves points out strong evidence in favor of the prejacent of the question (the ring suggesting that the interlocutor is not a bachelor): yet, *by any chance* can be used adding a touch of irony to the question, as if the speaker was to pretend that they believe the ring suggests nothing. This is precisely what goes wrong in (45). The LNQ without *by any chance* is licensed, presumably because Ann's assertion that all the lights in the department were off counts as contextual evidence (with the context being the one in which Ann's and Beth's conversation takes place) in favor of the prejacent. Beth however cannot use *by any chance* felicitously: by using it, she signals either that given Ann's description of the department worlds in which Cora was there are not epistemically better than worlds in which she isn't, or that they haven't adjusted their own belief state to the information Ann just provided by means of assertion. In other words, Ann's

initial assertion in (45) strongly implies that, at that point, she considered it to be the case that Cora was not in the department; Beth can make sure that is the conclusion by asking a felicitous LNQ, but doing so while also presupposing that her own epistemic conversational backgrounds are coarse with respect to *Cora was not in the department* is pragmatically infelicitous because it requires that either she has not accepted Ann’s assertion, or that her question be interpreted in such a way that the evidential connection between the lights being off and the department being empty is not deemed as sufficiently strong.

3.3.2 Speaker bias

The label “speaker bias” is to be understood in opposition to “evidential bias”: while the latter is defined in terms of evidence, the former is related to the speaker’s mental state—in the typical case, the bias that is conveyed has to do with the speaker’s beliefs, which is why this type of bias is sometimes referred to as “epistemic bias” (see e.g. Sudo 2013). For example, (46)—the example used in Ladd’s (1981) seminal investigation—is a question whose bias is clearly epistemic in nature: the speaker conveys that they believe that there is a vegetarian restaurant around there. High negation is what marks the question as biased in this sense.²² In Ladd’s (1981: 164) own words, someone would use the HNQ in (46) “to ask for confirmation of something [they believe] to be true”—namely, that there is a vegetarian restaurant around here.²³

²²The configuration in (46) is often referred to in the literature as “outer” (as opposed to “inner”) negation. One reason for characterizing this negation as being “somehow outside the proposition under question” (Ladd 1981: 165) is that it allows for positive polarity items such as *too* in its scope, as (i) shows. Another example that illustrates this property is (ii) from Goodhue (2022: 393): the contrast between (ii.c) and (ii.c) shows that *again* cannot take scope about (ii.c)’s outer negation.

- (i) Isn’t Ann a surgeon too?
- (ii) B knows that A is worried because A’s student Lou did not do their first assignment. The second assignment was due today. A gets home from teaching and says, “I don’t know what to do about Lou.” B replies:
 - a. # Did they do the assignment again?
 - b. Did they not do the assignment again?
 - c. # Didn’t they do the assignment again?

The “outer” status of negation in interrogatives such as (i) plays an important role for certain analyses of the speaker bias (Romero and Han 2004; Krifka 2017; Goodhue 2022; Šimík 2024: for example), but for our purposes the descriptive and more theory-neutral label of “high negation” will do.

²³Ladd’s (1981) actual claim was that questions such as (46) are in fact ambiguous between an outer and an inner negation reading—the latter, exemplified by (i), being unbiased. The acceptability of (i) might be restricted to certain dialects (or idiolects): for a critical assessment on this point and on whether *either* in (i) might play a non trivial role in altering or removing the bias associated with (ii) see Goodhue (2022: 390–391) and references therein for better diagnostics.

- (i) Isn’t Ann a surgeon either?
- (ii) Isn’t Ann a surgeon?

(46) Isn't there a vegetarian restaurant around here? (HNQ)

A clear prediction is that *by any chance* is always incompatible with HNQs that convey an epistemic bias, on the assumption that no negation is interpreted in the scope of *by any chance* (an assumption that can be entertained given the independent diagnostics whereby negation in HNQs is “outer”). The incompatibility simply results from the conflict between epistemic commitment in *p* and coarseness of the epistemic conversational background with respect to *p*. This prediction is borne out:

- (47) a. Are you late { _ / by any chance}? PPQ
 b. Are you not late { _ / by any chance}? LNQ
 c. Aren't you late { _ / # by any chance}? HNQ

Some approaches to speaker bias, such as Romero and Han's (2004), strive to give a unified analysis to the bias of HNQ and the one that comes with the prosodic prominence typical of Verum Focus (Höhle 1992), or Polarity Focus. For example, (48), where capitalization indicates prosodic prominence, does seem to convey some form of epistemic bias in favor of the negative answer — the opposite of (47c).

(48) ARE you late { _ / by any chance}?

Goodhue (2022) argues against this approach, on the basis of several asymmetries between questions like (48) and HNQs. For example, the epistemic bias derived by Polarity Focus is context sensitive, whereas the one brought about by high negation is obligatory, as illustrated by the contrast in (49) adapted from Goodhue (2022: 383).

- (49) Beth wants to know whether Cora will be at a certain meeting. She asks Ann: *Do you know if Cora is gonna be at the meeting?*, to which Ann responds: *I don't know, but in any case tonight it's members only.* Beth then asks:
 a. IS Cora a member { _ / by any chance}?
 -> *Beth believes Cora isn't a member*
 b. Isn't Cora a member { _ / # by any chance}?
 --> *Beth believes Cora is a member*

The fact that *by any chance* is felicitous in (48) and (49a) corroborates the thesis that the biases conveyed by high negation and by Polarity Focus should not be treated in a uniform way, because they are not simply the polar opposite of one another. Goodhue's (2022) account of (48) is purely in pragmatic terms, and in fact does not give Focus a special status — the context sensitive bias is simply the result of questioning a proposition that the interlocutor either asserted or implied. While the goal of this section isn't to give an analysis of HNQs, but only to observe that the hypothesis that *by any chance* contributes non at-issue coarseness of epistemic conversational backgrounds predicts its incompatibility with questions that, descriptively speaking, commit the speaker to believing their propositional prejaacent (see for example Romero and Han 2004; Repp 2013; Sudo 2013; Northrup 2014; Taniguchi 2017; Frana and Rawlins 2019; Goodhue 2022).

It has however been observed that the bias conveyed by outer negation in questions is not always epistemic (Quirk et al. 1985; Huddleston and Pullum 2002). For example, (50a) clearly expresses a bias, but a paraphrase that is purely epistemic or doxastic doesn't render this bias adequately, since the bias is exactly opposite to the one we'd expect if high negation were to directly encode belief in the propositional prejacent. What's conveyed by (50a) is not really that the speaker believes B is ashamed (in fact, the most natural understanding is that they believe the opposite is the case), but rather that they believe B should be. We may thus say that high negation in (50a) contributes a deontic bias, much like (50b)'s is a desiderative bias.

- (50) *A asks B:*
- a. Aren't you ashamed of yourself? (Quirk et al. 1985: 809)
 \nrightarrow *A thinks B is ashamed of themselves*
 \rightarrow *A thinks B ought to be ashamed of themselves*
 - b. Don't you like it? (Reese and Asher 2009: 155)
 \rightarrow *A hopes B likes A's cake*
 - c. Wasn't Cora warned?
 \rightarrow *A thinks Cora was warned*
 \rightarrow *A thinks Cora should have been warned*

Things seem to be more nuanced with questions that are not about the interlocutor's mental state, such as (50c), where it's not as clear what kind of bias is derived. An empirically difficult issue with these not clearly epistemically biased questions is the degree to which they are compatible with *by any chance*: the speakers I have consulted oscillate considerably. This can be taken as an indication that in fact *by any chance* is itself specified epistemically, and to the extent that the bias derived from the question is not about epistemic commitment to the prejacent of the question its acceptability improves. However, in order to make this point with a certain degree of conclusiveness, what's needed is not only greater empirical clarity about *by any chance*, but about the phenomenon of non-epistemic bias in general and especially what a unified theory of outer negation in question might look like. These are issues I leave for future research.

3.3.3 Adversative questions

Italian adversative conjunction *ma* 'but' can modify certain matrix questions which Giorgi (2018) characterizes as "counter-expectational" (Ippolito et al. 2022). In this function, *ma* doesn't serve the role of a coordinator, at least on its face.²⁴ The counter-expectational label is supported by the basic observation that both *ma* (and English *but*) are bad in out-of-the-blue information-seeking questions and good in negative polar questions of the kind discussed in §3.3.2. This is illustrated by (51) and (52), both slightly adapted from Ippolito et al. (2022).

²⁴See footnote 28 about question coordination with *ma* and *but*.

- (51) BAKERY. Lia is in a bakery, in line waiting to be served. It's now her turn. The shopkeeper behind the counter asks:
 { # *Ma* / _ } *cosa desidera?*
 but what desire
 '{ # But / _ } what would you like?'
- (52) VEGETARIAN. Carla believes Mia is vegetarian. Mia has just ordered a steak. Carla says:
 (*Ma*) *non sei vegetariana?*
 but not are vegetarian
 '(But) aren't you vegetarian?'

