THE FORMAL PRAGMATICS OF NON-AT-ISSUE INTENSIFICATION IN ENGLISH AND JAPANESE

By

Ai Taniguchi

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Linguistics – Doctor of Philosophy

2017

ABSTRACT

THE FORMAL PRAGMATICS OF NON-AT-ISSUE INTENSIFICATION IN ENGLISH AND JAPANESE

By

Ai Taniguchi

This dissertation concerns the formal pragmatics of constructions in English and Japanese that are perceptively intensificative in their discourse function in some way. In particular I examine polarity emphasis (*verum* focus), exclamatives, and acts of notification and surprise in language using a compositional version of Farkas & Bruce (2010)'s Table framework, which I dub the λ-Table framework. I argue that *verum* is a type of illocutionary modifier that poses restrictions on how an issue on the Table must be resolved, appealing to the idea in dynamic semantics that the motivation for any given speech act is to increase the common ground (CG). Exclamatives are similar in that as a speech act they also allow for the speaker to exclusively dictate what enters the CG. An analytical connection will be made between the illocutionary meaning of questions and exclamatives, the point of which will be that exclamatives are "questions" that exclude the addressee from participation in the conversational process of removing issues from the Table. Thus, exclamatives are non-inquisitive moves in which the speaker expresses their subjective judgment for the sake of expressing it. The act of notifying others of some piece of information also has a sense of being coercive in discourse, although not as authoritative as *verum* or exclamatives. The idea I propose for notification is that it is a kind of evidential construction that indicates that, by virtue of utterance, the hearer has received hearsay evidence for a proposition. I argue that the reason that these classes of sentences feel "emphatic" is because of their common pragmatic pattern in which the speaker dictates how the context is to be shaped, which is an exceptional property compared to more canonical speech acts like assertions and questions that require the collaboration of all discourse participants. This dissertation addresses the broader issue of what it means for a particular level of meaning to be non-

truth-conditional, and propose ways of reliably distinguishing illocutionary meaning from conventional implicatures. What examining non-at-issue intensification reveals is that there are parts of the context structure that different levels of meanings are sensitive to, giving us a clearer picture of what the building blocks of discourse are in natural language.

This dissertation is dedicated to all of the teachers I've had in my life, from preschool to grad school.

ACKNOWLEDGEMENTS

My mother named me 愛 [aɪ] — 'love' in Japanese — as a way to remind me of the immeasurable value of our loved ones in life. "Love, and be loved," as she put it; these wise words couldn't have been truer during my graduate student career. Without the love and support of my professors, colleagues, family, and friends, I would not have been able to write this dissertation. Thank you to everyone that has helped me become the researcher that I am today. I love you all.

First and foremost, I would like to thank my advisor Marcin Morzycki. He has been my biggest cheerleader (in the metaphorical sense, but I hope readers enjoy the imagery of Marcin with pom-poms) since the day I arrived at MSU, and without his guidance I would not have made this far in the program. Always open to new ideas and excited about my projects like they were his own, Marcin pushed me intellectually in ways that only a soul as creative as him could. He has unbelievable talent for putting complex ideas into human terms, both in writing and in speech; I hope one day that I can achieve the level of clarity and warmth that Marcin possesses as an academic orator. He believed in me more than I believed in myself. His words of encouragement and his silent smirks of approval always had ways of negating my self-doubt. I don't know how many breakdowns I had in his office, and I don't know how many times he helped me get back up. He's saved my life — sometimes literally — in times of need, and for that I am forever indebted to him. Thank you for being my mentor in so many ways. I am not exaggerating when I say you've changed my life. I can only hope that this dissertation echoes even in the slightest the intellectual inclinations and ways of thinking I've inherited from him. All errors and oversights are my own.

Alan Munn was also like a second advisor to me throughout these five years. He was never hesitant to call out bad ideas as bad, but he was equally vocal when my ideas were good (that's when you knew an idea was good!). I admire his ability to swiftly spot solutions to problems, and his way of reasoning has profoundly affected the way I think about linguistics.

I was fortunate to have learned teaching through him as well; many of the pedagogical philosophies I live by today, I owe to him. Because of his guidance, for the first time in my life I can truthfully say that I feel like I've found something I'm actually good at: teaching. Thank you for making me a teacher and researcher, Alan. And I must say, Alan honestly knows everything about everything, and I swear I learned a lot about food and music and literally everything else from him during these five years as well. I think it's only appropriate that I conclude my thanks to him with a pun. What is it called when my neighbor is my neighbor? A Totoro-gy.

Cristina Schmitt is also an amazing individual that has helped me grow as a linguist, and I admire her in many ways. I hope one day I acquire analytical intuitions and the ability to see theoretical connections between a wide range of phenomena at her level. The training I received in the acquisition lab will forever be my foundation of experimental approaches to language, and I feel so very fortunate that I had this experience. Cristina's emotional perceptiveness was something I also appreciated as a grad student. She fully empathized with me when things got tough — being overwhelmed by work, job hunting, rejections — and she reminded me that it's ok to be human in the world of academia. At the same time, she continually promised me that it will be all worth it when everything is done, when I would be able to say I achieved all of this because of my hard work. I am at that point right now where I feel like I have really, really grown not just a linguist but as a human being, and I'd like to thank you again, Cristina, for having predicted that I would make it this far.

Endo-Sensei was I think the very first person to reach out to me when I arrived at MSU. I still remember that first summer when we went to Sansu, and she was so, so welcoming. I feel like I barely knew anything about Japanese, my first language, when I was just starting as a grad student. Since then she has taught me not just Japanese linguistics, but her pedagogical philosophies in teaching Japanese as a foreign language as well. I've come to appreciate Japanese in ways I couldn't have without her wisdom and guidance. Writing a dissertation on pragmatics and Japanese is intimidating when the master of both is on

your committee, but I hope she approves. Her insightful comments have improved my work significantly over the years, and for that I am forever grateful. Endo-Sensei, hontooni arigatoogozaimashita. I am going to miss our dinner dates!

I would also like to thank faculty members outside of my committee for their support throughout these five years: Suzanne Evans Wagner, Yen-Hwei Lin, Karthik Durvasula, and Alan Beretta. As a semanticist interested in social meaning, I was very lucky to have Suzanne by my side. She also always looked out for my emotional and mental well-being, which was something I really appreciated when things got tough. Yen-Hwei and Karhik have helped me become a well-rounded linguist. I genuinely love phonology and will continue to appreciate it because of them. I also thank Alan B. for having let me gel up his EEG experiment participants my first couple of years in grad school.

I also have many fellow grad students (past and present) to thank. A special shout out goes to my fellow semanticists Ai Matsui, Adam Gobeski, Curt Anderson, Cara Feldscher, Gabe Rodrigues, and Josh Herrin. I especially learned a lot from my academic seniors Ai, Adam, Curt, and Gabe, and when Cara and Josh came in they always kept me on my toes with their insightful questions. I'm going to miss Awkward Time. My awesome cohort also deserves a holla: Sweet Andrew, Chenchen, Ni La, Saya, and Qian. The following are also equally awesome people that made grad school an enriching and fun experience for me: Adina, Alex, Alicia, Adam L., Greg, Hannah, Ho-Hsin, Jess, Joe, and Kali. I also interacted lots with linguistics undergraduates these past five years, and some of them have come to be my closest of friends. Here I thank Abhi, Adam S., Brian, Chris, Kai, Kyle, Mina, and Tess. Mina, I was so glad to have someone to codeswitch between linguistics and fashion with. I miss you. Abhi Parekh deserves a special thanks here. I am so thankful for the friendship we discovered during the last few years, and you are the kindest, warmest, and the most empathetic person I've ever met, and I really genuinely think that you will change the world one day. Thank you for having been there for me when I needed support, and I just really, really appreciate that you exist in my life. I hope I've been able to be to you what you are to

me. And to my Sultry Semanticists Cara, Josh, and Abhi: I'm going to miss our boardgame nights and "Semantics and Spaghetti" Olive Garden outings. Thank you for your friendship.

I would also like to thank my family in Japan for their support and patience. Thank you mom, thank you dad, thank you Yohei. My obaachan and ojiichan were always my inspiration, and I really hope I've done these two doctors proud. I would also like to thank uncle Rocky, aunt Pat-chan, and my cousins Ken, Yoshi, and Hanna for their unconditional love. I am also super grateful for my new Michigan (slash Portland) family: Dee, Steve, Quinn, Kim, and Bambi. With my immediate family thousands of miles away, I was really lucky to have the kind of love and support you provided me with here. Thank you so, so, much for everything.

I think I would have gone insane in grad school had I not had the support of my non-linguist friends. My college best friend Anna Riddiough was always ready to hear me rant about the grad school life, and she helped me destress by online shopping with me. We've had many serious discussions about what color coats may be appropriate for the season and made fun of lots of bloggers with skinny belts and cowboy boots. We went shopping in Chicago together, we met up in Tokyo to eat kitsetsu gentei cakes, and I even attended her wedding in Denmark. Delta Psi Omega bunnies forever, love you bbycakez. Devon King is another best friend of mine, and I've known him since middle school. He came up to visit in Lansing several times — yes, in fucking Lansing. That's friendship. We've always done stupid shit together like going to El Ranchero in Peachtree City to drink all three sizes of margaritas and then almost getting a free bag of Taco Bells. He is my partner in crime in our hashtag fitfatass lifestyle, and I really appreciate the humor he kept in my life while I dissertated. Thanks for being my friend for so many years.

I have people to thank from my earliest days as a linguist: Nathan Loggins, my intro linguistics TA at UGA, and Vera Lee-Schoenfeld, my mentor figure at UGA. Thank you so much for being my inspiration so early on.

I have many linguists that I've crossed paths with to thank. Many of their ideas have

helped improve my projects at various points. This is not a exhaustive list, but: Alexis Wellwood, Andrea Beltrama, Anne-Michelle Tessier, Chris Davis, Eric McCready, Jessica Rett, Jim Wood, Kyle Rawlins, Lucas Champollion, Maria Mercedes Pinango, Norbert Hornstein, Paul Portner, Tim Hunter, Tim Leffel, Thomas Grano, and Veneeta Dayal.

I would also like to thank conferences I've attended over the years: (S)SWAMP, ConSOLE, FAJL, NWAV, SuB, GLEAMS, NAIS, and ESSLLI/IASM. Here is a bigass holla to Thuy Bui, who has become my favorite conference buddy.

I would also like to thank my LIN200 students for letting me share my enthusiasm for linguistics with them. I really loved teaching all of my classes, and it's really helped me grow as a linguist.

Nothing would have been possible without the help from the MSU Linguistics and Languages staff, including Jennifer Nelson, Pete Havlatka, Logan O'Neill, and Ryan Hasselbach. Thank you for doing the behind-the-scenes work for all of us in the program.

At the tail end of my dissertating period, I was fortunate enough to become a member of the Carleton University linguistics community as well. I officially want to thank my new colleagues and staff members at Carleton for their flexibility, trust, and support as I frantically flew back and forth between East Lansing and Ottawa right as I was starting my new job. I especially want to thank Dan Siddiqi (and Julie Siddiqi), David Wood, Ida Toivonen, Raj Singh, Lev Blumenfeld, Kumiko Murasugi, Tracey Wright, Connie Wall, Joan Grant, and Corrina Belok for the amount of help they gave me as I transitioned to my new life in Canada.

I also thank my pet fish PJ, Cookie, Pepper, Mickey, and Moon for being the therapeutic pets that they are.

And thank you, Eastwood Towncenter Ann Taylor and Ann Taylor Loft for existing to keep me lookin' fierce all these years.

Finally, Curt Anderson deserves the most special acknowledgement here. Curt has been my partner, my friend, my colleague, my collaborator, my mentor, and everything in between

these past years. I sure wasn't expecting to find my soulmate when I came to Michigan for grad school, but I am glad I did. He's been the most supportive partner ever in all capacities, and he has gone above and beyond to make sure that I felt supported. He read every single page of this dissertation, and made extensive comments on each chapter. When I was just starting out in semantics he gave me Bach (1989) to read, and checked my denotations for errors. When I got my job interview he sent me every possible resource he could imagine so that I was 100 percent prepared, and made sure that the internet connection was at its best so that my Skype call wouldn't drop during the interview. When I was sad in East Lansing when he went away to Germany for his postdoc, he sent me flowers. Thank you for being in my life and for everything that you do. I really don't know how I would've gotten through grad school without you. I love you very much.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

DYNAMIC SEMANTICS AND INTENSIFICATION

1.1 Introduction

As much as writing this feels like a monologue, the reality of language is that I am talking to you, the reader. Hello. I can compositionally build up sentence meaning all I want, but I must also comply with my social urge to package this meaning and direct it at someone else. Philosophers like Rousseau have wondered why on earth humans feel the need to give away information to others like this when it seems so disadvantageous for survival (Rousseau 1781/2013), but the fact of the matter is that we do, and these interactions tell us something interesting about language. In particular, it reveals a communicative layer to the meaning of any sentence: I have to communicate to my hearer what I mean by making any particular utterance. One obvious hope that I embed in my utterance is that they respond. Moreover, I need them to respond in a helpful way so that the two of us can figure out a thing or two about the world we have been put in. In this way, sentences that we construct are a part of a larger discourse, and what discourse participants are engaging in is a turn-based transfer of information and inquiries. This dissertation concerns this very human nature of linguistic meaning. In particular, my interest is in classes of sentences that have a certain specialness in what they communicate by virtue of being uttered, constructions that are perceptively intensificative in their meaning at the non-truth-conditional level: polarity emphasis (*verum*), exclamatives, and acts of notifying. Before we get to the details of these phenomena, I open the dissertation with a bit of history concerning this approach to meaning as something situated in discourse.

To highlight the significance of this approach to semantics, allow me to rewind and ask what meaning is in the first place, a long-standing project at least since Montague's time. A popular answer: truth conditions. That is, a sentence such as (1a) is defined in terms of

the requirements that make it true. (1b) is a familiar notation for this: *Kim owns a corgi* is true if and only if there exists an individual x that is among corgi things in this world, and Kim and this x have an owner-owned relationship.

(1) a. Kim owns a corgi.

b. $\exists x[\mathbf{corgi}(x) \wedge \mathbf{own}(\mathbf{k}, x)]$

This self-contained notion of sentence meaning is what we might call a *static* model of semantics. It gets many things done in terms of composing sentence meaning out of its subparts. It becomes problematic, however, when multiple sentences or clauses become involved.

One such case is cross-sentential anaphora. Consider the mini two-sentence discourse in (2a), which involves the pronoun *it* and its antecedent *a corgi*. (2b) is a reasonable first shot at the representation of what it is conveying.

(2) Cross-sentential anaphora

a. Kim owns [a corgi]$_i$. It$_i$ is small.

b. $\exists x[\mathbf{corgi}(x) \wedge \mathbf{own}(\mathbf{k}, x) \wedge \mathbf{small}(x)]$

Truth-conditionally, (2b) is harmless in that it correctly predicts (2a) to be true if and only if Kim owns a small corgi. There is, however, a compositional discomfort: the denotation of the first sentence *Kim owns a corgi* (i.e., 1b) is nowhere to be found in (2b) as a subformula. Strictly adhering to such compositionality leaves us with an illicit unbound variable in the last conjunction:

(3) a. Kim owns [a corgi]$_i$. It$_i$ is small.

b. $\exists x[\mathbf{corgi}(x) \wedge \mathbf{own}(\mathbf{k}, x)] \wedge \mathbf{small}(x)$

With $\mathbf{small}(x)$ dangling at the end in (3b), the anaphoric link between *it* and *a corgi* is now lost. So is (2b) what we want after all? Even if we accept the uncompositionality, the problem with (2b) is that it still does not capture the intuition that the pronoun is *referring*

back to its antecedent. One way to illustrate this intuition is flipping the two sentences as in (4), which forms a strange discourse.

(4) ?? It$_i$ is small. Kim owns [a corgi]$_i$.

This ordering effect is not predicted by the denotation in (2b). Conjunction is commutative, so whether the smallness ($\mathbf{small}(x)$) or the corgi ownership ($\mathbf{corgi}(x) \wedge \mathbf{own}(\mathbf{k})(x)$) comes first should not matter for what (2a) means. But clearly, it does.

It gets worse. Perhaps the most infamous problem in the discussion of anaphora is a class of sentences often known as *donkey sentences*, which comes from an observation first made by Geach (1962). The classic example is in (5a), and a less distressing version of it in (5b).[1]

(5) Donkey sentences

a. If a farmer owns a donkey, he beats it. (Geach 1962)

b. If a person owns a pet, they talk to it.

c. $\forall x \forall y[\mathbf{person}(x) \wedge \mathbf{pet}(y) \wedge \mathbf{own}(x, y) \rightarrow \mathbf{talk}(x, y)]$

The existential expressions *a person* and *a pet* are the issue. Despite the indefinite, there is no existence of a person or a pet asserted in (5b); it's only hypothetical. The question of who talks to what cannot be definitively answered on the basis of (5b). Under traditional predicate logic, donkey sentences therefore unintuitively receive universal quantification as in (5c). We *could* put existential quantifiers in there; it just creates an all-too-familiar problem. We can see that in (6) unbound variables strike back, and we can no longer tell who *they* and *it* are referring to.

(6) $\exists x \exists y[\mathbf{person}(x) \wedge \mathbf{pet}(y) \wedge \mathbf{own}(x, y)] \rightarrow \mathbf{talk}(x, y)$

These phenomena motivate the need for a more *dynamic* notion of meaning that allows for us to capture this sort of cross-sentential dependence. This dependence is exactly the

[1] I use singular *they* throughout the dissertation to refer to gender-neutral antecedents.

sense in which meaning is not just self-contained; it is transferred, it is exchanged — the interpretation of one sentence hinges on the interpretation of the preceding sentence.