Ippolito et al. (2022) note that the distribution of *ma* properly includes the one of *but*: while the latter is only compatible with HNQs such as (52), *ma* can occur with *wh*-question, contributing different forms of epistemic bias, such as in the examples below.²⁵

- (53) (adapted from Ippolito et al. 2022: 468–469)
- a. HELP.
 A: Someone will help Teo.
 B: *Ma chi lo aiuterà?*
 but who him will help
 '{ _ / # But } who will help him?'²⁶
 --> *B thinks nobody will help Teo.*
- b. TWIN SISTERS. Clara and Paola Levi are twin sisters. On their birthday, a parcel arrives sent to “Ms. Levi”. Nothing else is written on the parcel. Carla says:
Ma per chi è questo pacco?
 but for whom is this parcel
 '{ _ / # But } whom is this parcel for?'
- c. NIGHT. Leo wakes Max in the middle of the night. Max asks:
Ma che ore sono?
 but what hours are
 '{ _ / # But } what time is it?'

²⁵Ippolito et al. describe *ma* in (53c) and (53b) as contributing an ignorance reading, but I don't think this label is very appropriate. Removing *ma* from (53c) results in an information seeking question from which the same level of ignorance on the speaker's part is inferred. Things are more nuanced with (53b) as we shall see later.

²⁶A quite mysterious fact, pointed out to me by Kai von Fintel, is that the sluiced version of (53a) *But who?* works. Viola Schmitt pointed out to me that that this restriction might be just due to the fact that sluicing is almost obligatory when the material to be deleted is identical to the declarative that the question is uttered in response to, as the fact that (i) is judged to be acceptable:

- (i) But who would help him on a rainy day like this?

Ippolito et al.’s (2022) goal is to provide a unified analysis for *ma* and *but* both in their question particle and in their coordinator use. Since our interest is limited to the use in polar questions (to observe its interaction with *magari*), I will focus on how their analysis of the question case (and its limitations), which is summarized in (54).

(54) (adapted from Ippolito et al. 2022)

- a. $\llbracket \text{ma} \rrbracket^c(Q)$ is defined iff there is a proposition p salient in c such that p and Q are relevant to QUD²⁷ and do not agree with respect to QUD _{c} ; if defined, $\llbracket \text{ma} \rrbracket^c(Q) := \llbracket Q \rrbracket^c$.
- b. Support.
 - i. A proposition p uttered in context c supports a proposition r iff p provides evidence for r in c .
 - ii. A question Q uttered by speaker x in context c supports a proposition r iff there is one answer $q \in \llbracket Q \rrbracket^c$ s.t. $\text{Dox}_{c,x} \subseteq q$ and q provides evidence for r in c .
- c. Agree.

A proposition p and a question Q agree with respect to the QUD iff there is a proposition $r \in \text{QUD}$ s.t. both Q and p support r .

Now let’s see how this proposal explains (53), starting with TWIN SISTERS. The QUD in that scenario is expressed by *Who is this parcel for?*: the salient proposition, *the box is for Ms. Levi*, supports both answers to the QUD. Carla is ignorant as to her own question (which is equivalent to the QUD itself), and thus *ma* is defined, since no proposition in the QUD is such that Carla’s question supports it, per (54b). NIGHT receives a similar explanation, under the assumption that the QUD is expressed by *Is it time to wake up?*. The salient proposition in the scenario is *Leo is waking up Max*, which supports the positive answer to the QUD. Max, the person who is being waken up, doesn’t know what time it is, and so his question cannot support the positive answer to the QUD — or any other proposition for that matter. As far as HELP is concerned, Ippolito et al. (2022) take the question posed there to be epistemically biased in such a way that none of the answers in its Hamblin set is compatible with

²⁷Ippolito et al. (2022) are not explicit about the notion of relevance to the Question Under Discussion. For the propositional case, I think the usual requirement of partial answerhood can be adopted (Groenendijk and Stokhof 1984; Lewis 1988). For the question case, we have a few options: a strong version of relevance might be that Q' is relevant to Q iff one answer to Q' contextually entails a resolution to Q . Weakening this requirement might be necessary, however — an option could be something along the lines of: one answer to Q' is contextually understood as supporting (in a non technical sense) a resolution to Q . This weaker and somewhat sketchy definition would predict that the question in (ii) is relevant to (i) in a context in which we know that Ann hates to be in place.a, so that the party being there is understood as supporting the negative answer to (i).

- (i) Is Ann coming to the party?
- (ii) Where is the party? $\approx \{\text{place.a, place.b, place.c}\}$

The relation between the place.a answer and the negative answer to (i) might be equated to the relation of “providing evidence for” that Ippolito et al. (2022) employ in the definitions in (54b) and (54c).

the speaker’s expectations — in other words, B expects that nobody will help Teo (a characterization I will dispute). The QUD assumed for that context is expressed by *Will anybody help Teo?* and the salient proposition is the one expressed by A (*Someone will help Teo*), which supports the positive answer to the QUD. The negative bias associated with the question guarantees that *ma*’s requirement is satisfied, since B’s question cannot, per (54b), support anything. As far as VEGETARIAN is concerned, *ma* is licensed because under a QUD like *Will Mia eat meat?* and its positive answer (the proposition made salient by her ordering the steak), the answer in the denotation of Carla’s question that she believes (namely *that you are vegetarian*, since the question is a HNQ that carries epistemic bias) does not support the answer to the QUD that the salient proposition does.

In fact, with the HNQ in VEGETARIAN, there is disagreement, a condition stronger than the lack of agreement of the previous cases, since in this case support as defined in (54b) is possible as the speaker does believe one of answer to their own question. In fact, Ippolito et al. (2022) claim *but* is restricted to biased questions like HNQs precisely because *but* differs from *ma* in that it requires disagreement and not mere lack of agreement.

(55) Disagree.

A proposition p and a question Q disagree with respect to the QUD in a context c iff for each $k \in \{p, Q\}$, there is a proposition $r \in \text{QUD}_c$ s.t. k supports r ; and there is no $r \in \text{QUD}_c$ s.t. for every $k \in \{p, Q\}$, k supports r .

(56) $\llbracket \text{but} \rrbracket^c(Q)$ is defined iff there is a proposition p salient in c s.t. p and Q are relevant to QUD_c and disagree with respect to QUD_c ; if defined, $\llbracket \text{but} \rrbracket^c(Q) := \llbracket Q \rrbracket^c$.

Finally, *ma* is predicted to be bad in BAKERY: the question being asked out of the blue, there is no salient proposition relevant to the QUD. What about positive polar questions? Ippolito et al. (2022: 476) argue that this analysis correctly predict that *ma* is compatible with them and offer the example in KEY to illustrate that.

(57) KEY. Only A has a key to open the front door, and they tell B: *When you’re ready, go in through the front door. I’ll be there shortly.* A replies:

- a. *Ma non ho bisogno della chiave?*
but not have need of the key
‘But don’t I need the key?’
- b. *Ma ho bisogno della chiave?*
but have need of the key
‘{ _ / # But } do I need the key?’

Polar questions are the only ones compatible with *magari* in any case, but before going there I want to suggest a slightly different characterization of the cases seen so far.²⁸ In a certain sense, the characterization I want to put forward takes the label “counter-expectational” seriously: *ma Q* indicates that the context of utterance

²⁸To be clear, the alternative proposal I am about to sketch doesn’t attempt to cover the empirical

made the speaker question their doxastic stance with respect to the members of $\llbracket Q \rrbracket$ — whatever opinion the speaker had as to the subject matter expressed by the question Q (the “original stance”), the context has given them a reason to alter that opinion, or the lack thereof (and adopt the “target stance”). Below is a working definition of “doxastic stance”.²⁹ Importantly, (60) doesn’t require that the speaker actually revise their beliefs to adopt the target stance for *ma* Q to be felicitous: all that’s needed is for the context to incentivize such a revision.

- (58) For set of propositions Q and set of worlds c , the partition of c induced by Q is defined as $P(c, Q) := \{\{w \mid \forall p, p' \in Q : p(w) = p'(w)\} \mid w \in c\}$.
- (59) The doxastic stance of x on Q in w and context c , is the smallest member of $\{\bigcup s \mid s \subseteq P(c, Q) \wedge \text{Dox}_{w,x} \subseteq \bigcup s\}$.
- (60) $\llbracket \text{ma} \rrbracket^c(Q)$ is defined in w uttered by x iff the context causes x to question their doxastic stance on Q in w ; if defined, $\llbracket \text{ma} \rrbracket^c(Q) := \llbracket Q \rrbracket^c$.

The basic cases, BAKERY and VEGETARIAN, are straightforwardly compatible with (60). In BAKERY, *ma* is infelicitous because it requires accommodating that some fact of the conversation caused the shopkeeper to revise her assumptions as to what Lia wants to get. On the one hand, in ordinary circumstances, the server is unopinionated as to that question (which means their doxastic stance is equal to grand union of the partition induced by the question), on the other, nothing in the scenario would support a target stance that is any different from unopinionatedness. Consider SHOP, a minimal variation on BAKERY. Now, *ma* isn’t odd at all, and the intuition conforms with (60) in that now Lia’s behavior has caused the shopkeeper to revise her stance as to what Lia wants. Initially, all the products in the shop were good candidates for an object Lia was interested in, but her looking in weird places in the store makes the shopkeeper suspect in fact she might not be interested in anything that the shop has to offer.

- (61) SHOP. Lia enters a shop and starts looking around in increasingly improbable

grounds that Ippolito et al.’s (2022) does. For one thing, I will focus only on question-modifying *ma* — a full coverage of the declarative coordination being out of Ippolito et al.’s reach too (Ippolito et al. 2022: 479). Furthermore, I will focus only on the counter-expectational use of *ma*, and ignore cases like (i) which Ippolito et al. (2022) mention under the term “specificational”, and genuinely adversative uses such as (ii).

- (i) A: I am going to Europe.
B: But where exactly?
- (ii) Today, we had fish; but what will we have tomorrow?

While of course a unification of these different uses of *ma/but* is in principle desirable, such attempt is well beyond the scope of the present discussion. What I think is the correct characterization of counter-expectational *ma* cannot be easily extended to cover cases such as (i), (ii) and the “regular” declaratives-coordinating *but*. In this section, whenever is talk about “question-modifying” *ma* or *but*, I do not mean to include uses such as (i) and (ii).

²⁹Note that what is defined as “doxastic stance with respect to a question” could presumably be equated to “doxastic state” simpliciter, if a theory of belief as question sensitive is adopted (see, for example, Yalcin 2016).

places. At some point she gets on her knees and seems to be looking under the shelves. Then, the shopkeeper asks her:

Ma cosa desidera, scusi?
but what desire pardon

When it comes to HELP, Ippolito et al.'s (2022) explanation relies on the stipulation that the prejacent of *ma* is biased in such a way that the speaker does not believe any of the answers in the Hamblin set to be true (that is, her stance corresponds to the cell of the partition with the worlds that don't verify any proposition in the Hamblin set). I dispute this fact. The fact that (62) is ever felicitous with the same exact prosody of (53a) casts doubt on this characterization, since (62) is compatible with there being a winner, and it doesn't suggest that the speaker thinks otherwise.

(62) *Ma chi ha vinto?*
but who has won
'Who won?'

The reason why the question in HELP is perceived as having this kind of bias is precisely because it follows the assertion that there is one true answer to the question, and the entry for *ma* in (60) predicts it. The assertion that *Someone will help Teo* is precisely what causes B to question their stance as to *Who will help Teo?*, and this revision can only come from a belief state that's incompatible with the assertion that precedes the question. Under these assumptions HELP highlights the fact that the target stance can be weaker than the original stance, which is to say that the questioning of doxastic stance signaled by *ma* can also be in the form of decreased opinionatedness. This is also what happens with (63) in WRONG WEDDING. John's original stance as to the question *who is the bride* is strong: he thinks it's his own daughter. But what the cops tell him provides for a weaker target stance, one that is however not of total unopinionatedness (John now clearly knows the bride is not his daughter, he just doesn't know who else it is).

(63) WRONG WEDDING. John is on his way to what he thing is his daughter's wedding reception (he doesn't know he wrote down the address wrong and the reception he is headed to is actually someone else). He's a very alternative guy and his outfit is very ordinary. Right outside of the venue he sees a couple of police cars, so he asks them what's going on. The cops tell him: *Nothing big, we just arrested the bride's father*. John is taken aback and asks:

Ma chi è la sposa?
but who is the bride
'{ _ / # But} who is the bride?'

Also the case of TWIN SISTERS is one in which *ma* marks the transition from a state of opinionatedness to one of ignorance. As for KEY, it should be noted that the most natural circumstance where the positive polar question in (57b) is accepted as felicitous requires accommodating that something in the conversation has suggested that indeed the key is needed (for example, the interlocutor handing a key to the

speaker). Again, this would be compatible with the original stance being unopinionated and the target being equivalent to the positive answer to the question.

Finally, it's self evident how (60) applies in VEGETARIAN, just like in the case of (57a) in KEY. Just like Ippolito et al., I also make the prediction that counter-expectational *ma* is always compatible with HNQs. However, I make an additional crucial prediction, namely that (65a) is acceptable both in BLIND DATE and in DIET REVISION. This prediction is borne out and is critical in discriminating Ippolito et al.'s (2022) proposal and the one expressed in (60). Note that the question that *ma* modifies in (65a) is not biased — from hearing (65b), one cannot conclude that the speaker has any opinion as to whether the addressee is carnivore. How come, then, that (65a) is acceptable in DIET REVISION? There is nothing surprising here for the analysis in (60): the target stance for Lia supports the positive answer, which is different from the unopinionated original stance of BLIND DATE and the opposite of the original stance of DIET REVISION.

- (64) a. BLIND DATE. Lia and Mia are on a blind date, and they know almost nothing about one another. Mia orders a steak. Lia asks...
- b. DIET REVISION. Lia and Mia haven't seen one another for many years, and now are having dinner together. Mia orders a steak. Lia remembers that Mia used to be vegetarian, and so she asks...
- (65) a. *Ma sei carnivora?*
but are you carnivore
'But are you carnivore?' BLIND DATE: ✓; DIET REVISION: ✓
- b. *Sei carnivora?*
are you carnivore
'Are you carnivore?' BLIND DATE: ?; DIET REVISION: ?

Ippolito et al. (2022) do predict (65a)'s acceptability in BLIND DATE, if we assume that in that scenario Lia's attitude of belief required in the definition of Support in (54b) doesn't hold of either answer, the fact that a steak was ordered notwithstanding — once again, this is because if the speaker is unopinionated as to the question, the question itself cannot support any proposition. What that analysis cannot explain is how *ma* can turn an unbiased question like (65b) into one that can carry the bias for the negative answer. The very difference between (65b) and the HNQ *Aren't you vegetarian?* is that the former, as a canonical question, is only compatible with a neutral doxastic stance, and yet adding *ma* to it makes it compatible with DIET REVISION — note that this is also the important difference from VEGETARIAN, where the relation of Support was guaranteed by the fact that the prejacent of *ma/but* is an HNQ unlike (65b).

Finally, how would an analysis for question-modifying *but* explain that it's only compatible with HNQs (that is, with an epistemically biased question)? A minimal change from (60) that would deliver this distribution is (66), which requires that the original stance and the target stance are contextually incompatible.

- (66) $\llbracket \text{but} \rrbracket^c(Q)$ is defined in w uttered by x iff the context has caused x to question their doxastic stance on Q in w s in favor of s' , s.t. s and s' are contextually incompatible; if defined, $\llbracket \text{ma} \rrbracket^c(Q) := \llbracket Q \rrbracket^c$.

Whenever the original doxastic stance is one of unopinionatedness (that is, it's the context set itself), (66) cannot be defined, as the context is always compatible with whatever more informative belief state may result from the contextual information available to the speaker.

What we've seen so far is some good reason to think that Italian *ma* is employed to mark a quite abstract property of the speaker's beliefs as to a subject matter, namely its state of conflict with what the context suggests being the case. How does this interact with *magari* and the antievidential character it contributes? Investigating this interaction is somewhat complicated by the fundamental and inviolable restriction against *magari* in all questions except polar ones: if the subject matter divides the space of contextual possibilities in two, any revision of doxastic stance has to come in the form of evidence (of any kind) in favor of one of the answers. This is not the case with non-polar questions: take for example the *ma*-licensing scenario SHOP in (61). The speaker's original stance is unopinionated, and the evidence in favor of the target stance does not narrow in on any answer to the question, but rather points to the fact that no answer is plausible.

When it comes to polar questions like the one in BLIND DATE, however, a target stance can only correspond to one of the two answers: any relevant state of affairs will be such that it supports one cell of the partition. The same argument applies to belief revision that starts from a place of opinionatedness (regardless of the target stance), because the issue is not the initial state of unopinionatedness, but really the binary partition of the space of possibilities that is induced by the polar question itself. Furthermore, given the general evidence condition on polar questions stated in (38a), the target stance will correspond to answer that matches the propositional preajacent of the question in polarity — which is why a question like *(Ma) are you vegetarian?* would be totally odd in BLIND DATE.

Taken together, these facts suggest that counter-expectational *ma* should systematically clash with *magari*'s antievidentiality. However, (68c) and (68d) show that this is not the case. Both scenarios SALT-1 and SALT-2 are such that the speaker (Ann) has acquired some compelling contextual evidence in favor of the preajacent of the question (its positive answer); the crucial difference is that only in SALT-2 the context entails that the addressee (Beth) is in possession of the same information.

- (67) a. SALT-1. Ann is looking outside the window on a winter evening, and she notices that salt is being poured on the street. She moves to the kitchen where Beth is cooking and asks her...
- b. SALT-2. Ann and Beth are looking outside the window on a winter evening, looking at a city truck pouring salt on the street. Ann asks...

Consider first (68a) and (68b): they are both unmarked in both scenarios, with perhaps a slight preference for (68b) in SALT-2. In any case, the difference between the two is precisely what is predicted by our entry for counter-expectational *ma*: with (68b) Ann goes the additional step of signaling that seeing the salt being poured is being recognized by her as something that makes her question her original stance as to whether it's gonna drop below freezing tonight. As an aside, this minimal pair highlights the fact this analysis of counter-expectational *ma* does not make its

contribution as vacuous as it may seem at first. Since its use conditions are tied to salient features of the context of utterance, *ma* serves the conversational purpose of marking the evidential status of what is going on in the larger context in which the conversation is taking place. This point is corroborated by the fact that in SALT-1, a natural reaction to (68b) would be to question the source of this doubt. For instance, if Beth is confident that the answer is in the negative, it would be quite natural for her to ask Ann what makes her suspect it's gonna drop below freezing, whereas such a reaction would not be perceived as cooperative following (68a).