An even more realistic view of sentence meaning is that you're probably not talking to yourself about some corgi; you are talking to someone. This brings us to an even more communicative notion of dynamicism hinted at earlier, which concerns the question of *what you are trying to communicate to the hearer* when you say a particular sentence. This largely speaks to illocutionary acts and the issue of sentential force (i.e., what we do in uttering a sentence (Austin 1975)), which will be discussed first here, but it also manifests in related areas of sentence-level modification — such as polarity emphasis — that manipulate discourse contexts in equally crucial ways.

Consider the pair of sentences in (7), for example. They both mean 'that donkey is lazy' at a fundamental level, but (7b) is an assertion (i.e., has declarative force) and (7a) is a question (i.e., has interrogative force).

(7) a. This donkey is lazy.

b. Is this donkey lazy?

They differ in terms of their purpose within discourse, at least under traditional views of illocutionary meaning (Searle 1965; 1975; 1976; 1979). Informally, (7a) says '*I believe this*: this donkey is lazy,' and (7b) says '*Let us discuss this*: this donkey is lazy, or this donkey is not lazy — which one is it?'

Illocutionary force can be thought of in terms of *where you are hoping to take the conversation* once you utter a sentence. Once you make an assertion p, the hope is that everyone in the discourse is aware that you believe p, and the discourse must go on under that assumption. If you ask *whether* p, the mutual understanding is that henceforth everyone must cooperate to resolve this question. Sentential meaning under this view answers the question of how the post-utterance context differs from the pre-utterance context — in other words, a relationship between the input context and the output context (Groenendijk & Stokhof 1991;

Heim 1982; Kamp 1981). This treatment of the value of a sentence as a context relation is dynamic, and this is the type of meaning this dissertation is primarily concerned with.

In particular, this dissertation addresses cases of context change that are slightly more mysterious than assertions and questions, particularly constructions that involve INTENSIFICATION at the discourse-level. One class of sentences whose conversational purpose has only begun to be understood is EXCLAMATIVES (Castroviejo Miró 2008a; Saebø 2005). B's utterance in (8) is one such example, a WH-exclamative.

(8) A: This donkey doesn't want to get up to go eat.

B: What a lazy donkey!

At some level *what a lazy donkey!* means 'this donkey is lazy.' The question is how this is different from simply asserting *this donkey is lazy.* One common intuition about exclamatives is that they are *intensificative* (Castroviejo Miró 2008a; Grimshaw 1979; Gutiérrez-Rexach 1996; Rett 2011; Zanuttini & Portner 2003; among others). In this case, the donkey is not just lazy — its laziness is noteworthy in some way. For example, the donkey is perhaps *very* lazy. However, calling exclamatives a set of *very* constructions still does not answer what its dynamic meaning is, especially since it presumably does not have the same effect that the lexically intensified assertion *this is a very lazy donkey* has.

The issue of what exclamatives do in discourse becomes more complicated when considering its different *subclasses.* That is, there are multiple ways to intensify *that donkey is lazy* at the illocutionary level:

(9) a. What a lazy donkey! (WH-EXCLAMATIVE)

b. Boy, is that donkey lazy! (POSITIVE INVERSION EXCLAMATIVE)

c. Isn't that donkey lazy! (NEGATIVE INVERSION EXCLAMATIVE)

Do (9a-c) all mean the same? If form determines meaning then the answer is no. But then we must wonder what property makes them a natural class in the first place. In this dissertation, I search for this property from a dynamic perspective, and ultimately argue

that exclamatives are a class of sentences that constitute *reactions* in discourse rather than inquiries, making them somewhat of an anti-interactive move that allows for the speaker to single-handedly update the common ground (i.e., the set of propositions discourse participants are mutually committed to).

This dissertation will also draw data from Japanese to analyze discourse-level intensification. Consider the following pair of sentences in Japanese; they both mean 'it's raining'. The second one with *-yo*, however, is often described as a "strong" assertion, with the particle marking some sort of insistence coming from the speaker (Davis 2009; 2011; McCready 2009; Suzuki Kose 1997).

(10) a. ame futteru
rain fall.PROG
'It's raining'

b. ame futteru -yo
rain fall.PROG YO
'It's raining YO'

McCready (2009) observes that assertions with *-yo* are infelicitous if the conveyed information is already known by the addressee. For example, (10b) is only felicitous if the hearer did not know that it was raining. This is in line with the observation (Kamio 1994; Suzuki Kose 1997) that *-yo* marks *new* information. Therefore, the more articulated picture of this "insistence" is that *-yo* marks the act of NOTIFYING. It is a type of sentence that alerts the addressee of new information coming their way, often times used with the intention of getting them to do something as a result of this notice (Davis 2009; 2011).

In English, normal assertions can be used to notify others (e.g., *It's raining outside!*). Notification therefore does not form an obvious sentential class in English, but certain interjections like *hey* or *yo* can flag new information. Even more explicitly, qualifying phrases like *for your information* ("FYI") can accomplish the same.

(11) a. It's raining outside

b. Hey, it's raining outside

c. Yo, it's raining outside

d. FYI, it's raining outside

My question is this: what does it mean to notify, formally speaking? What parts of the discourse structure does notification manipulate, and how is it distinguished from a regular assertion? Building on Davis (2011)'s observations but adopting a different angle in analyzing them, I argue in this dissertation that notification is a type of EVIDENTIAL marking.

Evidentials mark the speaker's information source of the uttered proposition (Aikhenvald 2004; Murray 2010): did you see it, did you hear (about) it, did you see something that implies it happened? Cross-linguistically there are many ways of marking evidence, ranging from functional particles to lexical (verbal, modal, adverbial) evidentials (Peterson & Sauerland 2010). The verb *hear* is one way of indicating hearsay evidence in English, for example.

(12) It's raining outside, I hear

Here is the conceptual connection I am making between notification and evidentiality. In a sentence with hearsay evidential marking, the speaker is the recipient of the hearsay evidence. In a notificative sentence, the *addressee* is the recipient of the hearsay evidence. That is, one way of paraphrasing notification is 'you have hereby heard from me that p'. This will be the thrust of my analysis of *-yo*.

Japanese is particularly an interesting language to study in terms of formal discourse semantics because it has a rich inventory of *sentence-final particles*, also known as discourse particles, pragmatic particles, and interactive particles (for a recent survey, see Ogi (2017) and references therein). This includes wide range of morphemes including force markers and epistemic markers. They can be combined, although with rigid ordering (Minami 1993). For instance, in addition to the *-yo* assertions we just examined, there are also *-yo* "questions":

it can appear after the question particle *-ka*. As Davis (2011) notes, *-ka-yo* sentences are rhetorical, and are used to express SURPRISE. For example, imagine that you bit into what you thought was a chocolate chip cookie, only to find out that it was an oatmeal raisin cookie. (13) would be appropriate for expressing such a surprise.

(13) reezun -ka -yo!
raisin Q YO
'What the hell, raisins?!'

(13)'s quirk is that you are not just surprised — you are *unpleasantly* surprised. My objective is to provide an analysis of *-yo* that allows for its composition with assertions and interrogatives in a way that predicts this pattern.

Another class of seemingly emphatic sentences involves POLARITY EMPHASIS. These are sentences in which the positive polarity (the truth) of the meaning is emphasized. In English, this manifests as prosodic focus on the auxiliary or the copula, a phenomenon dubbed VERUM FOCUS by Höhle (1992). Its appearance in assertions is fairly known (Gutzmann & Castroviejo Miró 2011; Höhle 1992; Romero & Han 2004; 2002), but its occurrence in questions is not widely analyzed (it is mentioned briefly at the end in Gutzmann & Castroviejo Miró (2011)). Both are exemplified below.

(14) a. He DID bake oatmeal raisin cookies!

b. DID he bake oatmeal raisin cookies?

A *verum* assertion is generally felicitous if in the preceding context, the addressee is unsure if the proposition is true. For example, if someone says "I'm not sure if he baked oatmeal raisin cookies," (14a) is a perfectly natural response to override this uncertainty. In a *verum* polar question, the preceding context is different: the implication with (14b) is that the addressee is showing some indication that indeed, he baked oatmeal raisin cookies. The question is interpretable as the speaker's disbelief: 'wait a minute, I didn't think he would bake oatmeal raisin cookies — but is it actually the case?' The curious observation in the

pair above is that in (14a), it is the speaker who has a strong bias that *he baked oatmeal raisin cookies* is true, while in the polar question counterpart in (14b), it is the addressee who has a bias for the positive answer. In this dissertation, I raise concerns about existing accounts of *verum*, especially in light of the divergence in the interpretation of *verum* assertions vs. questions. The punchline will be that *verum* dictates what *must* be the answer to an issue on the Table.

The common denominator of all of the phenomena covered in this dissertation — exclamatives, notification/surprise, and polarity emphasis — is that they have a certain *intensity* to them in their meaning. As can be seen from this preview, these phenomena have a sensitivity to discourse structure, including issues of who is committed to what propositions, what responses are anticipated, and what evidence is being presented by and to whom. This again brings us back to the treatment of sentence meaning in terms of *how you are hoping to shape the context*, which necessitates a DYNAMIC treatment of the semantics of the phenomena at hand.

In the rest of this introductory chapter, I will first outline leading frameworks in dynamic semantics to illustrate the classic puzzles that necessitated this approach, which will then lead into more contemporary approaches that this dissertation will reflect (§1.2). Particular emphasis will be placed on Farkas & Bruce (2010)'s Table framework, as this dissertation draws inspiration from their approach specifically. In §1.3, I will outline the specifics of the λ-Table framework, the particular version of the original Table framework that I will be assuming in this dissertation. In §1.4 will elaborate on why such a dynamic framework is needed for issues in exclamatives, notification, and polarity emphasis.

1.2 A dynamic notion of meaning

1.2.1 (Classical) Discourse Representation Theory

Dynamic semantics has its origins in the 1980s: Kamp (1981)'s DISCOURSE REPRESENTATION THEORY (DRT) is one of the first attempts at solving issues of anaphora and donkey

sentences. Kamp takes inspiration from models of cognitive reasoning and views discourse as a series of incremental information update. In other words, humans are information processing devices: you process one sentence, then the next, and so on. You gradually create one giant domain of discourse containing representations of linguistic objects contained in each sentence. Under this approach, pronouns simply must refer back to an appropriate individual within this giant discourse domain.

The following is a not-so-giant example of this idea, for illustration. (15) is a replication of our simple two-sentence discourse from earlier. The circled numbers indicate (roughly) the points at which new information is processed.

(15) Kim① owns a corgi②. It③ is small④.

According to DRT, every time a discourse referent is introduced, a *mental representation* of it is created. For example, At point ①, we know that *Kim* exists in the discourse. In the DRT-style pictorial box notation below in (16), x in the top box represents this entity (sometimes called the discourse *universe*), and everything that comes below it poses a *constraint* on this entity, be it a property or a relation.

(16) ①:

x
$\mathbf{kim}(x)$

This is called the *discourse representation structure* (DRS), and the idea is to add more information — more entities and more constraints — to this as the discourse progresses. The top box is translatable as existential quantification (e.g., $\exists x \ldots$) and the bottom box as the restrictor of this quantifier ($\ldots\mathbf{kim}(x)$).[2] Note, however, that DRS's are *cognitive* (i.e., mental or representational) objects. One criticism of DRT has been that the meaning of a sentence — if there is one at all — is derivative under this account, because it relies on this intermediate cognitive representation in order to derive the meaning of a sentence. So

[2]Assuming DRT style, I will write proper nouns like properties in this section. I assume that for definite descriptions, including proper nouns, have a presupposition that there is a way of determining their reference (Kamp et al. 2011).

strictly speaking, it is not a semantic model. But as we will see, assuming DRS's solves many of our problems.

At the end of the first sentence at ② in (15), the existence of a corgi and its relation with Kim is asserted. A new variable y representing the corgi is added to the DRS, and more constraints are added, as shown in (17).

(17) ②:

x , y
kim(x)
corgi(y)
own(x, y)

Any DRS is true if and only if the discourse referents of the DRS can be mapped onto actual entities in the world. So the above DRS for *Kim owns a corgi* is true if and only if Kim and a corgi in a owner-pet relationship. The contents of further sentences in the discourse simply gets added to this DRS resulting from this first sentence. So the pronoun at ③ introduces yet another variable as in (18) …

(18) ③:

x , y , z
kim(x)
corgi(y)
own(x,y)

…and its anaphoric relation to the corgi is established by the time the entire second sentence is processed at ④:

(19) ④:

x , y , z
kim(x)
corgi(y)
own(x, y)
small(z)
$z = y$

Recall that the issue with predicate logic in dealing with cross-sentential anaphora was that there was no way of binding the pronoun to its antecedent by traditional means. This "dangling variable" problem is reproduced below in (20) with the issue underlined.

(20) a. Kim owns [a corgi]$_i$. It$_i$ is small.

b. $\exists x \exists y[\mathbf{kim}(x) \wedge \mathbf{corgi}(y) \wedge \mathbf{own}(x)(y)] \underbrace{\wedge \mathbf{small}(y)}$

DRT solves this problem by relating the pronoun to the *domain of discourse*. Pictorially in (19), the entire box is this domain. We can see that the pronominal variable z successfully refers back to an entity within it. Although DRT is a cognitive model, one way of making sense of what it does is by quantifying over discourse domains: you can assert that there is a domain $\mathbb{D}$ (i.e., a DRS) that the discourse entities are a part of. A pronoun can be represented as having a presupposition that there is something in $\mathbb{D}$ that it's referring to. A modification of (20b) to reflect this DRT-style presupposition is shown in (21) below.

(21) $$\exists \mathbb{D} \left[\begin{array}{c} \exists x, y \in \mathbb{D}.\ \mathbf{kim}(x) \wedge \mathbf{corgi}(y) \wedge \mathbf{own}(x, y) \wedge \\ \exists z : \underline{\exists y' \in \mathbb{D}. z = y'}\ .\ \mathbf{small}(z) \end{array} \right]$$

a. **Assertion**: 'There is a discourse domain $\mathbb{D}$. There is Kim and a thing that is a corgi in this domain, and Kim owns the corgi. There is a small thing.'

b. **Presupposition (underlined)**: 'This small thing is in the discourse domain'[3]

Other restrictions on anaphora resolution (e.g., gender, animacy, salience) aside, DRT gets the fundamental work done. It models pronouns as referring to a discourse-old (or familiar) object, which is not a contested intuition (Karttunen 1968a;b; 1976).

There is still a problem, however. There is still no sentence-level compositionality in (21). The top conjunct in (21) is roughly 'Kim owns a corgi' and the bottom one is roughly 'It is small,' but as long as the both of them are in the scope of $\exists \mathbb{D}$, they cannot be decomposed

[3]Here I am borrowing the colon notation usually used to indicate presuppositions in partial functions; since I am using it with a quantifier here, it is essentially just a diacritic indicating a presupposition.

into two sentential units. Also somewhat disconcertingly, the scope of $\exists\mathbb{D}$ is arbitrarily big. Another way of thinking about the problem is that DRT gives the whole *discourse* — and not the individual sentences — a truth value. Looking again at (19), which is the DRS that results at the end of the discourse, it is this entire box that is given a truth value, and none of the bits inside. The dilemma of two sentences being separate yet dependent is still a slippery one.

It must be mentioned here that there is a theory similar to DRT independently proposed by Heim (1983): File Change Semantics (FCS). FCS largely concerns the semantics of indefinites and definites and recasts them in terms of a "file card" metaphor. Informally, discourse is like a file with cards in them. Each card contains information about things that are being talked about in the discourse (i.e., discourse referents), and a discourse participant's task is to keep track of these cards. Every time an indefinite (e.g., *there is a corgi*) is uttered, a new file card is added with the object's properties listed. Every time a definite or a pronoun is used, new information is added to one of the existing cards in the file. This part is almost indistinguishable from DRT.

In FCS, formally, the meaning of a sentence is defined in terms of *file change potentials* (or context change potential): a function from a file to another file. The core idea is that the purpose of a sentence is to take its logical form and update the current file of cards with it. These files can be evaluated as to whether they represent the actual world facts or not. A card is true if there are actual individuals that match the description on the card, and false otherwise. Thus formally it is the file cards that have a truth value, not the sentences.

FCS still faces the same issue as DRT: although it provides an object from which information can be retrieved, it's not compositional. At each stage of the discourse, the truth value can be determined, but when the discourse is over and the DRS or the file is fully up-to-date, there is no way of dissecting it to get the truth value of each of the sentences that contributed to that discourse.

1.2.2 Dynamic Predicate Logic

Dynamic Predicate Logic (DPL) (Groenendijk & Stokhof 1991) emerged as a response to DRT in light of the criticism mentioned previously: neither traditional predicate logic (PL) nor DRT can actually treat the two sentences in (22a) as independent sub-units of the discourse without losing the anaphoric treatment of the pronoun. (The example is simplified from the previous example.)

(22) a. There is a corgi. It is small.

b. $\exists x[\textbf{corgi}(x)] \wedge \textbf{small}(x)$ (PL attempt)

c. $\exists \mathbb{D} \left[\begin{array}{ll} \exists x \in \mathbb{D}.\ \textbf{corgi}(x) & \wedge \\ \exists y : \underline{\exists z \in \mathbb{D}\ .\ y = z}\ .\ \textbf{small}(y) & \end{array} \right]$ (DRT attempt)

(22b) preserves the compositionality of the discourse but loses the pronoun's reference to *a corgi*. (22c) preserves the pronoun's reference to *a corgi* but loses the compositionality of the discourse. DPL's solution was this: keep (22b), but change the assumptions we have about the semantics of sentences.