- (68) a. *Va sotto zero stanotte?*
 goes under zero tonight
 'Is it going to drop below freezing tonight?' SALT-1: ✓; SALT-2: ✓
- b. *Ma va sotto zero stanotte?*
 but goes under zero tonight SALT-1: ✓; SALT-2: ✓
 --> *Ann just got reason to think the answer is yes*
- c. *Va sotto zero stanotte magari?*
 goes under zero tonight MAGARI SALT-1: ✓; SALT-2: #
- d. *Ma va sotto zero stanotte magari?*
 but goes under zero tonight MAGARI SALT-1: ✓; SALT-2: #

The judgments associated with (68c) and (68d) show that while counter-expectational *ma* and *magari* both deal in evidence in their use conditions, their relation with the speaker beliefs and knowledge are very different. In SALT-1 Beth, who has not witnessed the same evidence Ann has, can accommodate that Ann knows nothing that would support the possibility that it's gonna drop below zero. The crucial example here is (68d): Beth can still reply by asking Ann why is she suspecting that to be the case, but because of *magari* the inference that is drawn is that Ann has not (yet) updated her beliefs on account of that evidence. The important difference is that antievidentiality is, in a certain sense, a static condition: it speaks of what one believes, and is blind as to the dynamic of the information that manifests itself or is made available in the context. This is radically different from counter-expectational *ma*, which doesn't say much about what the speaker's beliefs are (with the caveat that polar questions, as pointed out above, make the counter-expectational signal much more informative in that sense) and instead only signals what the speaker has just encountered in terms of evidence.

With (68d) in SALT-1 Ann is asking a canonical question, signaling that she has just come across evidence that questions her doxastic stance as to the question and that nothing in what actually takes to be part of her knowledge at that point counts as evidence in favor of the possibility that it's gonna drop below freezing: her question is felicitous to the extent that Beth can accommodate that whatever information Ann came across that licenses *ma* hasn't affected her epistemic state in such a way that the antievidential condition contributed by *magari* is violated. For instance, it could be that she just heard someone claiming that the temperature is going to drop below freezing, or that she simply heard the noise of a truck at that late hour. Information of this kind would license *ma* according to the definition in (60) — which comes with

the careful wording “causes to question” — but presumably would not cause Ann’s epistemic state to be updated as to entail information that, in combination with her stereotypical ordering source, would make coarseness with respect to *It’s gonna drop below freezing tonight* to fail. Things are very different with SALT-2, where Beth is observing the truck pouring salt on the street alongside Ann. In that case, the use of *magari* licenses a reply along the lines of *Well, I mean... don’t you see the truck?* — a conversational move that is technically non cooperative, precisely because *magari*’s antievidential signal is hard to accommodate.³⁰

This contrast in the acceptability of *magari* does two things for us. First, it confirms that antievidentiality is a stronger requirement than what comes with counter-expectational *ma*, in the sense that it entails something about what the epistemic anchor’s knowledge is, and not just that something causes them to question what they believe. Second, it makes salient an interesting difference between the antievidentiality that comes about when coarseness is presupposed by an expression that contributes to the at-issue meaning, like *magari* in declaratives does, and the antievidentiality that results from expressions that impose coarse epistemic possibility on the non-at-issue dimension, like *magari* and *by any chance* that modify interrogative clauses and antecedent of conditionals (see §2.3.3). The difference is all in the fact that, as was discussed in §1.3, when *magari* occurs in declaratives (and its contribution is at-issue), its coarseness presupposition can be accommodated by applying contextual restriction on the stereotypical ordering source. If this repair were available when *magari* modifies an interrogative clause, (68c) and (68d) could be accepted by Beth in SALT-2 by evaluating coarseness against a restricted ordering without contain premises that cause worlds in which the city is pouring salt on the streets to be epistemically favored as worlds in which the temperature is going to drop below freezing. A clearer idea of what exactly is behind this difference — a difference, in a sense, between Chapter 1 and the current chapter — can only come from a deeper understanding of the different phenomena subsumed under the label of non-at-issue meaning, their interaction with the semantics and pragmatics of presupposition and their place in the broader picture of the pragmatic distinctions between assertions, questions and potentially more. These questions, however, have to remain unaddressed here.

3.4 Conclusion

Interrogative clauses were ignored altogether in Chapter 1, where the antievidential character of *magari* was documented and derived as a corollary of coarseness. Doing otherwise would have made the understanding of antievidentiality considerably more

³⁰This is especially the case since (68c) and (68d) are intuitively not utterances that have a salient ironic potential in SALT-2. A pair of question and scenario that has such a potential could be:

- (i) *Ann and Beth are cheering for Cora who just finished a marathon. Ann asks her...*
(Ma) sei un po’ stanca magari?
 but are a bit tired MAGARI
 ‘(Ma) are you a bit tired by any chance?’

challenging because all questions, as we have seen, come with sophisticated use conditions that relate to knowledge, belief and contextual evidence. In particular, I've suggested an analysis for an understudied case of bias, expressed in Italian through the adversative particle *ma*. Compared to the better known (but still not completely understood) cases of speaker/epistemic and evidential bias, I've argued that *ma*-questions convey a bias that can be seen as a combination of both, in the sense that its description requires reference both to the speaker's beliefs and to the evidence available in the context of utterance. Thus, arguing that *magari* retains its antievidential contribution when occurring in questions wasn't this chapter's main aim, but rather the precondition on using this property of *magari* (and *by any chance*) in order to add a small contribution to the vast existing literature on the topic of bias in questions.

A major issue that was left unaddressed, of course, is how a compositional analysis of *by any chance/magari* should look like, in view of what we saw here and in §2.3.3. The interpretive system we've employed simply isn't equipped to deliver such compositional analysis: I have suggested that any framework designed to capture the projective behavior of supplemental expressions (for example Potts 2005) would provide the tools needed. However, as remarked in footnote 22 on page 92, such analysis would have to encompass the bidimensionality of the semantic contribution of sentence adverbials in general, and also, ideally, have something to say about what makes conditional antecedents and interrogatives special with respect to *magari*. Although *magari* clearly is not the only expression that contributes non-at-issue meaning in this configuration, the particular challenge it provides is to make sense of the fact that this projective behavior correlates with, as it were, a modal flavor rigidity. Ideally, one would derive the phenomena seen in this chapter without giving up on the idea that *magari* is a modifier of modals and without resorting to ambiguity. This essentially means importing Chapter 2's analysis, with the assumption that a covert epistemic universal modal takes maximal scope in the non-at-issue component of meaning which *magari* modifies. Beyond the broader theoretical implications of such a move, an additional reason for caution arises from the fact that English has *by any chance* but lacks an equivalent of Chapter 1's *magari*—aside, perhaps, from lexically unrelated expressions like *for what x know(s)*. This difference provides a reason to be skeptical of a similar unification attempt. These open questions, however, must be left for future research.

Conclusion and outlook

It's time to take stock of what we've learned and to acknowledge the important questions that remain unanswered. This dissertation builds on a key, long-established insight into the interpretation of modal and conditional statements: simple quantification over accessible worlds (or, more generally, indices of evaluation) falls short as a model for natural language modality. For a quantificational treatment of modality to meet minimal standards of empirical adequacy, the domains of modal quantification must be ordered. What Chapter 1 tried to show is that one particular approach to deriving such an order — Kratzer's (1981b) premise semantics — provides a tool that can be exploited for purposes other than just ordering possible worlds. In particular, premise sets allowed us to define coarseness, a property that holds of the various arguments of modals.

Being underspecified for modal flavor (and, in fact, assumed in Chapter 2 to be lexicalized by a modifier of modal expressions), coarseness manifests itself in various forms. The most general reflex of coarseness is what I've termed exemplification: a proposition becomes a mere exemplification of whatever ideal is encoded by the conversational background if coarseness imposes that no combination of premises makes the best subset of the domain of quantification entail it. A particularly interesting case of exemplification is what we've termed antievidentiality, which arises when coarseness holds of an epistemic conversational background. Antievidentiality was the crucial novel empirical finding that led us to coarseness.

The intuition of explaining antievidentiality through the more general notion of coarseness is what set the foundation for this dissertation. That this intuition was promising was confirmed by the fact that *magari*, the main character of this dissertation, occurs in various clause types — most prominently, declaratives, imperatives and interrogatives — yielding superficially different semantic contributions. This raised the question of how much ambiguity one would need to concede. On the one hand, coarseness emerged as a pathway toward minimizing ambiguity (though, as shown in §1.B, some ambiguity is inevitable). On the other hand, it offered novel justification for a semantics grounded in premise sets.

Despite this effort to present a unified narrative around the role of coarseness, we saw in §2.3.3 and Chapter 3 that an analysis of *magari* in terms of parasitic coarseness is not tenable across the board, because in conditional antecedents and questions *magari*'s coarseness seems to be tied to an epistemic conversational background. In other words, in those environments, *magari* and *by any chance* appear to lexicalize

(in a non-at-issue dimension of meaning) the same modal that Chapter 1 provisionally assumed to be the denotation of *magari*. If we were to recompose a unified picture in terms of parasitic coarseness in the face of these data, we'd first need make explicit the analysis of the non-at-issue contribution of *magari*, *by any chance* and other sentence adverbials — explaining why this contribution arises in the specific configurations that it does. Then, we'd have to bite the bullet and assume that an epistemic universal that is equivalent in its relevant features to the K introduced in §2.3 is available in this dimension, allowing for a disjunction to be introduced in its scope and coarseness to be imposed on its conversational background. Considering such a proposal raises a number of questions that extend far beyond the scope of this dissertation

An obvious loose end is the typological aspect of coarseness. We expect to find expressions across different languages that lexicalize coarseness both as modifiers of modals and as modals in their own right. To appreciate the complexities that an extensive crosslinguistic investigation would face, we only have to look at German *vielleicht* 'perhaps' and English *maybe* (both, just like *magari*, being merely one of several adverbs that express epistemic possibility). As was already pointed out in footnote 34 on page 107, both express epistemic possibility when unembedded, and contribute to an exemplification reading when in the scope of various modals. However, while *vielleicht* seems to express antievidential possibility in a way similar to *magari*, *maybe* doesn't — at least not in a way that Chapter 1's diagnostics can reveal. This is just an example to show that the way languages make use of coarseness in their inventory of modal expressions is an important question which only adds to the already very complicated typology of modality.

We also expect that there should be a language that lexicalizes anti-coarseness, which in the epistemic flavor would amount to "evidential" epistemic possibility. In fact, there might be a language with a particularly rich inventory of modal expressions, so that both coarseness and anti-coarseness have lexical correlates. This would be a particularly interesting testing ground for the implementation choice of treating coarseness as a presupposition that was made in §1.2, as then the space of competition would be more complex than it seems to be in Italian.

The theoretical foundations for a proper treatment of modality in natural language were first laid several decades ago, and they have been debated since. Revisions, corrections, and alternatives have naturally arisen alongside empirical advancements, as our understanding of English, other languages, and the interaction between modality and other components of meaning has progressed. A legitimate criticism of a theory is that it is too powerful — for example, because it predicts that unattested phenomena could exist, or because it employs a theoretical apparatus more expressive than necessary to explain the facts. If there's a lesson to be drawn from this dissertation, it's that power that might seem dispensable can sometimes, in fact, be the very key to a finer understanding of what the facts are. The work goes on.

References

- Aloni, Maria (2003). “Free choice in modal contexts.” In: *Proceedings of Sinn und Bedeutung 7*. Ed. by M. Weisgerber. DOI: <https://doi.org/10.18148/sub/2003.v7i0.789>.
- (2022). “Logic and conversation: The case of free choice.” In: *Semantics and Pragmatics* 15.5, pp. 1–60. DOI: 10.3765/sp.15.5.
- Alonso-Ovalle, Luis (2005). “Distributing the disjuncts over the modal space.” In: *Proceedings of NELS 35*. Ed. by L. Bateman and C. Ussery. Amherst, MA: GLSA, pp. 1–12. URL: https://people.linguistics.mcgill.ca/~luis.alonso-ovalle/papers/alonso-ovalle_NELS2005.pdf.
- (2006). “Disjunction in Alternative Semantics.” Phd Thesis. University of Massachusetts, Amherst.
- Alonso-Ovalle, Luis and Paula Menéndez-Benito (2009). “Modal indefinites.” In: *Natural Language Semantics* 18.1, pp. 1–31. ISSN: 1572-865X. DOI: 10.1007/s11050-009-9048-4.
- Anderson, Alan Ross (1951). “A note on subjunctive and counterfactual conditionals.” In: *Analysis* 12.2, pp. 35–38. DOI: 10.2307/3327037.
- Arregui, Ana (2005). “On the accessibility of possible worlds: The role of tense and aspect.” PhD thesis. UMASS Amherst. URL: <https://scholarworks.umass.edu/dissertations/AAT3163647>.
- Asher, Nicholas and Brian Reese (2007). “Intonation and Discourse: Biased Questions.” In: *Interdisciplinary Studies on Information Structur* 8, pp. 1–38. URL: <https://publishup.uni-potsdam.de/opus4-ubp/frontdoor/index/index/docId/1761>.
- Bach, Kent and Robert Harnish (1979). *Linguistic Communication and Speech Acts*. Cambridge, MA: MIT Press.
- Bar-Lev, Moshe E. and Danny Fox (2017). “Universal Free Choice and Innocent Inclusion.” In: *Semantics and Linguistic Theory* 27, p. 95. ISSN: 2163-5951. DOI: 10.3765/salt.v27i0.4133.
- (2023). “On fatal competition and the nature of distributive inferences.” In: *Natural Language Semantics* 31.4, pp. 315–348. ISSN: 1572-865X. DOI: 10.1007/s11050-023-09210-3.
- Beghelli, Filippo (1998). “Mood and the Interpretation of indefinites.” In: *The Linguistic Review* 15.2–3. ISSN: 1613-3676. DOI: 10.1515/tlir.1998.15.2-3.277.

- Bhadra, Diti (2020). “The Semantics of Evidentials in Questions.” In: *Journal of Semantics* 37.3, pp. 367–423. ISSN: 0167-5133. DOI: 10.1093/jos/ffaa003. eprint: <https://academic.oup.com/jos/article-pdf/37/3/367/33539918/ffaa003.pdf>.
- Biezma, María (2009). “Alternative vs Polar Questions: The cornering effect.” In: *Proceedings of Semantics and Linguistic Theory (SALT) 19*. Ed. by Ed Cormany, Satoshi Ito, and David Lutz, pp. 37–54. DOI: doi.org/10.3765/salt.v19i0.2519.
- Biezma, María and Kyle Rawlins (2012). “Responding to alternative and polar questions.” In: *Linguistics and Philosophy* 35.5, pp. 361–406. ISSN: 1573-0549. DOI: 10.1007/s10988-012-9123-z.
- Bobzien, Susanne (2020). “Ancient Logic.” In: *The Stanford Encyclopedia of Philosophy*. Ed. by Edward N. Zalta. Summer 2020. Metaphysics Research Lab, Stanford University.
- Bolinger, Dwight (1978). “Yes—No Questions Are Not Alternative Questions.” In: *Questions*. Ed. by Henry Hiz. Dordrecht/Boston: Reidel, pp. 87–105. ISBN: 9789400995093. DOI: 10.1007/978-94-009-9509-3_3.
- Büring, Daniel and Christine Gunlogson (2000). “Aren’t Positive and Negative Polar Questions the Same?” URL: https://semanticsarchive.net/Archive/mYwOGNhO/polar_questions.pdf.
- Cariani, Fabrizio, Magdalena Kaufmann, and Stefan Kaufmann (2013). “Deliberative modality under epistemic uncertainty.” In: *Linguistics and Philosophy* 36.3, pp. 225–259. ISSN: 1573-0549. DOI: 10.1007/s10988-013-9134-4.
- Charlow, Simon (2021). “ \exists -Closure and Alternatives.” In: *Linguistic Inquiry* 52.1, pp. 143–152. ISSN: 0024-3892. DOI: 10.1162/ling_a_00367. eprint: https://direct.mit.edu/ling/article-pdf/52/1/143/1883828/ling_a_00367.pdf.
- Clark, Billy (1993). “Relevance and “pseudo-imperatives”” In: *Linguistics and Philosophy* 16.1, pp. 79–121. ISSN: 1573-0549. DOI: 10.1007/bf00984723.
- Condoravdi, Cleo (2002). “Temporal interpretation of modals: Modals for the present and for the past.” In: *The Construction of Meaning*. Ed. by D. Beaver et al. Palo Alto, CA: CSLI Publications, pp. 59–88.
- Condoravdi, Cleo and Sven Lauer (2012). “Imperatives: Meaning and Illocutionary Force.” In: *Empirical Issues in Syntax and Semantics*. Colloque de Syntaxe et Sémantique à Paris. Ed. by Christopher Piñón. Vol. 9, pp. 37–58. URL: <http://semanticsarchive.net/Archive/WNmZTIIY/Condoravdi-Lauer-Imperatives.pdf>.
- Crnić, Luka (2011). “On the meaning and distribution of concessive scalar particles.” In: *Proceedings of NELS 41*. Ed. by Nick LaCara, Lena Fainleib, and Yangsook Park, pp. 1–14. URL: <https://lukacrnic.com/pdfs/nels41.pdf>.
- Crnić, Luka, Emmanuel Chemla, and Danny Fox (2015). “Scalar implicatures of embedded disjunction.” In: *Natural Language Semantics* 23.4, pp. 271–305. ISSN: 1572-865X. DOI: 10.1007/s11050-015-9116-x.
- Crnić, Luka and Tue Trinh (2009). “Embedding Imperatives in English.” In: *Proceedings of Sinn und Bedeutung*. Ed. by A. Riester and T. Solstad. Vol. 13. 1, pp. 109–124. DOI: 10.18148/sub/2009.v13i1.517.
- Culicover, Peter (1972). “Om-Sentences: On the Derivation of Sentences with Systematically Unspecifiable Interpretations.” In: *Foundations of Language* 8.2, pp. 199–236.