Under traditional assumptions, an existential statement like (23a), as represented in (23b), is true if and only if the assignment of x is in the interpretation of *corgi*. In other words, if we take an assignment function g and feed x to it, it must point to some entity in the set of corgi-things in the Model.

(23) Static model (PL)

a. There is a corgi.

b. $\exists x.\textbf{corgi}(x)$

$=$ true iff $g(x) \in I(\textbf{corgi})$ (g = assignment, I = interpretation)

The approach in (23) is often called a STATIC model, in contrast to the DYNAMIC model I introduce next for DPL. DPL is dynamic because a sentence is not just about one assignment function; it involves *pairs* of assignment functions. One is the INPUT function, and the other

is the OUTPUT function. What follows is a simple illustration of how this works in DPL. As a warning, this is a highlight of only the main features of DPL (as I understand them), and not an attempt to fully describe the DPL language.

The goal of an existential sentence like (24a) under DPL is to *end up* with an assignment function that will assign x to a corgi. What a sentence does is take an assignment function and run a "check" on it, to make sure that it ends up being the correct function with the appropriate assignments. The core idea is that variable assignments get updated and change throughout any given discourse. Imagine discourse check-points in (24a) with the circled numbers. At check-point ①, which is the beginning of the discourse, you have no information; therefore, all variables can have any value. When you finish uttering the sentence at check-point ②, a corgi with label x has been introduced. At ① your assignment function could've assigned anything to x, but at ② it needs to be updated to a function that will get you a corgi. These are the input function g and the output function h in (24b), respectively. The meaning of *there is a corgi* is any $\langle g, h\rangle$ that satisfies this relation.

(24) Dynamic model (DPL)

a. ①There is a corgi.②

b. $\exists x.\mathbf{corgi}(x)$

= true for all $\langle g, h\rangle$ pairs such that

① INPUT ASSIGNMENT FUNCTION: g

② OUTPUT ASSIGNMENT FUNCTION: h, same as g except $h(x) \in I(\mathbf{corgi})$

(25) is a formal definition of this existential statement. $h[x]g$ should be read as 'h differs from g minimally wrt its assignment of x'.

(25) $[\![\exists x.\mathbf{corgi}(x)]\!] = \{\langle g, h\rangle \mid h[x]g \wedge h(x) \in I(\mathbf{corgi})\}$

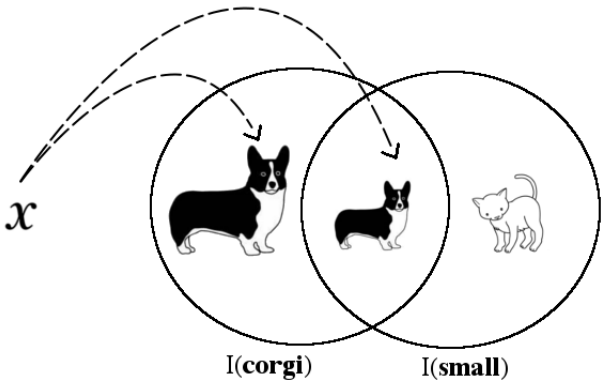
This input-output relation plays a crucial role in anaphor resolution across sentences. Here is our mini discourse again, with three check-points:

(26) a. ①There is a corgi.② ②It is small.③

b. $\exists x[\textbf{corgi}(x)] \wedge \textbf{small}(x)$

One crucial feature of DPL is that it requires the output of a sentence be the input of the following sentence within a discourse. In our computation we are currently at check-point ② with assignment function h that gets us a corgi — any corgi — in the discourse domain. This is visually illustrated in Figure 1.1.

Figure 1.1: ②: assignment function h



For all we know, h can pick out a large corgi or a small corgi at this point. h serves as the starting point for the next sentence, *it is small*; the output of this sentence must be an assignment function that picks out a *small* corgi in particular. This effect is informally paraphrased in (27) and written in DPL style in (28).

(27) a. ②It is small.③

b. **small**(x) = true for all $\langle h, k\rangle$ pairs such that

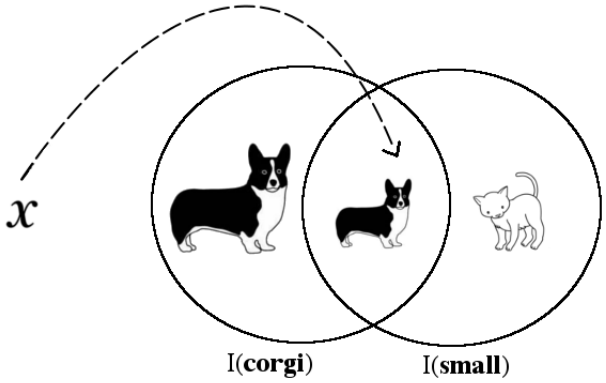
② INPUT ASSIGNMENT FUNCTION: h, where $h(x) \in I(\textbf{corgi})$

③ OUTPUT ASSIGNMENT FUNCTION: k, same as h except $k(x) \in I(\textbf{small})$

(28) $[\![\textbf{small}(x)]\!] = \{\langle h, k\rangle \mid k[x]h \wedge k(x) \in I(\textbf{small})\}$

(27)/(28) say that the final assignment function k at check-point ③ is exactly like h, except its assignment of x is in the interpretation of **small** *in addition to* it being in the interpretation of **corgi**. x's reference to a corgi is carried over into the second sentence by virtue of the input function being h from the previous sentence. In other words, at check-point ③, we have taken (1.1) and narrowed it down to look like this:

Figure 1.2: ③: assignment function k



Note that it does not matter that x is unbound in *it is small* — **small**(x) — as long as there is an assignment function in the discourse domain already, because that function can always be fed into the next sentence. The entire discourse is an assignment relay and thus preserves each variable's reference.

1.2.3 Dynamic semantics and pragmatics

1.2.3.1 The common ground and individual commitments

Dynamic Predicate Logic was designed to deal with phenomena like anaphora, so context change was specifically framed in terms of assignment functions. More recent developments in dynamic semantics have expanded on this core idea of context updates to include other moving parts in discourse.

One such part is the COMMON GROUND. Informally speaking, the common ground is the mutual knowledge of all the discourse participants in a particular discourse. Formally it corresponds to a set of propositions that every discourse participant agrees to be true. What does this mean, exactly? The Stalnakarian view of discourse takes the following position: in a conversation, there is a set of worlds (called the CONTEXT SET) being considered, and the task of anyone participating in this conversation is to narrow down these worlds to the actual world (Stalnaker 1978). Every time someone makes an assertion, they are effectively eliminating worlds that do not make that proposition true. The goal is to be left only with worlds that are compatible with assertions made in the discourse. So if propositions in the common ground are those assumed to be true by everyone, this means that any proposition in the common ground is true in all worlds in the context set.

One interpretation of this, then, is that what an assertion does is add a proposition to the common ground. Take the following declarative sentence uttered as a part of a discussion about Kim's pets, for example:

(29) Pooch is a corgi

The value of this sentence can be stated dynamically in terms of its Heimian CONTEXT CHANGE POTENTIAL (CCP), now in reference to the common ground: update the current context by adding *Pooch is a corgi* to the common ground. Going on from this point, the conversation can carry on under the assumption that Pooch indeed is a corgi, and this information can be retrieved as needed later on.

This foundational idea was further precisified by Gunlogson (2004) (see also Hamblin (1971)), who proposed *individual* commitments, not just mutual commitments, as a necessary tool for modeling sentence meaning. Suppose there are two discourse participants: DSCP$_A$ and DSCP$_B$. There are propositions that DSCP$_A$ believes to be true, and there are propositions that DSCP$_B$ believes to be true. They need not agree on everything, but the ones that they do agree to be true are what comprise the COMMON GROUND (CG). The set of propositions each discourse participant believes to be true is called the COMMITMENT SET

(cs), and we can easily rework the common ground as the intersection of all the discourse participants' commitment sets: i.e., $CG_{\{A,B\}} = cs_{\text{A}} \cap cs_{\text{B}}$ for our two participants A and B.

Gunlogson shows that separating individual discourse participants' commitment sets proves to be useful in distinguishing two types of declaratives in English: one with a sentence-final falling contour and the other with a rising contour, as illustrated in (30). The arrows indicate the intonational contour.

(30) a. Pooch is a corgi↓. (falling declarative)

b. Pooch is a corgi↑? (rising declarative)

(30a) is the default falling-intonation variant, an ordinary assertion of the speaker's belief that *Pooch is a corgi*. What the other discourse participants believe is irrelevant for this type of declarative, and therefore falling declaratives are felicitous out of the blue. (30b) with the rising intonation has a slightly different interpretation; namely, that the *addressee* has a bias for the proposition *Pooch is a corgi* (Bartels 1997; Bolinger 1957; Huddleston 1994). It is, for example, felicitous in a context where someone implies that Pooch is a corgi, and you are verifying this claim (out of disbelief, etc.). It is infelicitous out of the blue.

Gunlogson proposes that the sentence-final contour is the spell-out of an intonational morpheme. Since both variants are declaratives, they have in common that they are both updating a commitment set with the at-issue proposition (e.g., *Pooch is a corgi*). The catch is that without the intonation, we don't know *whose* commitment set is being updated. The falling intonation resolves this to the *speaker*'s commitment set, and the rising intonation to the *addressee*'s. In Gunlogson's terms, the CCP of falling and rising declaratives are as follows (C is the input context, and C' is the output context):

(31) $C+ \uparrow S_{decl} = C'$ such that: (falling declarative CCP)

a. $cs_{\text{SPKR}}(C') = cs_{\text{SPKR}}(C) + S_{decl}$

b. $cs_{\text{ADDR}}(C') = cs_{\text{ADDR}}(C)$

(32) $C+\downarrow S_{decl} = C'$ such that: (rising declarative CCP)

a. $cs_{\text{SPKR}}(C') = cs_{\text{SPKR}}(C)$

b. $cs_{\text{ADDR}}(C') = cs_{\text{ADDR}}(C) + S_{decl}$

Replace S_{decl} with *Pooch is a corgi*. (31) says that when the speaker utters *Pooch is a corgi*↓, they commit themself to this proposition. The addresee's commitment set remains untouched. For *Pooch is a corgi*↑, (32) says that addressee becomes committed to *Pooch is a corgi*, but not the speaker. This is one way to account for the addressee bias in rising declaratives.

Gunlogson's ground-breaking work has inspired many subsequent works to assume a separation of individual commitments in discourse, but has also sparked a number of debates concerning the status of commitment sets and the common ground. One of the core debates concerns the interpretation of Stalnaker's foundational work on context change, in particular the following passage (emphasis added):

> …how does the content of an assertion alter the context? My suggestion is a very simple one: To make an assertion is to reduce the context set in a particular way, *provided that there are no objections from the other participants in the conversation.* (Stalnaker 1978; p.153)

One position concerning what an assertion does, as paraphrased earlier, is that it adds a proposition to the common ground, thereby reducing the context set as Stalnaker proposed. A more contemporary view is that you don't *add* a proposition to the common ground — you *propose* to add it. This idea is hinted at in the italicized portion of the quote above, but Stalnaker himself never stressed this point. This proposal nature of context change has played a major role in shaping the theory of discourse, and has even spawned an entire semantic framework based on this idea (cf., Inquisitive Semantics, Ciardelli et al. (2013); Groenendijk & Roelofsen (2009)).

The earliest followers of the "assertion as a proposal" approach include Clark (1992), Clark & Schaefer (1989), and Ginzburg (1996; 2012), but this idea was perhaps most popularized by Farkas & Bruce (2010)'s "Table" framework. What follows is a description of the empirical facts that motivate the assertion-as-a-proposal approach, and how Farkas & Bruce (2010) models this. To alert the reader of what is to come: the framework adopted in this dissertation is a direct offspring of their approach.

1.2.3.2 The Table framework

The need for a proposal account of assertions concerns how we react to utterances. When an assertion such as *Kim is home* is made (as in (33)), you can react to it affirmatively or negatively in the same way that you can with questions, as in (34).

(33) A: Kim is home.

B: Yes, she is / No, she's not.

(34) A: Is Kim home?

B: Yes, she is / No, she's not.

The fact that the addressee can agree *or* disagree with an assertion requires some leeway in the formulation of the common ground: the speaker does not get to simply add propositions to the common ground; the move awaits approval from the rest of the discourse participants. From this observation, Farkas and Bruce propose to separate the discourse participants' individual commitment sets from the common ground, which is a departure from Gunlogson's original analysis.

In order to model the intuition that an utterance has a temporary "deliberation" process in which discourse participants decide whether a proposition should be added to the common ground, they also introduce the Table as a discourse sub-structure. Similar to the Question Under Discussion (Ginzburg 1996; Roberts 1996), the Table is a stack of issues under deliberation (i.e, pending addition to the common ground), with the top-most issue

being the current topic in the discourse. Since this is the part of the sentence meaning the discourse participants are discussing the truth or falsity of, this is the sentence's AT-ISSUE meaning.

Another component crucial to Farkas and Bruce's discourse structure is the PROJECTED SET, which is the common ground anticipated by any discourse move. According to their analysis, what distinguishes an assertion from a question is the nature of their projected set. This will be exemplified below.

The figure below in (35) is a Farkas-and-Bruce-style pictorial representation of a discourse context. A and B are the discourse participants, and DC is their DISCOURSE COMMITMENT SET (the set of propositions that they are committed to). S is the sentence on the Table. In their original formulation, S is a syntactic object paired with their denotation, but for simplicity's sake, I will represent just the denotation of the sentence in question here.

(35) Sample context structure

A	**Table**	**B**
DC_A	S	DC_B
common ground	**projected set**	

For readability, I abandon this box notation. I am going to use a bulleted list to represent the above discourse parts. Each part has been re-defined below for convenience.

(36)
- **Table**: at-issue content; stack (set) of sets of propositions
- **DC**$_A$: propositions A is publicly committed to; set of propositions
- **DC**$_B$: propositions B is publicly committed to; set of propositions
- **PS**: "privileged" or anticipated future CG; set of sets of propositions
- **CG**: mutual public commitments between A and B; set of propositions

I will illustrate the Table framework informally first to get the idea of this approach across; I will return to technical details shortly.

Let us see this in work with A's assertion *Kim is home*, shown in (37). The assumption is that there is a speech act operator ASSERT that takes a proposition (e.g., *Kim is home*) as an argument, giving the sentence the force of assertion (Krifka 2001). What follows is what Farkas and Bruce envision this force to be. The ★ indicates the discourse parts affected by this discourse move.

(37) Context K_1: A asserted *Kim is home*

- ★ **Table**: $\left\{ \text{ \{Kim is home\} } \right\}$
- ★ $\mathbf{DC}_A$: {Kim is home}
- • $\mathbf{DC}_B$:
- ★ **PS**: $\left\{ \text{ } CG_{K1} \cup \{\text{Kim is home}\} \text{ } \right\}$
- • **CG**:

Three things happen with an assertion. First, the at-issue content has been put on the **Table**: *Kim is home*. This assumes that the denotation of a declarative sentence is the singleton set of that proposition (Hamblin 1971). The proposition has been added to A**'s commitment set ($\mathbf{DC}_A$)** because they are the one that asserted this. B's commitment set is empty, as is the common ground at this point (minus trivial assumptions such as the fact that A asserted this, A and B are the discourse participants, the discourse is in English, etc.). Crucially, the **projected set (PS)** anticipates that *Kim is home* will be added to the common ground; it is up to B to actualize — or reject — this. Farkas and Bruce explain that the "default" move for assertions is *acceptance*, which explains why if B says nothing in response to A, it is assumed that B agrees.

Let us further suppose that B confirmed A's statement: they respond, *Yeah, Kim is home*. Now this proposition gets added to B**'s commitment set ($\mathbf{DC}_B$)**. The crucial idea here, like DPL, is that the previous context carries over in the next context, meaning that each discourse move incrementally adds elements to the context structure. I will annotate

elements carried over from the previous move with normal bullet points (•), and as with before, newly introduced elements with a star (★).

(38) Context K_2: B confirms A's assertion, *Kim is home*.

- **Table**: $\left\{ \text{ \{Kim is home\} } \right\}$
- **DC**$_A$: {Kim is home} DC MATCH!
- ★ **DC**$_B$: {Kim is home} DC MATCH!
- **PS**: $\left\{ \text{ } CG_{K2} \cup \{\text{Kim is home}\} \text{ } \right\}$
- **CG**:

At this point, A and B are both committed to the same proposition: *Kim is home*. This shared commitment then triggers the common ground increasing operator M'. It has three jobs: remove p from DC$_A$ and DC$_B$, remove $\{p\}$ from the top of the Table, and add p to the CG. As a result, the context structure will look like this:

(39) Context K_3: The CG is updated

- ★ **Table**: STABLE!
- **DC**$_A$:
- **DC**$_B$:
- **PS**:
- ★ **CG**: {Kim is home}

At this point, the conversation reaches what is called a *stable* state, which means that the Table is empty. A stable Table serves as a natural ending point of a conversation.

Now rewind: what happens if B denies A's assertion by replying *No, Kim is not home* (i.e., ASSERT(¬ Kim is home))? This would create what they call a conversational *crisis*, represented in (40):

(40) Context K_2': B denies A's assertion, Kim is home.