- Culicover, Peter and Ray Jackendoff (1997). “Semantic Subordination despite Syntactic Coordination.” In: *Linguistic Inquiry* 28.2, pp. 195–217. URL: <https://www.jstor.org/stable/4178974>.
- D’Antuono, Nicola (2020). “The semantics of the Italian adverb *magari*: a threshold-based approach to its polysemy.” In: *Quaderni di Linguistica e Studi Orientali* 6, pp. 67–95. DOI: <http://dx.doi.org/10.13128/QULSO-2421-7220-9694>.
- Dawson, Virginia (2022). “Outscoping the Directive Force of Imperatives.” In: *Linguistic Inquiry* 53.1, pp. 155–167. ISSN: 0024-3892. DOI: 10.1162/ling_a_00402. eprint: https://direct.mit.edu/ling/article-pdf/53/1/155/1983656/ling_a_00402.pdf.
- Denić, Milica (2023). “Probabilities and logic in implicature computation: Two puzzles with embedded disjunction.” In: *Semantics and Pragmatics* 16.4. ISSN: 1937-8912. DOI: 10.3765/sp.16.4.
- Eckardt, Regine (2020). “Conjectural questions: The case of German verb-final *wohl* questions.” In: *Semantics and Pragmatics* 13.9, pp. 1–54. DOI: 10.3765/sp.13.9.
- Egan, Andy, John Hawthorne, and Brian Weatherson (2005). “Epistemic Modals in Context.” In: *Contextualism in Philosophy*. Ed. by Gerhard Preyer and Georg Peter. Oxford University Press, pp. 131–170.
- Farkas, Donka (2020). “Canonical and Non Canonical Questions.” UC Santa Cruz / Princeton University.
- (2022). “Non-Intrusive Questions as a Special Type of Non-Canonical Questions.” In: *Journal of Semantics* 39.2, pp. 295–337. ISSN: 0167-5133. DOI: 10.1093/jos/ffac001. eprint: <https://academic.oup.com/jos/article-pdf/39/2/295/43661506/ffac001.pdf>.
- Farkas, Donka and Kim Bruce (2010). “On Reacting to Assertions and Polar Questions.” In: *Journal of Semantics* 27.1, pp. 81–118. ISSN: 0167-5133. DOI: 10.1093/jos/ffp010. eprint: <https://academic.oup.com/jos/article-pdf/27/1/81/4601470/ffp010.pdf>.
- Farkas, Donka and Floris Roelofsen (2017). “Division of Labor in the Interpretation of Declaratives and Interrogatives.” In: *Journal of Semantics* 34.2, pp. 237–289. ISSN: 0167-5133. DOI: 10.1093/jos/ffw012. eprint: <https://academic.oup.com/jos/article-pdf/34/2/237/14013467/ffw012.pdf>.
- von Fintel, Kai (1998). “The presupposition of subjunctive conditionals.” In: *The interpretive tract*. Ed. by Uli Sauerland and Orin Percus. Vol. 25. MITWPL.
- (1999). “NPI licensing, Strawson entailment, and context dependency.” In: *Journal of Semantics* 16.2, pp. 97–148. DOI: 10.1093/jos/16.2.97.
- (2001). “Conditional Strengthening.” URL: <https://web.mit.edu/fintel/fintel-2001-condstrength.pdf>. Unpublished Manuscript.
- von Fintel, Kai and Sabine Iatridou (2007). “Anatomy of a Modal Construction.” In: *Linguistic Inquiry* 38.3, pp. 445–483. ISSN: 1530-9150. DOI: 10.1162/ling.2007.38.3.445.
- (2008). “How to Say *Ought* in Foreign: The Composition of Weak Necessity Modals.” In: *Time and modality*. Ed. by Jacqueline Guéron and

- Jacqueline Lecarme. Springer Netherlands, pp. 115–141. ISBN: 9781402083549. DOI: 10.1007/978-1-4020-8354-9_6.
- von Fintel, Kai (2008). “What is Presupposition Accommodation, Again?” In: *Philosophical Perspectives* 22.1, pp. 137–170. ISSN: 1520-8583. DOI: 10.1111/j.1520-8583.2008.00144.x.
- von Fintel, Kai and Anthony Gillies (2010). “*Must* ...stay ...strong!” In: *Natural Language Semantics* 18, pp. 351–383.
- (2011). “Might made right.” In: *Epistemic Modality*. Ed. by Andy Egan and Brian Weatherson. Oxford University Press, pp. 108–130.
- von Fintel, Kai and Sabine Iatridou (2017). “A modest proposal for the meaning of imperatives.” In: *Oxford Scholarship Online*. DOI: 10.1093/acprof:oso/9780198718208.003.0013.
- (2019). “Unasked Questions.” WAFL. Unpublished Slides.
- von Fintel, Kai (2021). “The question of the force of questions.” MIT. URL: <https://canvas.mit.edu/courses/7282/files/1380584>. Class Handout.
- von Fintel, Kai and Sabine Iatridou (2023). “Prolegomena to a Theory of X-Marking.” In: *Linguistics and Philosophy*. DOI: <https://doi.org/10.1007/s10988-023-09390-5>.
- (2024). “Unasked questions. Slides from recent talks on ongoing work.” URL: <http://mit.edu/fintel/fintel-iatridou-2024-UnaskedQuestionsSlides.pdf>. Unpublished Slides.
- Fox, Danny (2007). “Free Choice and the Theory of Scalar Implicatures.” In: *Presupposition and Implicature in Compositional Semantics*. Palgrave Macmillan UK, pp. 71–120. ISBN: 9780230210752. DOI: 10.1057/9780230210752_4.
- Frana, Ilaria and Kyle Rawlins (2019). “Attitudes in discourse: Italian polar questions and the particle *mica*.” In: *Semantics and Pragmatics* 12.16, pp. 1–48. ISSN: 1937-8912. DOI: 10.3765/sp.12.16.
- Garrett, Edward (2001). “Evidentiality and assertion in Tibetan.” PhD thesis. UCLA.
- Gärtner, Hans-Martin and Beáta Gyuris (2023). “What does *vajon* contribute?” In: *Proceedings of Sinn und Bedeutung* 27, pp. 228–239. DOI: 10.18148/sub/2023.v27.1066.
- Gazdar, Gerald (1979). *Pragmatics: Implicature, Presupposition and Logical Form*. New York: Academic Press.
- Geurts, Bart (2005). “Entertaining Alternatives: Disjunctions as Modals.” In: *Natural Language Semantics* 13.4, pp. 383–410. ISSN: 1572-865X. DOI: 10.1007/s11050-005-2052-4.
- Giorgi, Alessandra (2018). “Ma non era rosso? (But wasn’t it red?): On counter-expectational questions in Italian.” In: *Romance Languages and Linguistic Theory* 14. John Benjamins Publishing Company, pp. 69–84. ISBN: 9789027263896. DOI: 10.1075/rllt.14.05gio.
- Giorgolo, Gianluca and Ash Asudeh (2012). “ $\langle M, \eta, \star \rangle$ Monads for Conventional Implicatures.” In: *Proceedings of Sinn und Bedeutung* 16. Ed. by Ana Aguilar Guevara, Anna Chernilovskaya, and Rick Nouwen. Vol. 1. MITWPL, pp. 265–278. URL: <https://ojs.ub.uni-konstanz.de/sub/index.php/sub/article/view/425/358>.

- Goodhue, Daniel (2022). “Isn’t there more than one way to bias a polar question?” In: *Natural Language Semantics* 30.4, pp. 379–413. ISSN: 1572-865X. DOI: 10.1007/s11050-022-09198-2.
- Groenendijk, Jeroen and Martin Stokhof (1984). “Studies on the Semantics of Questions and the Pragmatics of Answers.” PhD thesis. University of Amsterdam.
- Grosz, Patrick Georg (2011). “German Particles, Modality, and the Semantics of Imperatives.” In: *Proceedings of NELS 39*, pp. 323–336. URL: <https://patrickgrosz.org/grosz2009nels.pdf>.
- (2012). “On the Grammar of Optative Constructions.” In: *Linguistik Aktuell/Linguistics Today*. ISSN: 0166-0829. DOI: 10.1075/la.193.
- Gunlogson, Christine (2002). “Declarative Questions.” In: *Proceedings of SALT XII*. Ed. by Brendan Jackson. Vol. 12. Linguistic Society of America, pp. 124–143. DOI: 10.3765/salt.v12i0.2860.
- (2003). *True to Form. Rising and Falling Declaratives as Questions in English*. New York & London: Routledge.
- Hamblin, Charles Leonard (1958). “Questions.” In: *Australasian Journal of Philosophy* 36.3, pp. 159–168. ISSN: 1471-6828. DOI: 10.1080/00048405885200211.
- (1973). “Questions in Montague English.” In: *Foundations of Language* 10.1, pp. 41–53. ISSN: 0015900X. URL: <http://www.jstor.org/stable/25000703> (visited on 10/21/2022).
- (1987). *Imperatives*. Basil Blackwell.
- Han, Chung-Hye (1998). “The Structure and Interpretation of Imperatives.” PhD dissertation. University of Pennsylvania.
- Heim, Irene (1982). “The Semantics of Definite and Indefinite Noun Phrases.” University of Massachusetts PhD Thesis.
- (1991). “Artikel und Definitheit.” In: *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*. Ed. by A. von Stechow and D. Wunderlich. Berlin: de Gruyter, pp. 487–535.
- (1992). “Presupposition Projection and the Semantics of Attitude Verbs.” In: *Journal of Semantics* 9, pp. 193–221.
- (1994). “Interrogative semantics and Karttunen’s semantics for *know*.” In: *Proceedings of the Israeli Association for Theoretical Linguistics I*. Ed. by R. Buchalla and A. Mittwoch. Jerusalem, pp. 128–144.
- Heim, Irene and Angelika Kratzer (1998). *Semantics in generative grammar*. Vol. 1185. Blackwell Oxford.
- Höhle, Tilman N. (1992). “Über Verum-Fokus im Deutschen.” In: *Informationsstruktur und Grammatik*. Ed. by J. Jacobs. Opladen, pp. 112–141.
- Huddleston, Rodney and Geoffrey Pullum (2002). *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.
- Iatridou, Sabine (1991). “Topics in Conditionals.” PhD Dissertation. MIT. URL: <https://dspace.mit.edu/handle/1721.1/13521>.
- (2000). “The grammatical ingredients of counterfactuality.” In: *Linguistic Inquiry* 31 (2), pp. 231–270.
- (2014). “About determiners on event descriptions, about time being like space (when we talk), and about one particularly strange construction.” In: *Natural*

- Language Semantics* 22.3, pp. 219–263. ISSN: 1572-865X. DOI: 10.1007/s11050-014-9105-5.
- Ippolito, Michela (2003). “Presuppositions and Implicatures in Counterfactuals.” In: *Natural Language Semantics* 11, pp. 145–186. DOI: doi.org/10.1023/A:1024411924818.
- (2020). “Magari.” University of Toronto. Unpublished Slides.
- Ippolito, Michela, Angelika Kiss, and Will Williams (2022). “The discourse function of adversative conjunction.” In: *Proceedings of Sinn und Bedeutung 26*. Ed. by Daniel Gutzmann and Sophie Repp, pp. 465–482. DOI: 10.18148/sub/2022.v26i0.1012.
- Jerzak, Ethan (2019). “Two ways to want?” In: *The Journal of Philosophy* 116.2, pp. 65–98. DOI: <https://doi.org/10.5840/jphil201911624>.
- Jespersen, Otto (1924). *The Philosophy of Grammar*. New York: Allen & Unwin.
- Kamp, Hans (1974). “Free Choice Permission.” In: *Proceedings of the Aristotelian Society* 74.1, pp. 57–74. ISSN: 0066-7374. DOI: 10.1093/aristotelian/74.1.57.
- Karttunen, Lauri (1977). “Syntax and Semantics of Questions.” In: *Linguistics and Philosophy* 1.1, pp. 3–44. ISSN: 1573-0549. DOI: 10.1007/bf00351935.
- Kaufmann, Magdalena (2012). *Interpreting Imperatives*. Springer Netherlands. ISBN: 9789400722699. DOI: 10.1007/978-94-007-2269-9.
- Kaufmann, Magdalena and Claudia Poschmann (2013). “Embedded imperatives: Empirical evidence from Colloquial German.” In: *Language* 89.3, pp. 619–637. ISSN: 1535-0665. DOI: 10.1353/lan.2013.0050.
- Keshet, Ezra (2012). “Focus on Conditional Conjunction.” In: *Journal of Semantics* 30.2, pp. 211–256. ISSN: 0167-5133. DOI: 10.1093/jos/ffs011. eprint: <https://academic.oup.com/jos/article-pdf/30/2/211/4655482/ffs011.pdf>.
- Keshet, Ezra and David J. Medeiros (2018). “Imperatives under coordination.” In: *Natural Language & Linguistic Theory* 37.3, pp. 869–914. ISSN: 1573-0859. DOI: 10.1007/s11049-018-9427-y.
- Klecha, Peter (2014). “Bridging the Divide: Scalarity and Modality.” PhD thesis. University of Chicago.
- Klinedinst, Nathan and Daniel Rothschild (2012). “Connectives without truth tables.” In: *Natural Language Semantics* 20.2, pp. 137–175. ISSN: 1572-865X. DOI: 10.1007/s11050-011-9079-5.
- Kratzer, Angelika (1977). “What ‘must’ and ‘can’ must and can mean.” In: *Linguistics and Philosophy* 1.3, pp. 337–355. ISSN: 1573-0549. DOI: 10.1007/bf00353453.
- (1981a). “Partition and Revision: The Semantics of Counterfactuals.” In: *Journal of Philosophical Logic* 10.2, pp. 201–216. ISSN: 00223611, 15730433. URL: <http://www.jstor.org/stable/30227189> (visited on 02/15/2024).
- (1981b). “The Notional Category of Modality.” In: *Words, Worlds, and Contexts*. Ed. by Hans J. Eikmeyer and Hannes Rieser. DE GRUYTER. ISBN: 9783110842524. DOI: 10.1515/9783110842524-004.
- (1986). “Conditionals.” In: *Chicago Linguistics Society*. Vol. 2. 22, pp. 1–15.
- (1989). “An investigation of the lumps of thought.” In: *Linguistics and Philosophy* 12.5, pp. 607–653. ISSN: 1573-0549. DOI: 10.1007/bf00627775.

- (1991). “Modality.” In: *Semantik*. De Gruyter, pp. 639–650. ISBN: 9783110203363. DOI: 10.1515/9783110126969.7.639.
- Kratzer, Angelika and Junko Shimoyama (2002). “Indeterminate pronouns: the view from Japanese.” In: *The Proceedings of the Third Tokyo Conference on Psycholinguistics*. Ed. by Yukio Otsu.
- Krifka, Manfred (2017). “Negated Polarity Questions as Denegations of Assertions.” In: *Contrastiveness in Information Structure, Alternatives and Scalar Implicatures*. Springer International Publishing, pp. 359–398. ISBN: 9783319101064. DOI: 10.1007/978-3-319-10106-4_18.
- Ladd, Robert D. (1981). “A First Look at the Semantics and Pragmatics of Negative Questions and Tag Questions.” In: *Chicago Linguistics Society*. Vol. 17, pp. 164–171.
- Lassiter, Daniel (2017). *Graded Modality*. Oxford University Press. ISBN: 9780198701347. DOI: 10.1093/oso/9780198701347.001.0001.
- Levinson, Dmitry (2003). “Probabilistic Model-theoretic Semantics for “want”” In: *Proceedings of SALT 23*. Ed. by Robert B. Young and Yuping Zhou. Vol. 13. Ithaca, Cornell University: Linguistic Society of America, pp. 222–239. DOI: 10.3765/salt.v13i0.2888.
- Lewis, David (1973). *Counterfactuals*. Malden, MA: Blackwell.
- (1975). “Adverbs of Quantification.” In: *Formal Semantics of Natural Language*. Ed. by E. L. Keenan. Cambridge University Press, pp. 178–188.
- (1979). “Scorekeeping in a language game.” In: *Journal of Philosophical Logic* 8.1. ISSN: 1573-0433. DOI: 10.1007/bf00258436.
- (1981). “Ordering semantics and premise semantics for counterfactuals.” In: *Journal of Philosophical Logic* 10.2. DOI: 10.1007/bf00248850.
- (1988). “Relevant Implication.” In: *Theoria* 54.3, pp. 161–174. DOI: 10.1111/j.1755-2567.1988.tb00716.x.
- Marty, Paul et al. (2023). “On the source of distributive inferences.” URL: <https://lingbuzz.net/lingbuzz/007623>.
- Meyer, Marie-Christine (2013). “Ignorance and Grammar.” PhD Thesis. MIT. URL: <https://doi.org/1721.1/84420>.
- Montague, Richard (1969). “On the Nature of Certain Philosophical Entities.” In: *Monist* 53.2. Ed. by Sherwood J. B. Sugden, pp. 159–194. ISSN: 0026-9662. DOI: 10.5840/monist19695327.
- (1970). “Universal Grammar.” In: *Theoria* 36.3, pp. 373–398. DOI: 10.1111/j.1755-2567.1970.tb00434.x.
- Murray, Sarah E. (2016). “Two Imperatives in Cheyenne: Some Preliminary Distinctions.” In: *Papers of the Forty-Fourth Algonquian Conference (2012)*. Ed. by Monica Macaulay, Margaret Noodin, and Valentine L. Randolph, pp. 242–256.
- (2017). *The Semantics of Evidentials*. Oxford University Press. ISBN: 9780199681570. DOI: 10.1093/oso/9780199681570.001.0001.
- Northrup, Oliver (2014). “Grounds for Commitment.” PhD thesis. UC Santa Cruz.