- **Table**: $\left\{ \text{ \{Kim is home\} } \right\}$
- **DC**$_A$: {Kim is home} DC MISMATCH!
- ★ **DC**$_B$: {¬Kim is home} DC MISMATCH!
- ★ **PS**: ∅ CRISIS!
- **CG**:

The disparity between A's commitment and B's commitment causes a conflict for the projected set: no future common ground can be anticipated, making the projected set empty. At this point, further questions can be added to the Table to resolve this dispute, or the participants can agree to disagree (i.e., clear the Table without updating the common ground, leaving the respective proposition in each discourse participant's DC).

Polar questions like *Is Kim home?* work similarly, except that in their denotation, there are two alternatives: {Kim is home, ¬Kim is home}. As with assertions, we assume that there is an interrogative force head (e.g., Q) that turns its propositional complement into the act of questioning (e.g., Q(Kim is home)). Let us imagine that A asked this question in context K_4.

(41) Context K_4: A asked *Is Kim home?*

- **Table**: $\left\{ \text{ \{Kim is home, ¬Kim is home\} } \right\}$
- **DC**$_A$:
- **DC**$_B$:
- **PS**: $\left\{ \begin{array}{l} CG_{K4} \cup \{\text{Kim is home}\}, \\ CG_{K4} \cup \{\neg\text{Kim is home}\} \end{array} \right\}$
- **CG**:

Note that unlike assertions, the speaker does not get committed to any proposition at the point of asking a question. Crucially, the projected set allows two options: we add *Kim*

is home to the common ground, or *Kim is not home*. This captures the unbiased nature of default polar questions. Depending on what B answers, one of these options will be eliminated. Suppose that B answered that Kim is home; (42) would be the result of this.

(42) Context K_5: B answered *Is Kim home?* affirmatively

- **Table**: $\left\{ \begin{array}{l} \{\text{Kim is home}\}, \\ \{\text{Kim is home}, \neg\text{Kim is home}\} \end{array} \right\}$
- $\mathbf{DC}_A$:
- $\mathbf{DC}_B$: {Kim is home}
- **PS**: $\{CG_{K5} \cup \{\text{Kim is home}\}\}$
- **CG**:

Answering a question affirmatively with proposition p (e.g., *Kim is home*) does three things in the context structure: (i) add p to B's commitment set, (ii) add $\{p\}$ to the top of the Table stack, and (iii) reduce the projected set to one option, where p is anticipated to be added to the common ground. The end result looks exactly like when an assertion is made (cf., (37)). If A confirms B's assertion, we are back to a stable conversational state.

1.2.3.3 Some clarification

I have informally presented the workings of the Table framework; now let's focus on some of the details. This section clarifies issues I have glossed over, and emphasizes some of the crucial features of the framework.

How is this crucially different from the non-proposal accounts of assertions? In the Table framework, assertions are a *proposal* to update the CG, not a direct update of the CG, contrary to what some have previously assumed (e.g., Portner 2004). The argument for this is in twofold: (i) Stalnaker himself actually hints at this, and (ii) empirically, you can disagree with an assertion, thereby refusing to add the asserted content to the CG.

What is Farkas and Bruce's criticism of Gunlogson (2001/2004)? To be clear, Gunlogson (2004) does NOT advocate an assertion-as-a-direct-CG-update analysis. Gunlogson's position is "assertions update DC_{SPKR}, not the CG". Her innovation was the individualization of commitment sets. She does not abandon the notion of the CG; she just redefines it in terms of DC's. She writes: "The context can now be represented as an ordered pair $\langle DC_A, DC_B \rangle$, replacing $CG_{\{A,B\}}$ (still derivable as $DC_A \cap DC_B$.)" (p.131). The CG is the intersection of DC_A and DC_B. This implies that if A asserts p, B also needs to commit to B in order for the proposition to be added to the CG. Furthermore, Gunlogson's definition of the CG still leaves room for A to have public beliefs that do not coincide with B's beliefs, and vice versa. In other words, if $p \in DC_A$ and $\neg p \in DC_B$, that is not a contradiction; they've simply agreed to disagree.

Farkas and Bruce write that "Gunlogson (2001) defines the common ground as an ancillary notion made up of the *union* of the participants' commitment sets" (p.3, emphasis added), implying that Gunlogson IS in the assertion-as-a-direct-CG-update camp, a position they are arguing against. To clarify this implication: if Gunlogson's claim indeed was that the CG is the *union* of DC_A and DC_B (i.e., $DC_A \cup DC_B$), then adding p to DC_A certainly would entail adding p to the CG. However, as we have seen above, this is NOT Gunlogson's claim, as far as I can tell. The CG is not the *union* of commitment sets; it is the *intersection* of commitment sets. Although Farkas and Bruce do not overtly make this criticism, it certainly is implied — I would just like to flag that their paraphrase of Gunlogson is different from her original proposal.

However, one overt criticism that they do make is that Gunlogson's version of asserting — "add p to DC_{SPKR}" — does not satisfyingly capture the intuition that in making an assertion, there is conversational pressure to turn this individual public commitment into a *joint* commitment. In other words, the whole purpose of asserting is to get the addressee to agree with you, not just expressing your beliefs. I agree with this point. One empirical piece of evidence that they offer for this kind of pressure in discourse is the fact that a participant

is perceived to be highly uncooperative if they don't immediately flag it when their belief contradicts someone else's publicized belief (Walker 1996). (43) is an example of this effect, with B being the uncooperative participant in the conversation.

(43) (Context: A, B, and Kim are roommates. A and B get home from class. Kim's car is not there.)

A: Oh, Kim isn't home yet.

B: (silence)

Kim: (comes out of her room) No, I'm home. My car is in the shop.

B: Yeah, I knew that, actually.

A: What the hell? Why didn't you say so earlier??

The idea is that if the single purpose of asserting was to update individual DC's, B withholding conflicting information should not be problematic. Farkas and Bruce explain that the need for such a conflict to be signaled is the result of discourse participants' drive to build the CG. This is their motivation for introducing the projected set, which captures the intuition that discourse moves are being made with the intention of increasing the CG.

Why do DC's have to be separated completely from the CG? The short answer is they don't. Here is the longer answer. Farkas and Bruce agree with Gunlogson and others that having *just* a set of mutual commitments (i.e., just the CG) as Stalnaker suggests is insufficient for capturing all of the patterns in discourse; individual commitment sets are needed. The idea of DC's is not Farkas and Bruce's. Their innovation is the *complete divorce* of DC's from the CG; they are completely distinct sets. For any discourse participant X, this means that they have a set of propositions they are individually committed to (DC_X), but also another set of propositions that *everyone* including them is committed to (CG). As Farkas and Bruce explain, "the total discourse commitments of a discourse participant X is $DC_X \cup cg$" (p.4). They claim that this analytical decision is "essential" for capturing the

effect of *agreeing to disagree*. According to them, it is the separation of DC's from the CG that allow for p to be in DC_A and $\neg p$ to be in DC_B without causing a contradiction in the CG. However, if I have interpreted Gunlogson correctly, this does not follow: separating DC's from the CG is actually *not* an essential move if we are faithful to Gunlogson's definition of the CG as an *intersection* of DC's. As I have described above, "agreeing to disagree" is completely possible even if a subset of a DC comprises the CG.

As far as I can tell, the only difference between Gunlogson's and Farkas and Bruce's DC/CG relation is the timing at which a proposition gets added to the CG, and how. For Gunlogson, the flow of the discourse would be like this: A asserts p, then B confirms p and p is added to the CG. For Gunlogson, the CG is the intersection of DC_A and DC_B, which means that *as soon as B commits to the proposition that A is committed to*, the CG is automatically updated with p. There is no separate mechanism needed for increasing the CG; this is inherent to how the CG is defined. For Farkas and Bruce, the additional mechanism (what they call M') is necessary. Their flow would be like this: A asserts p, then B confirms p, then M' adds p to the CG and removes it from $\mathrm{DC}_{A/B}$. Of course, the way Farkas and Bruce define this operation M', the last step is a semi-automatic modification process (subscripts i and o refer to the input and output contexts, respectively):

(44) Common ground increasing operation M'

If an operator M (e.g., a confirming move) contains a change of the form $DC_{X,o} = DC_{X,i} \cup p$, and, as a result, p is now present on the commitment list of each participant in the conversation in K_o, add the following changes to M:

1. $cg_{o'} = cg_i \cup p$ (add p to the CG)
2. $DC_{X,o'} = DC_{X,o} - \{p\}$ for all participants X (remove p from everyone's DC)
3. Pop off of the top of the Table all items that have as an element of their denotation an item q that is entailed by $\mathrm{cg}_{o'}$

(p's issues and issues entailed by p are resolved)

(Farkas & Bruce 2010; annotations added)

The difference between Gunlogson and Farkas and Bruce's CG update is therefore an extremely subtle one, if there is one at all.

Why is the projected set necessary? The projected set is the set of "privileged" future CG's. In other words, it is the CG state that the speaker is trying to achieve as a result of making a certain conversational move. For an assertion of p (denotation $\{p\}$), the projected set has just one member: the set that takes the union of the current CG and $\{p\}$. For the polar question of *whether* p (denotation $\{p, \neg p\}$), it projects both adding p OR $\neg p$ to the current CG. The PS has a close connection with the Table, since the denotation of the sentence predicts what the anticipated CG is. A reasonable question then is if the PS is needed at all as a separate component: wouldn't just the Table with the denotation of the sentence suffice? I think the answer is no, we *do* need the PS. The PS is necessary for capturing the collaborative nature of speech acts. As mentioned earlier, the purpose of a conversation is to increase the CG. The Table and the DC alone do not capture this intuition that mutual commitment is the goal of any speech act. In support of the idea that different speech acts have different PS's as a part of their force encoding, Farkas and Bruce also offer the intuition that negative responses to assertions are more marked than negative responses to polar questions. I think I agree with this intuition, but it is hard to diagnose. The following context gets us close to illustrating this contrast:

(45) (Context: At the doctor's office. A is the doctor and B is the patient. Appearance-wise, A is totally healthy.)

a. A: (Looks at nurse's notes) You have a family history of heart disease.

B: No, I don't.

A: Whoa, wait, what?

b. A: (Initial consultation) Do you have a family history of heart disease?

B: No, I don't.

A: ?? Whoa, wait, what?

In (45a), by committing to the proposition *you have a family history of heart disease* (based on records, etc.), A expects B to confirm this. When this expectation is violated, their subsequent reaction of surprise is a valid one. In (45b) it is slightly more marked. The context of the doctor's office was chosen, since it can be reasonably expected that upon initial consultation, the doctor should not have any bias about the patient's medical history. This means that the polar question in (45b) is a genuine question with p and $\neg p$ equally possible answers. In such a context, if the patient answers *no*, the doctor's surprise is infelicitous.

I think the other pattern is slightly more clear: it's strange when you have zero surprise reaction when someone reacts negatively to your assertion.

(46) (Context: Determining who is vegetarian for the purposes of an office potluck.)

a. A: John is vegetarian.

B: No, he isn't.

A: ?? OK!

b. A: Is John vegetarian?

B: No, he isn't.

A: OK!

I find nonchalantly reacting "OK!" to the reversal of an assertion slightly strange (i.e., why isn't A contesting it?), but perfectly fine for a negative answer to a polar question. This points to the negative reaction being marked for an assertion but not for a question.

To add to these observations, this dissertation will provide cases in which reference to the PS is formally necessary (cf., Chapter 2).

What is their formal definition of assertions and polar questions? Farkas and Bruce construe force as a relationship between the input context (K_i) and output context (K_o), which I illustrated informally earlier. Below I provide their technical definition of what an assertion and a polar question do. The assumption is that A and PQ are operators that take in sentences as arguments. They use the stack-sensitive operation *push* in their definitions. $S \overline{\cup} S'$ should be read as 'the set obtained by adding one member of S' to S' (Farkas & Bruce 2010; p.7). I have added paraphrases for readability.

(47) $push(e, T)$: the new stack obtained by adding item e to the top of the stack T.

(48) Assertion operator A for any declarative sentence $S[D]$, agent a, and context K is a function from K_i to K_o such that:

(i) $DC_{a,o} = DC_{a,i} \cup \{p\}$ (p is added to a's DC)

(ii) $T_o = push(\langle S[D]; \{p\}\rangle, T_i)$ ($\{p\}$ is the issue at the top of the Table)

(iii) $ps_o = ps_i \overline{\cup} \{p\}$ (p is a member of the PS (a set of privileged CG's))

(49) Polar question operator PQ for any interrogative sentence $S[I]$, agent a, and context K is a function form K_i to K_o such that:

(i) $T_o = push(\langle S[I]; \{p, \neg p\}\rangle, T_i)$ ($\{p, \neg p\}$ is the issue at the top of the Table)

(ii) $ps_o = ps_i \overline{\cup} \{p, \neg p\}$ (p or $\neg p$ is a member of the PS (a set of privileged CG's))

In addition to these two basic operations, Farkas and Bruce also define *Assertion Confirmation* (AC), *Total Denial* (TD), *Polar Question Confirmation* (P-QC), and *Polar Question Reversing* (P-QR), which are variants of the default assertion operator with further specifications to the input and output contexts. Since these operations do not bear directly on the topics of this dissertation, I direct the reader to the original paper for details.

1.3 Dissertation framework: λ-Table

This dissertation largely adopts the Table framework, but I adapt it into lambda notation in order to make compositional analyses more attainable. Much of the formal inclination in

the analyses of the phenomena I am interested in will involve operators that act as *modifiers* of the force of asserting or the force of questioning. This necessitates a more compositional, type-driven interpretation of speech acts.

Here is the basic notation I will be using in defining the meaning of a sentence with any particular force.

(50) $\lambda C \lambda C' \left[\text{ this is how } C \text{ should relate to } C' \right]$

C is the input context and C' is the output context, Farkas and Bruce's K_i and K_o, respectively. By relating the input and the output, the sentence dictates in what way the post-utterance context should be different from the pre-utterance context. This is the sentence's context change potential (CCP), type $\langle c, \langle c, t \rangle \rangle$, with c the type of discourse contexts.

There is a fundamental question: what *is* a context, this type c object? In some sense, the objective of this dissertation is to answer this question. But as it stands, a context is a tuple of all the discourse parts: the Table, the PS, the DC's, and the DC.

Let's see this in an example. Following Farkas and Bruce, we want the CCP of an assertion to roughly look like the following:

(51) $[\![\text{ASSERT}]\!](p) =$

$$\lambda C \lambda C' \left[\begin{array}{c} \{p\} \text{ is the issue on the Table in } C', \\ \text{my commitment set in } C' \text{ is my commitments from } C \text{ plus } p, \\ \text{and the projected set in } C' \text{ is the } CG \text{ in } C \text{ plus } p \end{array} \right]$$

Informally, this means that the force of asserting has three components: 'let's discuss p, I believe p, and I hope we agree that p'. A formal translation is provided below. *top*, which is borrowed from Farkas and Bruce, points to the top-most item of a stack. T is the Table, which is a stack of QUD's. This means that $top(T)$ refers to the top-most question currently under consideration. DC_X as usual is the discourse commitment set of X, and PS is the projected set.

$$(52)\quad [\![\textsc{assert}]\!](p) = \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{p\} \quad \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} \wedge \\ PS = \{CG^{C} \cup \{p\}\} \end{array} \right]$$

Working backwards, this means that ASSERT is a function that takes in a propositional argument and returns a relational CCP (type $\langle\langle s,t\rangle,\langle c,\langle c,t\rangle\rangle\rangle$.

$$(53)\quad [\![\textsc{assert}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{p\} \quad \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} \wedge \\ PS = \{CG^{C} \cup \{p\}\} \end{array} \right]$$

A polar question does one less thing to the context since an interrogative does not commit anyone to anything. The effect of asking *whether p*, in prose, is the following:

$$(54)\quad [\![\textsc{q}]\!](p) =$$

$$\lambda C \lambda C' \left[\begin{array}{c} \{p, \neg p\} \text{ is the issue on the Table in } C', \\ \text{and the projected set in } C' \text{ is the } CG \text{ in } C \text{ plus } p \text{ or } \neg p \end{array} \right]$$

Following this, the polar question operator Q is formally defined below.

$$(55)\quad [\![\textsc{q}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \{p, \neg p\} \quad \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\}, \\ CG^{C} \cup \{\neg p\} \end{array} \right\} \end{array} \right]$$

While I dub this approach the λ-Table framework, none of the fundamental ideas from Farkas & Bruce (2010) have been changed; this is just a compositional translation of their idea. The advantage of this approach is particularly noticeable with the type of phenomena that this dissertation deals with: polarity emphasis, notification, and exclamatives. Emphatic assertions like ones with *verum* focus or ones that mark new information are exactly that: a special type of assertion. Exclamatives, which have question form, can also be analyzed as a special type of questions with particular discourse properties. The formal approach to this idea will be that there are illocutionary-level operators that can make ASSERT or Q

"special": these are modifiers that pose additional restrictions to a resulting CCP. (56) is the rough schema of this kind of modifier; imagine that F is either ASSERT or Q.

(56) $[\![\text{MODIFIER}]\!] = \lambda F_{\langle t,cct\rangle}\lambda p\lambda C\lambda C'$ $\left[\begin{array}{ll} F(p)(C)(C') & \wedge \\ \text{(additional restrictions for } p, C \text{ and/or } C' \text{ here)} & \end{array}\right]$

My task, to put it simply, is to figure out what these additional restrictions are for each type of phenomenon, and which parts of the discourse structure each modifier makes reference to.