- Oikonomou, Despina (2016). “Imperatives are existential modals: Deriving the strong reading as an Implicature.” In: *Semantics and Linguistic Theory* 26, p. 1043. ISSN: 2163-5951. DOI: 10.3765/salt.v26i0.3949.
- (2022). “Detecting variable force in imperatives: A modalized minimal approach.” In: *Natural Language & Linguistic Theory*.
- Pasternak, Robert (2016). “A conservative theory of gradable modality.” In: *Semantics and Linguistic Theory* 26, p. 371. ISSN: 2163-5951. DOI: 10.3765/salt.v26i0.3805.
- Portner, Paul (2007). “Imperatives and modals.” In: *Natural Language Semantics* 15.4, pp. 351–383. ISSN: 1572-865X. DOI: 10.1007/s11050-007-9022-y.
- Portner, Paul and Aynat Rubinstein (2016). “Extreme and Non-extreme Deontic Modals.” In: *Deontic Modality*. Oxford University Press. ISBN: 9780198717928. DOI: 10.1093/acprof:oso/9780198717928.003.0010. eprint: https://academic.oup.com/book/0/chapter/162882652/chapter-ag-pdf/44910203/book__12755__section__162882652.ag.pdf.
- Potts, Christopher (2005). *The Logic of Conventional Implicatures*. Oxford University Press.
- Prior, Arthur N. (1958). “Escapism: The Logical Basis of Ethics.” In: *Journal of Symbolic Logic* 4, pp. 610–611. DOI: 10.2307/2271385.
- Quine, Willard van Orman (1956). “Quantifiers and Propositional Attitudes.” In: *The Journal of Philosophy* 53.5, p. 177. ISSN: 0022-362X. DOI: 10.2307/2022451.
- Quirk, Randolph et al. (1985). *A comprehensive grammar of the English language*. London: Longman. URL: /bib/quirk/Quirk1985/Comprehensive_Grammar_of_the_English_Language_Quirk_Greenbaum_Leech_Svartvik.pdf, /bib/quirk/Quirk1985/comprehensive_20grammar_20of_20the_20english_20language_quirk_greenbaum_leech_svartvik.pdf, /bib/quirk/Quirk1985/comprehensive_grammar_english_language.djvu.
- Reese, Brian (2007). “Bias in Questions.” PhD thesis. University of Texas at Austin. URL: <http://hdl.handle.net/2152/3280>.
- Reese, Brian and Nicholas Asher (2009). “Biased questions, intonation, and discourse.” In: *Information Structure: Theoretical, Typological, and Experimental Perspectives*. Oxford University Press. ISBN: 9780199570959. DOI: 10.1093/acprof:oso/9780199570959.003.0007. eprint: https://academic.oup.com/book/0/chapter/314559473/chapter-ag-pdf/48746770/book__36175__section__314559473.ag.pdf.
- Repp, Sophie (2013). “Common Ground Management: Modal Particles, Illocutionary Negation and *Verum*.” In: *Beyond Expressives: Explorations in Use-Conditional Meaning*. Ed. by Daniel Gutzmann and Hans-Martin Gärtner, pp. 231–271.
- Roberts, Craige (1996/2012). “Information structure in discourse: Towards an integrated formal theory of pragmatics.” In: *Semantics and Pragmatics* 5.6, pp. 1–69. DOI: 10.3765/sp.5.6.
- Roelofsen, Floris and Donka Farkas (2015). “Polarity particle responses as a window onto the interpretation of questions and assertions.” In: *Language* 91.2, pp. 359–414. ISSN: 1535-0665. DOI: 10.1353/lan.2015.0017.

- Roelofsen, Floris and Sam van Gool (2010). “Disjunctive Questions, Intonation, and Highlighting.” In: *Logic, Language and Meaning*. Springer Berlin Heidelberg, pp. 384–394. ISBN: 9783642142871. DOI: 10.1007/978-3-642-14287-1_39.
- Romero, Maribel (2015). “High Negation in Subjunctive Conditionals and Polar Questions.” In: *Proceedings of Sinn und Bedeutung*. Ed. by Eva Csipak and Hedde Zeijlstra. Vol. 19, pp. 519–536.
- Romero, Maribel and Chung-Hye Han (2004). “On Negative yes/no Questions.” In: *Linguistics and Philosophy* 27, pp. 609–658.
- Rooth, Mats (1985). “Association with Focus.” PhD Thesis. UMASS Amherst.
- (1992). “A theory of focus interpretation.” In: *Natural language semantics* 1.1, pp. 75–116.
- Russell, Benjamin (2007). “Imperatives in conditional conjunction.” In: *Natural Language Semantics* 15.2, pp. 131–166. ISSN: 1572-865X. DOI: 10.1007/s11050-007-9012-0.
- Sadock, Jerrold M. (1971). “Queclaratives.” In: *Papers from the 7th Regional Meeting of the Chicago Linguistic Society*, pp. 223–231.
- San Roque, Lila, Simeon Floyd, and Elisabeth Norcliffe (2017). “Evidentiality and interrogativity.” In: *Lingua* 186–187, pp. 120–143. ISSN: 0024-3841. DOI: 10.1016/j.lingua.2014.11.003.
- Santorio, Paolo and Jacopo Romoli (2017). “Probability and implicatures: A unified account of the scalar effects of disjunction under modals.” In: *Semantics and Pragmatics* 10.13, pp. 1–61. DOI: 10.3765/sp.10.13.
- Sauerland, Uli (2004). “Scalar Implicatures in Complex Sentences.” In: *Linguistics and Philosophy* 27.3, pp. 367–391. ISSN: 0165-0157. DOI: 10.1023/b:ling.0000023378.71748.db.
- Sauerland, Uli and Kazuko Yatsushiro (2017). “Remind-Me Presuppositions and Speech-Act Decomposition: Evidence from Particles in Questions.” In: *Linguistic Inquiry* 48.4, pp. 651–677. DOI: 10.1162/ling_a_00257.
- Schwager, Magdalena (2005). “Exhaustive Imperatives.” In: *Proceedings of the 15th Amsterdam Colloquium*. Ed. by M. Franke and P. Dekker, pp. 233–238. URL: <https://magdalena-kaufmann.uconn.edu/papers/adamP.pdf>.
- Searle, John (1976). “A Classification of Illocutionary Acts.” In: *Language in Society* 5.1, pp. 1–23. URL: <http://www.jstor.org/stable/4166848>.
- Shan, Chung-chieh (2004). “Binding Alongside Hamblin Alternatives Calls for Variable-free Semantics.” In: *Proceedings of Semantics and Linguistic Theory 14*. Ed. by Kazuha Watanabe and Robert B. Young. Vol. 14. Linguistic Society of America, pp. 289–304. DOI: 10.3765/salt.v14i0.2901.
- Šimík, Radek (2024). “Polar question semantics and bias: Lessons from Slavic/Czech.” In: *Topics in the semantics of Slavic languages*. Ed. by Berit Gehrke and Radek Šimík. Berlin: Language Science Press. URL: <https://lingbuzz.net/lingbuzz/007552>. Forthcoming.
- Simons, Mandy (2005). “Dividing things up: The semantics of or and the modal/or interaction.” In: *Natural Language Semantics* 13.3, pp. 271–316. ISSN: 1572-865X. DOI: 10.1007/s11050-004-2900-7.

- Soames, Scott (1989). “Presupposition.” In: *Handbook of Philosophical Logic. Volume IV: Topics in the Philosophy of Language*. Ed. by Dov Gabbay and Franz Guenther. Kluwer Academic Publishers, pp. 553–616.
- Speas, Peggy and Carol Tenny (2003). “Configurational properties of point of view roles.” In: *Asymmetry in Grammar*. John Benjamins Publishing Company, pp. 315–344. DOI: 10.1075/la.57.15spe.
- Spector, Benjamin (2006). “Aspects de la Pragmatique des Opérateurs Logiques.” PhD thesis. Université Paris-VII.
- Stalnaker, Robert (1974). “Pragmatic Presuppositions.” In: *Semantics and Philosophy*. Ed. by Milton Munitz and Peter Unger. New York University Press, pp. 197–213.
- (1975). “Indicative conditionals.” In: *Philosophia* 5.3, pp. 269–286. ISSN: 1574-9274. DOI: 10.1007/bf02379021.
- (1978). “Assertion.” In: *Syntax and Semantics (New York Academic Press)* 9, pp. 315–332.
- Staniszewski, Frank (2019). “Wanting, acquiescing, and neg-raising.” In: *Proceedings of NELS 49*. URL: <https://ling.auf.net/lingbuzz/005284>.
- (2022). “Modality and Time in Logical Context.” PhD thesis. Massachusetts Institute of Technology.
- Starr, William B. (2020). “A preference semantics for imperatives.” In: *Semantics and Pragmatics* 13.6, pp. 1–60. DOI: 10.3765/sp.13.6.
- Sudo, Yasutada (2013). “Biased Polar Questions in English and Japanese.” In: *Beyond Expressives: Explorations in Use-Conditional Meaning*. Ed. by Daniel Gutzmann and Hans-Martin Gärtner. BRILL, pp. 275–295. DOI: 10.1163/9789004183988_009.
- Taniguchi, Ai (2017). “The Formal Pragmatics of Non-at-issue Intensification in English and Japanese.” PhD thesis. Michigan State University.
- Theiler, Nadine (2020). “Denn as a highlighting-sensitive particle.” In: *Linguistics and Philosophy* 44.2, pp. 323–362. ISSN: 1573-0549. DOI: 10.1007/s10988-019-09290-7.
- Truckenbrodt, Hubert (2004). “Zur Strukturbedeutung von Interrogativsätzen.” In: *Linguistische Berichte* 199, pp. 313–350.
- Veltman, Frank (1976). “Prejudices, Presuppositions and the Theory of Conditionals.” In: *Amsterdam Papers in Formal Grammar*. Ed. by Jeroen Groenendijk and Martin Stokhof. Vol. 1.
- von Wright, Georg Henrik (1968). *An Essay in Deontic Logic and the General Theory of Action: With a Bibliography of Deontic and Imperative Logic*. Amsterdam: North-Holland Pub. Co.
- Yalcin, Seth (2010). “Probability Operators.” In: *Philosophy Compass* 5.11, pp. 916–37. DOI: 10.1111/j.1747-9991.2010.00360.x.
- (2016). “Belief as Question-Sensitive.” In: *Philosophy and Phenomenological Research* 97.1, pp. 23–47. DOI: 10.1111/phpr.12330.
- Zanuttini, Raffaella (1994). “Speculations on negative imperatives.” In: *Rivista di linguistica* 6.1, pp. 67–89.
- Zimmermann, Thomas Ede (2000). “Free Choice Disjunction and Epistemic Possibility.” In: *Natural Language Semantics* 8.4, pp. 255–290. ISSN: 0925-854X. DOI: 10.1023/a:1011255819284.