1.4 The Table and (non-)at-issue-ness

Why is a dynamic semantic framework necessary for intensificative constructions like exclamatives, polarity emphasis, and notification? Why can't we just treat the intensity sentence-internally? After all, there are ways to paraphrase the effects that these constructions have in canonical ways:

(57) The phenomena

a. Boy, is Jupiter big!

b. Steve DID steal my lunch!

c. kyoo-wa jugyoo nai -desu -yo
today-TOP class there.isn't HON YO
'FYI, there is no class today'

(58) Close paraphrases

a. Jupiter is very big

b. Steve for sure stole my lunch

c. I'm telling you that class is canceled

The general idea is that the type of intensification in (57) involves non-at-issue meaning. This section provides diagnostics for non-at-issue-ness, and explains how the Table framework is a particularly useful language for analyzing this level of meaning.

1.4.1 Exclamatives and warnings about the challengeability test

I will start with the (57a)/(58a) pair. Both the inversion exclamative and the lexical degree modifier *very* can be used to express the meaning 'the degree to which Jupiter is big is very large'. Why aren't both of them the assertion of the following proposition ($\gg$ should be read as 'exceeds by a large amount')?

(59) $\exists d.\mathbf{big}(d)(\mathbf{Jupiter}) \wedge d \gg_C \mathbf{standard}_C$

The answer is that they have different discourse properties, which is the reason why a dynamic semantic framework is useful for explicating exclamatives. One context in which the two degree expressions are not interchangeable is if we are asked to describe Jupiter in a matter-of-fact way:

(60) A: Tell me a fact about Jupiter.

B: Jupiter is very big.

(61) A: Tell me a fact about Jupiter.

B: ?? Boy, is Jupiter big!

My judgment is that the exclamative is extremely degraded as a response here. I think the strangeness is from the fact that the exclamative sounds like a *reaction* to Jupiter's immensity, not an introduction of the fact that it is very big. An observation related to this is the fact that exclamatives are not natural discussion starters. Since discussing Jupiter's volume is slightly random as a conversation topic, I shift the example to Steve the big jerk. Assertions are a great way to raise an issue and a natural inquiry into the addressee's opinion, but exclamatives are degraded in this use. This contrast manifests when each sentence is preceded by "OK, yes or no:", which signals 'I want your opinion to settle this issue':

(62) a. OK, yes or no: Steve is a big jerk.

b. ?? OK, yes or no: Boy, is Steve a jerk!

Again, it seems as if the content of the exclamative is not really up for discussion: the speaker is expressing that Steve is a big jerk for the sake of expressing it. This relates directly to the Table framework and the notion of at-issue-ness: contents on the Table are the at-issue meaning of the sentence, the component of the meaning that is being discussed. The above patterns suggest that exclamative meaning is non-at-issue.

One of the canonical diagnostics for non-at-issue meaning is challengeability, the idea being that at-issue meaning is truth-conditional meaning and non-at-issue meaning is not (Potts 2005; Tonhauser 2012; among others). In other words, issues on the Table are issues about what is true or not: "can this be added to the CG?". This test, if used carefully, predicts that at-issue meaning can be contradicted with phrases like "That's not true!" or "Liar!", while non-at-issue meaning cannot. However, as Korotkova (2016) points out, things can fail the challengeability test for reasons other than non-at-issue-ness. For example, saying "That's not true!" to a subjective judgment as in (63) is generally a strange move, as B has no right in dictating how A feels about certain things.

(63) A: Rollercoasters are fun! (cf., Lasersohn 2005)

B: ?? That's not true!

Diagnosing degree modification via challengeability is therefore tricky. How large a degree must be in order to count as a large degree varies from context to context and perhaps from person to person, so targeting the meaning of words like *very* or *extremely* with "That's not true!" may invite the same you're-not-me effect like (63). I think physical dimensions like height may be an exception. I think many speakers from the United States would agree that 5'10" is tall, but not *extremely* tall, making the following exchange felicitous:

(64) A: Steve is extremely tall

B: That's not true! He is not *extremely* tall. (He's like 5'10", I've seen taller people)

If the reader agrees with the above judgment, I invite them to compare it to the following exchange:

(65) A: Boy, is Steve tall!

B: ?? That's not true! He is not *extremely* tall. (He's like 5'10", I've seen taller people)

I think (65) is arguably degraded compared to (64), suggesting that the *very*-ness contributed by the exclamative is non-at-issue. I will expand on the various flavors of intensity in different exclamative constructions in Chapter 3, but it suffices to conclude here that it is not identical to *very*, or at-issue degree intensification.

1.4.2 Polarity emphasis and introducing the THWT test

Now we examine *verum*. Gutzmann & Castroviejo Miró (2011) propose that the speaker certainty contributed by *verum* focus is non-at-issue, based on its failing the challengeability test. However, we must be careful once again with the diagnostic, since certainty is anchored to the speaker, and outsiders should not be able to deny their strong conviction if that is how they feel. I think the only way in which certainty can be challenged is if the challenger feels that it is insincere. I think an exchange like (66) is reasonably acceptable.

(66) (At the office, discussion of who the lunch thief is. A is thinks it's Steve. After some reactions of disbelief, A says this.)

A: I am certain that Steve stole my lunch

B: That's not true! You are not sure of this. (You are just pretending to be certain to turn people against Steve.)

Compared to this, the same exchange with *verum* focus is definitely bad, even though it contributes a similar sense of speaker certainty.

(67) (At the office, discussion of who the lunch thief is. A thinks it's Steve. After some reactions of disbelief, A says this.)

A: Steve DID steal my lunch

B: ?? That's not true! You are not sure of this. (You are just pretending to be certain to turn people against Steve.)

I think it is fairly clear that the only part of the meaning the "that's not true" could be targeting is the main proposition *Steve stole my lunch*. The certainty itself cannot be challenged. So ultimately, I agree with Gutzmann & Castroviejo Miró (2011) that the meaning of *verum* is non-at-issue.

I pause here to consider the ways in which you *can* react to violated uses of non-at-issue meaning. For example, if you did feel that someone's *verum* focus use was insincere or otherwise infelicitous, how would you challenge it? I think any form of flagging the strange discourse move will work. (68) are some examples.

(68) (At the office, discussion of who the lunch thief is. A thinks it's Steve. After some reactions of disbelief, A says this.)

A: Steve DID steal my lunch

B: { The hell was *that*?? / What was *that*?? / Why are you saying it like *that*?? } You are not sure of this. (You are just pretending to be certain to turn people against Steve.)

I dub this the *the-hell-was-that* test for non-at-issue meaning, or THWT test for short.The crucial part about these particular phrases is that it is degraded as a response flagging falsehood:

(69) (At the office, discussion of who the lunch thief is. A thinks it's Steve. After some reactions of disbelief, A says this.)

A: I am certain that Steve stole my lunch.

B: ?? { The hell was *that*?? / What was *that*?? / Why are you saying it like *that*?? } You are not sure of this. (You are just pretending to be certain to turn people against Steve.)

Note that the particular way in which I have phrases these reactions matter. The key is the stress on the demonstrative *that*: I think the strangeness of the THWT reactions in (69) can be traced to the fact that it is unclear what the *that* is referring to. (70) is an even more clear case of a false claim, which is noticeably incompatible with THWT challenges.

(70) A: Detroit is the capital of Michigan.

B: ?? { The hell was *that*?? / What was *that*?? / Why are you saying it like *that*?? } No it's not.

Note that general reactions of 'that was weird' is not equivalent to the THWT test, since reactions of this sort are compatible with truth condition challenges as well. The lunch thief minimal pair is given in (71) and (72), as well as the Detroit example in (73) for clarity.

(71) (At the office, discussion of who the lunch thief is. A thinks it's Steve. After some reactions of disbelief, A says this.)

A: Steve DID steal my lunch

B: { The hell? / What's wrong with you? / Um, what? } You are not sure of this. (You are just pretending to be certain to turn people against Steve.)

(72) (At the office, discussion of who the lunch thief is. A thinks it's Steve. After some reactions of disbelief, A says this.)

A: I am certain that Steve stole my lunch.

B: { The hell? / What's wrong with you? / Um, what? } You are not sure of this. (You are just pretending to be certain to turn people against Steve.)

(73) A: Detroit is the capital of Michigan.

B: { The hell? / What's wrong with you? / Um, what? } No it's not.

Some English speakers report that *the hell?* (as opposed to *what the hell?*) is ungrammatical in their dialect.[4] I don't think there is a huge difference between *what the hell?* and *the hell?*, but what is important for the *the-hell-was-that* test — regardless of if you say *what* or not — is the *was that*: response cannot be just *what the hell?*, because this on its own is felicitous as a response to false, not just infelicitous, statements as well. For example:

(74) A: Unicorns are absolutely real.

B: What the hell?

As a *the hell* speaker, for me, the difference between *what the hell was that?* and *the hell was that?* is a matter of tone: the former sounds a lot more confrontational (as if the speaker has taken offense by the preceding context) than the latter. Personally, the *what*-less *the hell was that?* is more appropriate in contexts where the speaker is confused or surprised but not necessarily offended. My decision to use *the hell was that?* instead of *what the hell was that?* is because I feel that the *what*-less variant is more neutral. There is potentially an interesting discussion to be had here in regards to what the role of *what* is in these cases, but I will put that off for future work.

On another note, a variant of THWT test, of course, is the TFWT test:

(75) A: Steve DID steal my lunch

[4]Currently I am not sure if this is regional or social variation.

B: The fuck was that??

1.4.3 Notification, Moore's paradox, and peripherality

Diagnosing the non-at-issue status of notification is perhaps the most challenging among the three topics of this dissertation. The challengeability test is inherently incompatible with the act of notifying; it is clear from this example why:

(76) A: I'm telling you that class is canceled.

B: # That's not true! You are not telling me this.

The exchange above is most certainly bad. But this is reducible to the fact that 'I'm telling you' is always true by virtue of the sentence being uttered (cf., Performative Hypothesis: Ross (1970); Sadock (1974), among others). If A notifies B of class cancellation, B cannot deny that this notification took place. The effect is the same in Japanese with *-yo*.

(77) a. kyoo-wa jugyoo nai -desu -yo
today-TOP class there.isn't HON YO
'FYI, there is no class today'

b. # uso-tsuke! omae-wa sore-o shirasete-nanka-inai.
lie-tell.IMP you-TOP that-ACC notify-pej-NEG
'Liar! You aren't notifying me of that.'

There is an intuitive difference between embedding a proposition with a verb of notice like *tell* and using a notification particle *-yo*. The most obvious is the fact that with *tell* the act of notifying can be put in the past tense, in which case the challengeability test passes:

(78) A: I told you that class is canceled.

B: That's not true! You did not tell me that.

-yo is a functional morpheme that indicates that the sentence being uttered is a notice to the addressee, something that says 'I am notifying you by using this particle'. This is a kind of illocutionary meaning: what the speaker does *in* using a particular kind of clause.

I need to make my position regarding non-at-issue-ness clear here. I mean "non-at-issue" meaning in its most literal sense: a type of meaning that is NOT at-issue meaning. In terms of the present framework, this means anything that is not on the Table is non-at-issue meaning. This of course includes the most illustrative cases of non-challengeable meaning like expressives and appositives (Potts 2005), but I also include illocutionary meaning like the act of asserting, questioning, or notifying under this roof. I do not think anyone thinks illocutionary meaning is at-issue, but the term "non-at-issue meaning" is sometimes used interchangeably with "conventional implicatures" (i.e., expressives and appositives), which is why this overt clarification is needed. I am not criticizing this use of "non-at-issue"; in fact, Grice (1975)'s earliest definition of conventional implicatures includes the clause that they are independent of at-issue entailments, meaning that they are, indeed, non-at-issue. This notice is just to distinguish my use of the term from e.g., Murray (2010),Murray (2013), Rett & Murray (2013), and Rett (2013) (among others), who describe sentences as having three components to their meaning: at-issue meaning, non-at-issue meaning (conventional implicatures), and illocutionary meaning. This is not to say that conventional implicatures and illocutionary operate on the same parts of discourse or that they have the same behavior pragmatically: they don't. One of the dissertation objectives in fact is to examine the different ways in which meanings can be "not on the Table", and how we might diagnose those different levels of non-at-issue-ness. My point is simply that conventional implicatures and illocutionary acts are both subclasses of non-at-issue meaning.

To reiterate, the fact that the illocutionary meaning of a sentence "happens" by virtue of utterance suggests that this type of meaning does not have a truth value. It simply does not compute how an act can be true or false. Below, challenging the act of questioning is no better than challenging being notified.

(79) A: Is class canceled?

B: # That's not true! You are not asking this!

However, there is still a real sense in which speech acts can be infelicitous. If I ask you to

ask a question and you give me an assertion, this would certainly trigger a THWT response:

(80) A: OK, list some questions that we should ask our job candidates during the interview.

B: This company values diversity.

A: The hell was *that*? You are not asking a question.

Similarly, there can be infelicitous acts of notification. For example, if the proposition at hand is clearly old information for the addressee, asserting it with *-yo* is fairly strange:

(81) (A and B are outside. It starts to rain. A and B both notice this. A says to B:)

a. ame -da
rain COP
'It's started to rain'

b. ?? ame -da -yo
rain COP YO
'FYI, it's started to rain'

One way to tease apart illocutionary meaning from other non-at-issue content is *Moore's paradox* (Moore 1993). This test requires subtle judgments. I am going to contrast appositives, which is a conventional implicature and a type of non-at-issue meaning, to the illocutionary meaning of an assertion. First, neither the appositive content nor the act of asserting can be challenged with "that's not true!":

(82) A: Steve won the lottery.

B: That's not true, he did not win the lottery!

(83) A: Steve, who is Darcy's husband, won the lottery.

B: # That's not true, he is not Darcy's husband!

(84) A: Steve won the lottery.

B: # That's not true, you don't believe this! He did win, but you never believe any stories about your arch-nemesis Steve.

So far, this only tells us that the propositional content 'Steve won the lottery' is the at-issue meaning, but neither the appositive content 'he is Darcy's husband' nor the illocutionary meaning of assertion 'I believe this' are at-issue. Here comes Moore's paradox. A contrast arises when the speaker explicitly negates the non-at-issue content:

(85) ⊥ Steve, who is Darcy's husband, won the lottery. But he isn't Darcy's husband.

(86) ?? Steve won the lottery, but I don't believe he won the lottery.

The intuition is that (85) very strongly feels like a contradiction, which is what "⊥" signifies. The negation of the illocutionary content of an assertion in (86) is very strange, but the difference is that it does not feel like a contradiction. Here are a couple more examples of this judgment; these are the classic examples from Searle (1969).

(87) a. ?? It's raining, but I don't believe it's raining. (not contradictory)

b. ?? Does Sue like pizza? I don't want to know. (not contradictory)

Turning to notification, it also observes Moore's paradox:

(88) ?? kyoo-wa jugyoo nai -desu -yo. shiraseru tsumori-janai -kedo.
today-TOP class there.isn't HON YO notify intention-be.NEG but
'FYI, there is no class today, but I'm not trying to let you know.'

This suggests that notification is a type of illocutionary meaning. I argue in Chapter 4 that it is a type of illocutionary modifier.

Since judgments surrounding Moore's paradox is slippery (and perhaps variable), I would like to propose one more test to separate conventional implicatures and illocutionary meaning. This is the *peripherality* test. The idea for this test comes from Potts (2005)'s characterization of CI meaning as something that "comments on the at-issue core", meaning that things like appositives are a side-comment that is not a part of the main content of the sentence. This intuition can be made explicit when challenging the appositive content:

(89) A: Steve, who is Darcy's husband, won the lottery.

B: { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } Steve isn't Darcy's husband.

What B is expressing in the qualifying statements is 'not that this matters for the point you're making, but I'm going to correct this anyway'. Crucially, these warnings of peripherality do not work with the at-issue content:

(90) A: Steve, who is Darcy's husband, won the lottery.

B: # { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } He didn't win the lottery.

I think this is very strange. The thought behind the pound sign is "but that WAS A's point". The at-issue meaning does not have mere "side comment" status.

Now we apply the peripherality test to notifications with *-yo*. Curiously, even though the illocutionary meaning is not at-issue, it feels inaccurate to say that it is "peripheral". The following context is one in which the notification may be perceived as infelicitous (i.e., because the information is obvious).

(91) (Context: a couple of movers.)

A: gurando piano, omoi -desu -yo
grant piano heavy COP.HON YO
'FYI, the grand piano is heavy.'

B: ?? Chotto matte. hanashi zureru kedo, sore, shiraseru tsumori-de
a.little wait conversation shift but that to.notify intention-with
itteru -no? (atarimaejan.)
saying -Q of.course.it's.true
Intended: 'Hold on. This goes off topic, but: you're notifying me of this? Of course it's heavy.'

To elaborate on the double question mark, the objection that comes to mind is "but notifying WAS kind of a part of the point". To relate this to English judgments, it has the same level of infelicitousness as the following:

(92) A Did Steve win the lottery?

B: ?? { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } you want to know if Steve won the lottery?

I will return to these various diagnostics throughout the dissertation, and make the connection between the empirical findings and the Table framework more explicit as the need arises. For now, I conclude with the hopes of having convinced the reader that the phenomena at hand are discourse-oriented constructions that are sensitive to properties beyond truth condition, making the Table framework a useful way into understanding various modes of non-at-issue meaning.

1.5 Dissertation objective and outline

This dissertation addresses three main questions:

1. What is the nature of the intensity that polarity emphasis, exclamatives, and notification/surprise have?

2. What kinds of non-at-issue meanings are there, and what parts of the discourse structure does each meaning manipulate?

3. How can discourse pragmatics be modeled compositionally?

Question 1 concerns the perceived markedness of the classes of sentences in question. Another way to phrase the intuition is that all of these constructions have a certain *oomph* to them that is inarticulable. Why do these speech acts feel special? The bottom line of the answer to this question will be that these are all constructions that allow for the speaker to ditch collaborativeness in discourse in some way, meaning that they get to manipulate parts of the discourse structure (e.g., the CG) that would canonically require the cooperation of the addressee.

Question 2 gets at the idea that not being able to contradict certain kinds of meaning merely shows that that particular meaning is not at-issue, meaning that it is not on the Table as an issue. The question then is what it is doing instead. The phenomena I examine motivate the existence of certain foundational building blocks of discourse, and gives insight into what discourse is generally keeping track of.

Question 3 points to the predictive power of using a compositional approach to discourse pragmatics. This speaks to the question of what operators can combine with what, and what enriched types of speech acts the composition creates as a result, and moreover, what types of speech acts language is predicted to *not* have.

I will begin in Chapter 2 with POLARITY EMPHASIS in English and Japanese, which in addition to contributing to the dissertation objective provides some tools and background that the following two chapters will presuppose. Chapter 3 concerns EXCLAMATIVE constructions, particularly those with polar question form in English. Chapter 4 will deal largely with NOTIFICATION in Japanese, and the formal connection it has with mirativity (grammatical encoding of surprise). I conclude in Chapter 5 by evaluating the preceding chapters in light of the questions I have posed above.

CHAPTER 2

POLARITY EMPHASIS AND THE PROJECTED SET

2.1 Introduction

This chapter concerns constructions in natural language that concern polarity emphasis, or emphasis of truth. In English, this emphasis can be conveyed via prosodic focus on the auxiliary, sometimes called *emphatic do* (Wilder 2013) but more commonly referred to as VERUM FOCUS (a term coined by Höhle (1992)) in the formal semantics literature. (93) shows a minimal pair with and without *verum* focus (I will use all caps in data points to indicate *verum* focus in this chapter).

(93) a. Steve passed the exam

b. Steve DID pass the exam

Intuitively, (93b) is more emphatic than (93a). One characterization of the effect is that the speaker has a high level of confidence about the truthfulness of the proposition *Steve passed the exam*. In order to understand what confidence means in relation to discourse, we must examine the types of contexts in which *verum* focus is felicitous. (94) and (95) are two such contexts, which I will call ASSURANCE and ANSWER, respectively.

(94) A: I'm not sure if Steve passed the exam.

B: He DID pass the exam. (ASSURANCE)

(95) A: Did Steve pass the exam?

B: He DID pass the exam. (ANSWER)

These contexts exemplify a very classic use of *verum*, where someone is not sure if p, so the speaker asserts no, certainly p.

In this chapter, I would like to take a closer look at where this sense of speaker certainty arises. *Verum* is not always about negating doubt. For example, it is not clear in the following two contexts that the addressee is 'unsure if p'. Both in STRENGTHENING and CONFIRMATION, A seems to have a bias for p, *Steve passed the exam.*

(96) A: I think Steve passed the exam.

B: He DID pass the exam. (STRENGTHENING)

(97) A: Didn't Steve pass the exam?

B: He DID pass the exam. (CONFIRMATION)

We can still construe these cases as B overriding A's lack of full commitment to p, meaning that they maybe still fall in the same class as ASSURANCE and ANSWER.

A curious case is CORRECTION (exemplified below), however.

(98) A: Steve didn't pass the exam.

B: (What?) He DID pass the exam. (CORRECTION)

What this shows is that *verum* can also have a corrective use in which the speaker is attempting to override the addressee's proposal that $\neg p$ with the fact that it is p.

A formal analysis of *verum* also needs to be able to account for cases like INDEED below, whose context is almost the exact opposite of CORRECTION. Here, B is agreeing with A's proposal that Steve passed the exam in an emphatic way.

(99) A: Steve passed the exam.

B: He DID pass the exam! (INDEED)

Putting aside complications of formally analyzing speaker certainty (to be presented shortly in the next section), at least at the intuitive level nothing seems terribly problematic about the fact that in all of the above contexts, the *verum* focus can be substituted with something like 'I am positive that'. Maybe it means exactly that, whatever the formal means may be.

Here is where the *real* problem arises, and this is a use of *verum* focus that is not often cited: construing *verum* as speaker certainty is at odds with the interpretation of *verum* as it appears in polar questions. Here is a minimal pair, one with focus and one without on the auxiliary.

(100) a. Did Steve pass the exam?

b. DID Steve pass the exam?

The question with focus is definitely more emphatic than the one without. The elusive thing about emphasis is that we know it when we hear one, but it's not always easy identifying what the source of the emphasis is. Here is a context to help us understand what a question with *verum* focus means — I call it INCREDULITY.

(101) A, B, C, and Steve are all in the same class. A, B, and C are talking about Steve the slacker.

A: There is no way Steve passed the exam.

B: (B looks at C like they both know something)

A: Wait. DID he pass the exam? (INCREDULITY)

A rough paraphrase of the effect is 'Is it (really) the case that he passed the exam?' Why is this problematic for the hypothesis that *verum* just means 'I am sure'? This is because if we purely put the semantics of a polar question together with speaker certainty, the result should be a question in which the speaker is certain that the answer is yes. In this case, *DID he pass the exam* should mean 'Did he pass the exam? I am sure that he passed the exam' under this hypothesis. However, as the name of the context suggests, here, the speaker is in *disbelief* of the fact that Steve passed the exam, which is a ways away from 'I am positive that he did'.

My objective in this chapter is to capture the semantics of *verum* in a way that can account for the variety of contexts it comes in, including the case of *verum* in questions.

The core of my analysis will be that a unified account of *verum* assertions and questions is possible if we recast polarity emphasis in terms of *a discourse mandate that updating the common ground (CG) with p be the resolution to an issue on the Table*. This language of anticipating issue resolutions speaks to the role of the *projected set* (PS) in the illocutionary meaning of sentences. Therefore at a broader level, this chapter provides support for the idea in the Table framework that the PS is a real and prominent part of the meaning of speech acts.

In §2.2, I first provide an outline of previous analyses of *verum* in the literature and present the analytical challenges they face. Riding on an existing proposal in the literature that *verum* is non-at-issue meaning, in §2.3 I use diagnostics from Chapter 1 to determine if the meaning is a conventional implicature or an illocutionary relation in particular. I come back to a more detailed description of *verum* questions in §2.4 and reiterate the problem it poses for existing accounts. A new analysis using the λ-Table framework is proposed in §2.5, and I end in §2.6 with a discussion of further cases of *verum*, including cross-linguistic considerations in Japanese.

2.2 Existing accounts of *verum*

2.2.1 The null hypothesis: contrastive focus

Before jumping into existing analyses of *verum* focus, I would like to quickly point out the null hypothesis here that no one seems to address, perhaps because it obviously does not work. This hypothesis would be that *verum* focus is just ordinary contrastive focus (cf., Rooth 1985; 1992). The idea of focus is that in prosodically emphasizing a word in a sentence, a set of alternatives to that sentence becomes available for contrast. For example, if I say *Steve remembered my birthday* (no focus) this is an ordinary happy assertion, but *STEVE remembered my birthday* (focus on *Steve*) is a passive-aggressive accusation that none of my other friends remembered my birthday. The idea would be that the focus evokes a set of propositions of the form *X remembered my birthday*, where X is filled in with a name that is

contextually salient.

(102) STEVE remembered my birthday

a. at-issue: Steve remembered my birthday

b. alternatives: $\left\{ \begin{array}{l} \text{Bob remembered my birthday,} \\ \text{Dee remembered my birthday,} \\ \text{Kristen remembered my birthday,} \\ \vdots \end{array} \right\}$

The idea would be that the alternative set is not just there to hang out — something must be said of them to strengthen the meaning of the at-issue proposition *Steve remembered my birthday* (cf., Chierchia 2013; and references therein). One such way of doing so would be by negating each of the alternatives: Yes, Steve remembered my birthday, but Bob didn't, Dee didn't, and Kristen didn't either.

So a reasonable first shot at extending this analysis to what we are calling *verum* focus might go like this: the positive proposition p has as its alternative $\neg p$, so the focus says 'p, and not $\neg p$'. This is the emphasis of the positive polarity in a very literal sense, but the issue is that if p is true it must always follow that $\neg p$ is not true. In other words, $p \wedge \neg\neg p$ reduces to $p \wedge p$, which reduces to p. Negating p's negative alternative does nothing more than asserting p.

This was a short-lived hypothesis, but I find it alluring still: 'not $\neg p$' seems like such an intuitive translation of *verum* were it not for the its logical equivalence to p. I think it would be analytically pleasing if *verum* focus could be put under the contrastive focus umbrella. My analysis of *verum* will do just that. To preview what is to come, my take on *verum* focus will end up being contrastive focus at the discourse level. The gist of the analysis is that what *verum* does is allow for only p, nothing else, to be the answer to an issue currently under discussion.

2.2.2 Höhle 1992: 'it is true that'

Verum was first extensively described by Höhle (1992)[1], who characterizes German sentences like (103) as being emphatic of the truth of the proposition *Karl has finished his book*:

(103) Karl $[\text{hat}]_{\text{F}}$ sein buch beendet
Karl has his book finished
'Karl $[\text{has}]_{\text{F}}$ finished his book'

The prosodic focus on the auxiliary is what is responsible for the heightened sense of speaker commitment in (103); this has been dubbed *verum focus*. English also has the same construction:

(104) (Anna is your best friend, and you know everything about her. Anna's acquaintance says, "I think Anna moved to Austria, but I'm not sure." You reply:)
Anna $[\text{did}]_{\text{F}}$ move to Austria!

Although Höhle's objective is not to formally account for the semantics of *verum*, the paraphrase that he uses for its interpretation is 'it is true that …,' meaning any p with *verum* focus would have the following denotation:

(105) $[\![\textsc{verum p}]\!] = \text{'it is true that } p\text{'} = [\![\text{p}]\!]$

This is a null hypothesis that turns out to be intuitively defective: this amounts to saying that $[\![p]\!]$ is identical to $[\![\textsc{verum } p]\!]$, which cannot be true. For example, one property of *verum* focus is that it cannot be uttered out of the blue (Gutzmann & Castroviejo Miró 2011). For example, if a public service announcement comes on TV, (106a) is strange as the very first utterance in the announcement, but without the focus in (106b), it is acceptable:

(106) a. # This $[\text{is}]_{\text{F}}$ a public service announcement.
b. This is a public service announcement

[1]Note: I am citing Gutzmann & Castroviejo Miró (2011)'s description of Höhle (1992), since I cannot read the original manuscript, which is in German.

Verum clearly does contribute something to the semantics, and others following Höhle have proposed ways to account for this.

2.2.3 Romero & Han 2004: 'for sure in the common ground that'

Romero & Han (2004) view VERUM as an epistemic conversational operator that encodes the speaker's desire for a proposition p to be added to the common ground (CG). If the CG is the set of propositions that discourse participants mutually agree to be true (Stalnaker 1978; 1998; 2002), VERUM(p) says that p should be in this set. Their implementation, reformulated slightly for readability, is below:

(107) $[\![\text{VERUM}]\!] = \lambda p \lambda w. \forall w' \in \text{EPI}_{\text{SPKR}}(w) \cap \text{CONV}_{\text{SPKR}}(w)[p \in \text{CG}_{w'}]$

(reformulated, Romero & Han (2004))

$\text{EPI}_{\text{SPKR}}(w)$ is the set of worlds that conform to the speaker's beliefs in w, and $\text{CONV}_{\text{SPKR}}(w)$ is the set of worlds that conform to the speaker's conversational goals in w (i.e., the worlds in which there is maximal true information). Therefore, (107) says that in an ideal world w' in which what the speaker believes in w is indeed true, p is in the common ground. This translates into, from the perspective of the speaker, 'p should be added to the common ground.' Romero & Han shorten this as FOR-SURE-CG(p).

The denotation for *Steve DID pass the exam* — with *verum* focus — then would simply be FOR-SURE-CG(Steve passed the exam): '*Steve passed the exam* should be added to the CG'. This line of analysis has a lot of explanatory value for the ASSURANCE context, for example (reproduced below).

(108) A: I'm not sure if Steve passed the exam.

B: He DID pass the exam. (ASSURANCE)

Under this account, a paraphrase of what B is communicating is 'I am certain that *he passed the exam* is true, it should go in the CG'. CG management is one way of modeling the speaker confidence.

This raises a concern in light of the Table framework that I am working with. The issue is that in making an assertion *even without verum focus*, there is already pressure to increase the CG with p. As described in Chapter 1, the idea behind the projected set (PS) is that every discourse move is made with the intention of updating the CG. For an assertion of p, the PS privileges an output CG with $\{p\}$ in it, meaning that regular assertions already have the sentiment of 'p should be in the CG' as a part of its illocutionary content. Although Romero and Han's formulation of FOR-SURE-CG very explicitly expresses this 'should' via a modal language, it is unclear if what it expresses is different from what the PS in a Table framework encodes. As it stands, I do not think that FOR-SURE-CG captures *verum*'s "extra" insistence to increase the CG with p.

2.2.4 Gutzmann & Castroviejo-Miró: 'The speaker wants it to no longer be a question that'

Gutzmann & Castroviejo Miró depart from Romero & Han's view of VERUM(p) as FOR-SURE-CG(p) based on the observation that *verum* focus is infelicitous out of the blue (idea due to Gutzmann & Castroviejo Miró (2011), example mine):

(109) (You're expecting a package, and your roommate knows this. The doorbell rings. You are certain that it's the mailman. You tell your roommate:)

#My package $[\text{has}]_{\text{F}}$ arrived!

Intended: 'I am certain that my package has arrived (i.e., we should put *my package has arrived* in the CG)'

What (109) shows is that if the utterance means 'I am certain that my package has arrived' as Romero & Han predicts, it should be felicitous if the speaker simply wants to alert their roommate of that. Since this prediction is not met, they take a different approach in modeling VERUM.

Gutzmann & Castroviejo Miró's paraphrase of *verum* is this: 'the speaker wants to take $\{p, \neg p\}$ out of the QUD'. So their take on speaker certainty is 'there is no question about it'.

Borrowing Romero & Han's formal language, this could be formalized as (110).

(110) $[\![\text{VERUM}]\!] = \lambda p \lambda w. \forall w' \in \text{EPI}_{\text{SPKR}}(w) \cap \text{CONV}_{\text{SPKR}}(w)[QUD_{w'} - \{p, \neg p\}]$
'The speaker wants to take $\{p, \neg p\}$ out of the QUD' (Gutzmann & Castroviejo Miró's paraphrase, my formalization)

(110) reads, 'in world w' where the speaker's beliefs in w are true *and* the speaker's conversational goals in w are met, $\{p, \neg p\}$ is subtracted from the QUD', or simply, 'from the perspective of the speaker, *whether p* should not be a QUD'. Since *verum* is a set subtraction under this analysis, this accounts for why *verum* focus is strange out of the blue: you cannot subtract something from a set if it's not already in the set to begin with. In other words, *verum* presupposes that *whether p* is already in the QUD.

This makes for a very straight forward account for the ANSWER use of *verum* focus, wherein the speaker uses the focus to express his confidence in the answer to a polar question that was explicitly raised. ASSURANCE is also likely compatible with this analysis, if we assume that *I'm not sure* implicitly raises *whether p* as a QUD.

(111) A: Did Steve pass the exam?
B: He DID pass the exam. (ANSWER)

(112) A: I'm not sure if Steve passed the exam.
B: He DID pass the exam. (ASSURANCE)

B's response in both of the above contexts certainly has a 'how dare you even question *if* he passed' flair, which is consistent with the effect that Gutzmann & Castroviejo Miró have in mind.

How do the other contexts fare? CORRECTION faces a problem, although an easily fixable one:

(113) A: Steve didn't pass the exam.
B: What? He DID pass the exam. (CORRECTION)

In this context, $\{p, \neg p\}$ is not what is on the table; the issue that A is raising is $\{\neg p\}$. A small modification to the denotation of VERUM will catch both ANSWER and CORRECTION:

(114) $[\![\text{VERUM}]\!] = \lambda p \lambda w. \forall w' \in \text{EPI}_{\text{SPKR}}(w) \cap \text{CONV}_{\text{SPKR}}(w)[QUD_{w'} - \{\neg p\}]$

'The speaker wants to take $\{\neg p\}$ out of the QUD'

All we have to do is change the target of the downdate from *whether p* to *not p*. The revised effect of the speaker confidence is 'how dare you even consider $\neg p$? (Of course it's p.)'. This is still reasonable.

This modification gets us in deeper trouble, however. It is highly suspect whether $\{\neg p\}$ is being subtracted from the QUD in STRENGTHENING and CONFIRMATION.

(115) A: I think Steve passed the exam.

B: He DID pass the exam. (STRENGTHENING)

(116) A: Didn't Steve pass the exam?

B: He DID pass the exam. (CONFIRMATION)

In both of these contexts, A has a bias for the positive statement, *Steve passed the exam*. We could still argue that A's lack of 100% certainty triggers $\{p, \neg p\}$ as an implicit QUD. The *real* problem is INDEED:

(117) A: Steve passed the exam.

B: He DID pass the exam. (INDEED)

To give a more naturalistic example, the following is certainly an exchange we've all had before:

(118) A: You got a haircut!

B: I DID get a haircut! (INDEED)

In this context, there is no way what A is putting on the table is $\{\neg p\}$; the issue raised by a positive assertion is simply $\{p\}$. If B is subtracting $\{\neg p\}$ from the QUD via *verum*, this should not be felicitous in this scenario. This makes an incorrect prediction.

What I do agree with Gutzmann & Castroviejo Miró on is the fact that the semantics of *verum* is non-at-issue, which is a prominent proposal in their analysis. First, whatever effect that *verum* focus has does not seem to have a truth value:

(119) A: I'm not sure if Steve passed the exam.

B: He DID pass the exam.

C: ?? That's not true! You're not sure about this, you have no evidience what-so-ever about it. You're just pretending to be sure so I'll stop worrying!

This exchange of course may be independently strange because B presumably knows B best; C is in no position to say that it's false that he's confident (although above, I have done my best to imagine a situation in which this might be viable). So we of course have the THWT test for diagnosing non-at-issue meaning and infelicitous utterances:

(120) A: I'm not sure if Steve passed the exam.

B: He DID pass the exam.

C: The hell was that? You're not sure about this, you have no evdience what-so-ever about it. You're just pretending to be sure so I'll stop worrying!

You can *react* to the strangeness of C's baseless confidence with THWT, for sure. This suggests that the polarity emphasis is non-at-issue meaning. Romero & Han's analysis of *verum* treats it as at-issue meaning, which suggests that the speaker confidence encoded by *verum* focus is treated on par as lexical polarity emphasis, such as *really* or *I am certain/posisitve that*. This is not the case however, since at-issue certainty can be challenged.

(121) A: I'm not sure if Steve passed the exam.

B: I am positive that he passed the exam.

C: That's not true! You're not sure about this, you have no evidence what-so-ever about it. You're just pretending to be sure so I'll stop worrying!

Gutzmann & Castroviejo Miró analyze the non-at-issue status of *verum* specifically as a conventional implicature, using a multi-dimensional semantics borrowed from Potts (2005; 2007). They take non-challengeability as an indication that *verum* focus is a type of expressive meaning. However, as I have argued in Chapter 1, non-challengeability is not sufficient grounds for pin-pointing non-at-issue-ness as conventional implicature. I provide further diagnostics in the following section and argue that *verum* focus is better analyzed as an illocutionary modifier.

2.3 *Verum*: Conventional implicature or illocutionary modifier?

I would like to talk briefly about what a conventional implicature is in the first place before evaluating Gutzmann & Castroviejo Miró (2011)'s claim that *verum* focus contributes one. The basic idea is that certain linguistic expressions do not have a truth condition *per se*. The most illustrative case of this intuition can be shown with interjections like *ouch* or *oops* (cf., Kaplan 1999), which approximate the emotion 'that hurt' and 'that was unintentional'. Now imagine that someone said *oops* in a context where no pain is perceivable. The idea is that saying "That's not true!" in such a case is not an appropriate response.

(122) (You're sitting on a perfectly comfortable sofa.)

A: Ouch.

B: ?? That's not true, you can't possibly in pain!

It is inaccurate to say that A's utterance was false here. It was just *infelicitous*: it was used wrong. We of course have our THWT test that targets such infelicitousness:

(123) (You're sitting on a perfectly comfortable sofa.)

A: Ouch.

B: The hell was that? You can't possibly in pain!

This type of meaning is what Grice (1975) calls *conventional implicatures* (CI's). This is not to be confused with *conversational implicatures*, which are another class of non-at-issue

meaning, ones that are derivable via conversational cooperative principles. By "conventional" Grice means that these are meanings separate from at-issue entailments but not pragmatically calculated.

Formally, what the existence of this type of meaning suggests is the need for a semantic architecture that allows for a component that is independent of truth-conditional meaning. The Table framework is of course one such language, but here I outline a predecessor, the multi-dimensional semantic framework as proposed by Potts (2005; 2007).

Stand-alone interjections are an extreme example of the existence of conventionally implicated meanings, but CI meaning can also co-exists with at-issue meaning. One classic example is as class of expressions dubbed expressives (Potts 2005), which are words like *damn* or *fucking* that encode the speaker's attitude in some way. For example, (124) has two levels of meaning: the at-issue meaning is the proposition 'I have to write a paper on fruit flies,' but there is a perceptively secondary component that suggests the speaker is unhappy about this task.

(124) I have to write a damn paper on fruit flies. (Potts 2007)

a. At-issue: 'I have to write a paper on fruit flies'

b. Non-at-issue (CI): 'I am not happy about writing a paper on fruit flies'

That the attitude contributed by *damn* is separate from the at-issue content is clear from its immunity to being challenged. Saying "That's not true!" to the above utterance is only able to be taken as a challenge to the at-issue meaning, and not the CI.

(125) A: I have to write a damn paper on fruit flies.

B: That's not true, you don't have to write a paper on fruit flies.

(126) A: I have to write a damn paper on fruit flies.

B: # That's not true, you're not angry about that! (You told me just a second ago that you were super excited about writing about fruit flies; you're only pretending to be angry because you think people will think you're a nerd.)

As alluded to in Chapter 1, another class of CI meaning is appositives or parentheticals. The italicized portion below is an appositive.

(127) Ames, *who stole from the FBI*, is now behind bars. (Potts 2005)

a. At-issue: 'Ames is now behind bars'

b. Non-at-issue (CI): 'Ames stole from the FBI'

An appositive is a kind of "side information" that supplements, but is not a part of, the at-issue proposition. The secondary status it has again can be shown via the challengeability test.

(128) A: Ames, who stole from the FBI, is now behind bars.

B: That's not true! He hasn't been captured yet.

(129) A: Ames, who stole from the FBI, is now behind bars.

B: # That's not true! He did not steal from the FBI, he leaked information to the Soviets.

In Chapter 1, I also provided the *peripherality test*, which shows that CI content is supplemental, indeed.

A: Ames, who stole from the FBI, is now behind bars.

B: { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } Ames did not steal from the FBI, he leaked information to the Soviets.

The peripherality test also works for expressives.

A: So, what are you doing today?

B: I have to write a damn paper on fruit flies.

A: { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } You're unhappy about this? I thought you loved studying fruit flies.

Potts provides a type-driven analysis to account for CI's distinctness from at-issue meaning. The basic idea is that CI contributors like *damn* is a function from truth-conditional meaning (type $\langle s^a, t^a \rangle$) to CI meaning (type $\langle s^a, t^c \rangle$). Crucially, this function has a double duty. Its first role is a normal modifier, applying the speaker attitude *damn* to the proposition it takes in. Its second role is an identity function that takes in the proposition and returns the same proposition. This means that the resulting interpretation is split into two dimensions (separated by the • in the semantic parse tree in (130)): the first dimension hosts the truth-conditional layer with the propositional meaning, and the second dimension is the locus of CI meaning.

(130)

λw. I have to write a paper on fruit flies in w: $\langle s^a, t^a \rangle$

•

damn(I have to write a paper on fruit flies): $\langle s^a, t^c \rangle$

damn: $\langle \langle s^a, t^a \rangle, \langle s^a, t^c \rangle \rangle$ I have to write a paper on fruit flies: $\langle s^a, t^a \rangle$

Informally, **damn**(I have to write a paper on fruit flies) may expand to something like "λw. I have to write a paper on fruit flies and I am angry about it in w". This sort of approach captures the intuition that CI's are separate from at-issue meaning in a fairly literal way.

Others have wondered what the bullet means at the discourse level. One recent analysis of the non-challengeability of CI content is that CI's are CG manipulators (AnderBois et al. 2010; 2013; Murray 2010; 2013). The discussion of this idea in the literature largely deals appositives in particular, but I think it applies to expressive content as well. The idea is this: if assertions and questions *propose* to update the CG, CI's *directly update the CG*. It is a conversational move that can "sneak in" certain propositions into the CG, to be used as a supplement to the at-issue content. Note that this is not equivalent to a presupposition, although they both make reference to information in the CG. A CI is strictly a context *update*: it dictates how the CG in the output context must look like. A presupposition is not an update; it is a pre-condition: it is a requirement on what must be in the CG in order

for the at-issue meaning to hold (AnderBois et al. 2013).

Under this view, translating Potts's bullet into the Table language is fairly straightforward. An expressive like *damn* can be analyzed as something that requires an assertion to — in addition to asserting — make a direct update to the CG with emotive content. Here is a simple version of such a function.

(131) $[\![\text{damn}]\!] = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C'$ $\left[\begin{array}{ll} F(p)(C)(C') & \wedge \\ CG^{C'} = CG^{C} \cup \{\text{the speaker is unhappy that } p\} & \end{array}\right]$

At the risk of sounding redundant, I remind the reader that non-challengeability on its own does not show that a particular semantic contribution is a CI: a lot of things resist being denied for a lot of different reasons. In other words, just because you cannot say "That's not true!" to a particular part of a sentence does NOT mean that a CG update like (131) took place. For example, even though illocutionary meaning (like the force of asserting) cannot be challenged, its failing the peripherality test shows that this part of the meaning has a much more prominent status in shaping the context. What we take away from this is that if a certain part of a sentence is non-challengeable AND peripheral, it can be analyzed as a CI, and therefore a CG update.

The usefulness of the Table framework is that there is a very clear way in which different levels of meaning that Murray (2010; 2013) identify can be visualized: at-issue meaning is the content on the Table, CI meaning is an update to the CG, and illocutionary meaning manipulates everything else (the PS, the DC, etc.).

Now we can ask a very concise question in terms of *verum*: Is it CI or illocutionary meaning? I am afraid the judgement is a difficult one, but consultants minimally agree with me that the *verum* content is is not *obviously* "peripheral" like the appositive content is.

(132) A: I'm not sure if Steve passed the exam.

B: He DID pass the exam.

A: ? { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } You are *that* confident about this?

I am not a fan of Moore's paradox as a test for illocutionary meaning since the elicited judgment ('infelicitous but not contradictory') is complex, but we can try anyway. First, the judgment reported in the literature is in (133a) for negating the force of asserting. The judgment is that while infelicitous, this sentence should not feel like a contradiction. Contrast this with (133b), to which you should have a more violent reaction that this is logically impossible.

(133) a. # He passed the exam, but I don't believe it. (not a contradiction)

b. ⊥ He passed the exam, but he didn't pass the exam.

Now I invite readers with English judgments to compare (134) to the pair of examples above. If you had to drop the following sentence in a bin with one of the above sentences, would it be with (133a) or (133b)?

(134) # He DID pass the exam, but I don't want to exude confidence about this.

(not a contradiction)

My answer is already annotated: I don't think this is a contradiction; this patterns more like (133a). This admittedly requires a more careful acceptability judgment task, but I proceed with caution with the proposal that *verum* is an illocutionary modifier, not a CI.

2.4 The issue of certainty with *verum* questions

Based on *verum* assertion data, what we know so far is that *verum* focus contributes a sense of speaker certainty at the illocutionary level. There is one obstacle that this creates: equating *verum* with simple speaker certainty, whatever the formal means may be, is problematic with cases of *verum* focus in polar questions. Here is a typical kind of context (INCREDULITY) in which *verum* focus manifests in questions:

(135) A, B, C, and Steve are all in the same class. A, B, and C are talking about Steve the slacker.

A: There is no way Steve passed the exam.

B: (B looks at C like they both know something)

A: Wait. DID he pass the exam? (INCREDULITY)

I am going to call polar questions with *verum* focus like this VERUM QUESTIONS, but beware: this term has also been used to refer to biased questions with preposed negation (e.g., *didn't he pass the exam?*) in the literature as well. Negative polar questions are *not* what I am referring to here; cf., Chapter 3 for more about this kind of question.

If *verum* means 'I am certain that', it produces the exact opposite of the intended meaning: *DID he pass the exam?* should mean 'I am certain that he passed the exam. Did he?' This is not an available reading of this type of question. In the INCREDULITY context, what is happening is that A is reacting to B and C's behavior that suggests *yes, Steve passed the exam* is the answer to the question *Did Steve pass the exam?*.

There is another context in which *verum* questions can be felicitous; it is slightly different from INCREDULITY. In this case, there is pre-utterance indication in the context that the answer to the current issue might be *no*. This at first glance is the exact opposite of the incredulity context. I call this one DID I REALLY.

(136) A is in bed, about to go to sleep. He is trying to remember if he turned off the lights downstairs.

A: (Self-assuredly) I turned off the lights downstairs.

(He remembers being distracted by a text message when he was coming upstairs.)

A: Wait. DID I turn off the lights?

(DID I REALLY)

A's trigger for the *verum* question is 'maybe I DIDN'T turn off the lights'. This has the same effect as the question *did I really turn off the lights (though)?*, which contains the lexical certainty marker *really*. It again seems inaccurate to say that the speaker is confident that he turned off the lights in this context. In fact, he's quite unsure of this. The existing accounts of *verum* cannot explain this.

2.5 *Verum* in the λ-Table framework

For convenience, I repeat below the uses of *verum* that I am trying to account for. I have put ASSURANCE, ANSWER, STRENGTHENING, and CONFIRMATION under the supercategory UNCERTAINTY.

(136) UNCERTAINTY: preceding issue is (explicitly or implicitly) $\{p, \neg p\}$

A: { Did Steve pass the exam? / I'm not sure if Steve passed the exam. / I think Steve passed the exam / Didn't Steve pass the exam? }

B: He DID pass the exam.

(137) CORRECTION: preceding issue is $\{\neg p\}$

A: Steve didn't pass the exam.

B: (What?) He DID pass the exam.

(138) INDEED: preceding issue is $\{p\}$

A: Didn't Steve pass the exam?

B: He DID pass the exam.

(139) INCREDULITY: there is a possibility that p is the answer to $\{p, \neg p\}$

A, B, C, and Steve are all in the same class. A, B, and C are talking about Steve the slacker.

A: There is no way Steve passed the exam.

B: (B looks at C like they both know something)

A: Wait. DID he pass the exam?

(140) DID I REALLY: there is a possibility that $\neg p$ is the answer to $\{p, \neg p\}$

A is in bed, about to go to sleep. He is trying to remember if he turned off the lights downstairs.

A: (Self-assuredly) I turned off the lights downstairs.

(He remembers being distracted by a text message when he was coming upstairs.)

A: Wait. DID I turn off the lights?

In this section, I analyze *verum* in light of the observations above using the λ-Table framework.

2.5.1 A first stab with what we have

How can certainty be modeled as illocutionary meaning in the Table framework? Since the content on the Table represents at-issue meaning and CG updates equate to CI meaning, we are left with manipulating either DC's (discourse commitments) or the PS (projected set).

The DC of any discourse participant is the set of propositions that they are publicly committed to. This definition alone is not able to capture speaker certainty in any obvious way. One idea might be to impose partial ordering on this set. For example, if the ordering source is the *degree* of commitment, we may be able to capture the intuition that we are "more committed to" some propositions than we are to other propositions. Incidentally, this idea is alluring as an explanation for the existence of phrases like *I mostly believe that...* (e.g., *I mostly believe that karma is real*). See also Beltrama (2014) for a discussion of "maximal commitment" in speaker-oriented adverbs like *totally* (e.g., *I totally believe in karma*).

'I am certain of p' under this hypothetical approach could simply point to p's particularly high ranking in this ordered commitment set. This is doable. However, an issue arises with *verum* questions, in which it seems inaccurate to say that the speaker has a high commitment the proposition being asked about. If anything the effect hat *verum* questions have is speaker incredulity, which is quite a ways away from 'I am certain'. Unless we stipulate that there is a $\textsc{verum}_A$ for assertions and $\textsc{verum}_Q$ for questions in the English language, we cannot get explain *verum* away as a simple grading of commitment.

Save us PS, you are our only hope. The idea of playing with the PS to capture certainty is conceptually promising, since its very purpose is to model the conversational pressure to increase the CG that any given illocutionary act has. In other words, the idea of a privileged CG by default says 'I want p to go in the CG' for an assertion, for example. The question then is how do we make it say 'I *really* want p to go in the CG'?

This is harder than it sounds. A part of the complication is that the meaning of the PS is compositionally opaque: the I "I want" component is hidden behind the two letters. One concrete way of compositionalizing the PS is to define it in terms of a discourse modal of sorts. Specifically, the anticipated CG can be phrased in terms of how you want the conversation to end. Reading "$\forall C'' \succ C$" as 'all C'' that follows C" (i.e., all contexts henceforth), here is one such definition.

(141) Projected set of an assertion in C (strong):

$\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]$

'If in any context henceforth the Table is empty, p is in the CG.'

An empty table means a stable context in Farkas and Bruce's terms, a natural end point of a conversation. This means that the above denotation is a requirement on how the very final output context should look like. This certainly screams 'I want p in the CG', but this statement is perhaps too strong. We can soften it by adding an element that says this is merely the speaker's intention at the time of utterance. Here is a modification, resembling the modal language even more:

(142) Projected set of an assertion in C (less strong):

$\forall C'' \succ C[\mathbf{goal}^{\mathrm{C}}_{\mathrm{SPKR}}(C'') \rightarrow [CG^{C''} \cup \{p\}]]$

'If in any context henceforth the context is one in which the speaker's conversational goals in C are met, p is in the CG.'

The predicate **goal** returns a context that meets the conversational goals of an agent in the input context (e.g., everyone is cooperative, the Table is empty). This means that the above formula says if all goes according to the speaker's plan, p will be added to the CG.

This is the normal PS for an assertion, just defined more precisely. This unfortunately does not help much for *verum*: how would we formalize the speaker's *strong* desire to put p in the CG using (142)? There may be a way to add a gradable component to (142) using e.g., Lassiter (2011)'s wisdom, but before we even dare to step in such territory, we must remind ourselves that any version of 'the speaker is very certain' will get us in deep trouble with *verum* questions, which does not encode speaker certainty. So, we are in a pickle.

Perhaps the methodology is backwards. Why don't we get a good sense of what the source of the *oomph* in a *verum* question is first, THEN take the common denominator of this and the speaker certainty in a *verum* assertion? The INDREDULITY context for *verum* questions is replicated below for examination.

(143) (A, B, C, and Steve are all in the same class. A, B, and C are talking about Steve the slacker.)

A: There is no way Steve passed the exam.

B: (looks at C like they both know something)

A: Wait. DID he pass the exam? (INCREDULITY)

The incredulity context is one in which there is some sort of non-verbal indication that the answer to the polar question is yes. (166) a variant of the same kind of context. It shows that as long as something triggers this incredulity, this type of question can be used in a monologue as well.

(144) A is in bed, about to go to sleep. He has a sudden realization.

A: Damn, I forgot to turn off the lights downstairs.

(A gets up and walks towards the stairs. From there, he can see that it's pitch black downstairs)

A: Wait. DID I turn off the lights?

The other context for *verum* questions is DID I REALLY, reproduced below.

(144) A is in bed, about to go to sleep. He is trying to remember if he turned off the lights downstairs.

A: (Self-assuredly) I turned off the lights downstairs.

(He remembers being distracted by a text message when he was coming upstairs.)

A: Wait. DID I turn off the lights?

(DID I REALLY)

A's trigger for the *verum* question here is 'maybe I DIDN'T turn off the lights'. This has the same effect as the question *did I really turn off the lights?*, which contains the lexical certainty marker *really*.

I think what these two contexts have in common is that the speaker is double checking the answer. A paraphrase for the question that works for both contexts is 'Is it the case that *I turned off the lights* is the answer?' In INCREDULITY, the newly found evidence for the positive answer prompts this question as verfication. In DID I REALLY, the possibility for the negative answer prompts the speaker to re-evaluate his previous positive answer in the form of a question.

This paraphrase of *verum* clicks nicely with what *verum* assertions mean. Speaker certainty is now paraphrasable as 'it is the case that p is the answer'. The reason that this is more emphatic than an regular assertion is because in making an assertion, you can only

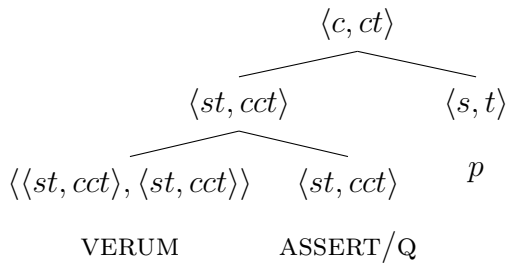
hope that the addressee will confirm what you said, thereby leading to a CG increase with that content. This hope is what the PS encodes. So in saying that it *must* end up being the case that p gets added to the CG, you are essentially leaving the addressee very little room for negotiation. So despite the semi-pessimistic opening discussion of how the PS might be connected to *verum*, it is indeed the idea of the PS that proves useful after all.

What is interesting about the paraphrase 'it is the case that p is the answer' is that what the speaker is making *at-issue* is this strong projection. So *verum* sentences are a kind of meta-discourse move that directly make reference to the PS, a discourse part. This way of approaching *verum* is not very different from how Romero & Han (2004) and Gutzmann & Castroviejo Miró (2011) envision it: *verum* operates at the discourse level.

2.5.2 Analysis: Certainty and the strong projected set

In analyzing *verum* as an illocutionary modifier, I assume the decomposition below.

(144)



The VERUM operator under this analysis is a type of force modifier: it adds restrictions on what the output CCP of ASSERT and Q should look like.

I provide the dynamic semantics of the ASSERT and Q force heads respectively below. To help us better appreciate the effect that VERUM will have, I have decomposed the PS into my formulation from before.

(145) $$[\![\text{ASSERT}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p\} & \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{p\} & \wedge \\ \forall C'' \succ C[\mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow [CG^{C''} \cup \{p\}]] & \end{array} \right]$$

'Let's discuss $\{p\}$, I am publicly committed to p, and in all contexts henceforth where my current conversational goals are met, p will be in the CG.'

(146) $[\![\text{Q}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ \forall C'' \succ C \left[\mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow \left[\begin{array}{l} CG^{C''} \cup \{p\} \vee \\ CG^{C''} \cup \{\neg p\} \end{array} \right] \right] & \end{array} \right]$

'Let's discuss $\{p, \neg p\}$, and in all contexts henceforth where my current conversational goals are met, either p or $\neg p$ will be in the CG.'

For my analysis of the VERUM operator, it will help to refer back to my initial too-strong hypothesis about what the PS encodes. This is repeated below.

(147) Projected set of an assertion in C (strong):

$\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]$

'If in any context henceforth the Table is empty, p is in the CG.'

This translates into 'when this conversation is over p must be in the CG'. This is too strong for a bare assertion, but this is precisely the kind of insistence we want to be discussing in a *verum* assertion.

First, I define the function S-PR (Strong Projection), which takes in a proposition and returns its strong projection (a partial CCP):

(148) $[\![\text{S-PR}]\!] = \lambda p \lambda C \lambda C' \left[\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]] \right]$

And this is how VERUM relates it to the force of a sentence:

(149) $[\![\text{VERUM}]\!] = \lambda F_{\langle st,cct \rangle} \lambda p \lambda C \lambda C' \left[F\big(\text{S-PR}(p)(C)(C')\big)\big(C\big)\big(C'\big) \right]$

Informally, what VERUM says is 'do whatever you were going to do with F, except do it in terms of p's strong projection instead'. It is creates a new type of force that has an output a CCP that talks about a CCP.

2.5.2.1 Verum assertions

I will now analyze *verum* assertions in light of the proposal above, and evaluate its explanatory value of the various contexts we saw earlier.

Here is a step-by-step derivation of a *verum* assertion. The sentence is *Steve DID pass the exam*.

(150) ⟦Steve DID pass the exam⟧ = ⟦VERUM ASSERT Steve passed the exam⟧ =

a. $[\![\textsc{assert}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} & \wedge \\ \forall C'' \succ C[\mathbf{goal}^{C}_{SPKR}(C'') \rightarrow [CG^{C''} \cup \{p\}]] & \end{array} \right]$

b. $[\![\textsc{verum}]\!] = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \left[F\big(\textsc{s-pr}(p)(C)(C')\big)\big(C\big)\big(C'\big) \right]$

c. $[\![\textsc{s-pr}]\!] = \lambda p \lambda C \lambda C' \left[\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]] \right]$

d. $[\![\textsc{verum}]\!](\textsc{assert}) =$

$$\lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{\textsc{s-pr}(p)(C)(C')\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\textsc{s-pr}(p)(C)(C')\} & \wedge \\ \forall C'' \succ C[\mathbf{goal}^{C}_{SPKR}(C'') \rightarrow [CG^{C''} \cup \{\textsc{s-pr}(p)(C)(C')\}]] & \end{array} \right]$$

Let's pause here to understand what (150d) is saying. It helps to paraphrase $\textsc{s-pr}(p)(C)(C')$ as 'p must be in the CG when this conversation is over'. So this translates into: 'The issue at-hand is that p must be in the CG when this conversation is over, I believe that p must be in the CG when this conversation is over, and if all goes according to my plan, you will agree with me that p must be in the CG when this conversation is over.' The last bit is admittedly quite meta. In any case, the upshot of this is that VERUM ASSERT makes the mandatory CG update the topic of discussion.

Now it is a matter of expanding S-PR. I will leave it unexpanded in the third conjunct (the PS of VERUM ASSERT) for the sake of readability.

(151) ⟦VERUM⟧(ASSERT) =

$$\lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]\} \quad \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]\} \wedge \\ \forall C'' \succ C[\mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow [CG^{C''} \cup \{\text{S-PR}(p)(C)(C')\}]] \end{array} \right]$$

Now we apply this to the proposition *Steve passed the exam*:

(152) $[\![\text{VERUM}]\!](\text{ASSERT}) =$

$$\lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{\mathbf{pass}(\mathbf{s}, \text{exam})\}]]\} \quad \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{\mathbf{pass}(\mathbf{s}, \text{exam})\}]]\} \wedge \\ \forall C'' \succ C[\mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow [CG^{C''} \cup \{\text{S-PR}(\mathbf{pass}(\mathbf{s}, \text{exam}))(C)(C')\}]] \end{array} \right]$$

'I am asserting that when all of the issues on Table are resolved, *Steve passed the exam* MUST be in the CG'

The fact that the proposition must be added to the CG in the near future of course implies that the addressee must publicly commit to this proposition as well. VERUM therefore is an indirect way of policing other discourse participants' future moves. This translates naturally into the certainty or insistence that characterizes *verum* assertions.

Now I return to the contexts in which *verum* focus in an assertion is felicitous, and evaluate the explanatory value of the present analysis for each one.

Correction, Answer, and Indeed Under the projection account of *verum*, the crucial component is that by making reference to what the projected CG is as a part of the at-issue meaning, the speaker making a commitment about *what the answer to an issue should be*. They are committing to a singular way in which an issue should be resolved: not by agreeing to disagree, not by adding $\neg p$ — it must be by everyone agreeing to p.

This does not require special explanation for why *verum* focus in an assertion is felicitous in CORRECTION, ANSWER, and INDEED.

(153) A: Steve didn't pass the exam.

B: What? He DID pass the exam. (CORRECTION)

(154) A: Did Steve pass the exam?

B: He DID pass the exam. (ANSWER)

(155) A: Steve passed the exam.

B: He DID pass the exam. (INDEED)

Any formal form of accentuating p, not limited to my account, will provide an intuitive explanation of (153) and (154). By privileging p as a resolution to the issue on the Table, it rejects $\neg p$ as an option. This point makes a theoretically appealing connection to the phenomenon of focus in general, which involves the rejection of its viable alternatives (Rooth 1985; 1992),e.g., STEVE passed the exam = 'ONLY Steve passed the exam, not the others'. In some sense, *verum* focus is just focus at the discourse level. An advantage to this analysis of *verum* is that it fits within the more general theory of focus, which is not a claim that is be able to be made by previous accounts.

Furthermore, while Gutzmann & Castroviejo Miró (2011)'s downdate account of *verum* faced difficulties in explaining INDEED (in (155), in my case the story is a simple one: by making reference to the positive projection as a reaction to a positive assertion — which has a positive projection — A is directly confirming B's conversational anticipation. in other words, the effect is 'indeed'.

Out-of-the-blue. The final context, one pointed out by Gutzmann & Castroviejo Miró (2011), illustrates the observation that *verum* focus is generally bad out of the blue. Since this was their strongest motivation for the QUD downdate account, I will be in deep trouble if my proposal does not have a valid justification for this effect.

Here is the fact illustrated again:

(156) (You're expecting a package, and your roommate knows this. The doorbell rings. You are certain that it's the mailman. You tell your roommate:)

#My package HAS arrived! (OUT-OF-THE-BLUE)

Informally, there IS an explanation. If what *verum* says is 'the resolution to the issue must be p' as a result of committing the speaker to a positive projection, there needs to have been an issue on the Table in the first place. As a construction that polices other discourse participants' reactions, it presupposes that there was an inquisitive move made prior to this *verum*.

This is just an intuitive effect of why *verum* is strange out of the blue. Formally, I am currently in trouble. There is nothing in my denotation of VERUM that carries this presupposition that the Table in the pre-utterance context is non-empty. It only says *when* the Table is empty, it better be the case that p is in the CG. I direct the reader to re-examine the formula below, now that this shortcoming is highlighted.

(157) $[\![\text{VERUM}]\!] = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C'\left[\ F\big(\text{S-PR}(p)(C)(C')\big)\big(C\big)\big(C'\big)\ \right]$

(158) $[\![\text{S-PR}]\!] = \lambda p\lambda C\lambda C'\left[\ \forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]\ \right]$

So in order for my analysis to be complete at the technical level, I must add something to the denotation of S-PR to make it so that it says 'only affirming reactions to the current issue allowed'. One formal notion of issue removal is the stack operation *pop*, which is a tool that Farkas and Bruce appeal to in modeling what makes an answer an answer (as opposed to an inquiry). Like them, let us define $pop(T)$ as the set obtained by "popping" (removing) the top-most item in T.

(159) $pop(T)$ = the set resulting from popping off the top-most item of stack T

(160) $[\![\text{S-PR}]\!] = \lambda p\lambda C\lambda C'\left[\ \forall C'' \succ C[pop(T^C) = T^{C''} \rightarrow [CG^{C''} \cup \{p\}]]\ \right]$

'Give me p and I will give you the strong projection of p: if in all contexts C'' henceforth the Table is one that results from removing the top-most issue on the current Table, then p needs to be in the CG in C''.'

The reference to *issue removal* now presupposes that there was an issue on the Table, making a context like OUT-OF-THE-BLUE a case of presupposition failure.

2.5.2.2 Verum questions

The novelty of my account is that I am aiming for a unified account of *verum* assertions and questions. What will combining the polar question force head Q with VERUM do?

(161) $[\![\text{VERUM}]\!] = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C'\left[\ F\big(\text{S-PR}(p)(C)(C')\big)\big(C\big)\big(C'\big)\ \right]$

(162) $[\![\text{Q}]\!] = \lambda p\lambda C\lambda C'\left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ \forall C'' \succ C\left[\ \mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow \left[\begin{array}{l} CG^{C''} \cup \{p\} \vee \\ CG^{C''} \cup \{\neg p\} \end{array}\right]\ \right] & \end{array}\right]$

(163) $[\![\text{S-PR}]\!] = \lambda p\lambda C\lambda C'\left[\ \forall C'' \succ C[pop(T^{C}) = T^{C''} \rightarrow [CG^{C''} \cup \{p\}]]\ \right]$

Here is what the composition would predict. The sentence is *DID I turn off the lights?*

(164) [[DID I turn off the lights?]] = [[VERUM Q I turned off the lights]] =

a. [[VERUM]](Q) =

$$\lambda p\lambda C\lambda C'\left[\begin{array}{ll} top(T^{C'}) = \{\text{S-PR}(p)(C)(C'), \neg\text{S-PR}(p)(C)(C')\} & \wedge \\ \forall C'' \succ C\left[\ \mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow \left[\begin{array}{l} CG^{C''} \cup \{\text{S-PR}(p)(C)(C')\} \vee \\ CG^{C''} \cup \{\neg\text{S-PR}(p)(C)(C')\} \end{array}\right]\ \right] & \end{array}\right]$$

We can already see at this intermediate point that a *verum* question is a meta-conversational question about the validity of a strong positive projection. In other words, 'is it the case that the answer to this issue is *yes*'? is what it is asking. Here is the complete derivation, with S-PR in the second conjunct unexpanded for readability again.

(165) [[DID I turn off the lights?]] = [[VERUM Q I turned off the lights]] =

a. [[VERUM]](Q) =

$$\lambda p\lambda C\lambda C'\left[\begin{array}{ll} top(T^{C'}) = \left\{\begin{array}{l} \forall C'' \succ C[pop(T^{C}) = T^{C''} \rightarrow [CG^{C''} \cup \{p\}]], \\ \neg\forall C'' \succ C[pop(T^{C}) = T^{C''} \rightarrow [CG^{C''} \cup \{p\}]] \end{array}\right\} & \wedge \\ \forall C'' \succ C\left[\ \mathbf{goal}^{C}_{\text{SPKR}}(C'') \rightarrow \left[\begin{array}{l} CG^{C''} \cup \{\text{S-PR}(p)(C)(C')\} \vee \\ CG^{C''} \cup \{\neg\text{S-PR}(p)(C)(C')\} \end{array}\right]\ \right] & \end{array}\right]$$

b. $[\![\text{VERUM Q}]\!]$(I turned off the lights) =

$$\lambda C \lambda C' \left[\begin{array}{l} top({T^{\mathrm{C}}}') = \left\{ \begin{array}{l} \forall C'' \succ C[pop(T^{\mathrm{C}}) = {T^{\mathrm{C}}}'' \rightarrow [C{G^{\mathrm{C}}}'' \cup \{\textbf{turn-off}(\mathrm{I}, \mathrm{lights})\}]], \\ \neg\forall C'' \succ C[pop(T^{\mathrm{C}}) = {T^{\mathrm{C}}}'' \rightarrow [C{G^{\mathrm{C}}}'' \cup \{\textbf{turn-off}(\mathrm{I}, \mathrm{lights})\}]] \end{array} \right\} \wedge \\ \forall C'' \succ C \left[\begin{array}{l} \textbf{goal}^{\mathrm{C}}_{\mathrm{SPKR}}(C'') \rightarrow \left[\begin{array}{l} C{G^{\mathrm{C}}}'' \cup \{\text{S-PR}(\textbf{turn-off}(\mathrm{I}, \mathrm{lights}))(C)(C')\} \vee \\ C{G^{\mathrm{C}}}'' \cup \{\neg\text{S-PR}(\textbf{turn-off}(\mathrm{I}, \mathrm{lights}))(C)(C')\} \end{array} \right] \end{array} \right] \end{array} \right]$$

'I am asking if it is the case that *I turned off the lights* is the answer to the question currently on the Table'

Since a *verum* question under this analysis is *a question about the positive answer*, this fits in nicely with the INCREDULITY and DID I REALLY contexts. In both of these cases, the motivation for asking the *verum* question is to verify the status of *I turned off the lights* as the answer to the question of whether they did.

(166) A is in bed, about to go to sleep. He has a sudden realization.

A: Damn, I forgot to turn off the lights downstairs.

(A gets up and walks towards the stairs. From there, he can see that it's pitch black downstairs)

A: Wait. DID I turn off the lights?

(INCREDULITY)

(166) A is in bed, about to go to sleep. He is trying to remember if he turned off the lights downstairs.

A: (Self-assuredly) I turned off the lights downstairs.

(He remembers being distracted by a text message when he was coming upstairs.)

A: Wait. DID I turn off the lights?

(DID I REALLY)

(166) A, B, C, and Steve are all in the same class. A, B, and C are talking about Steve the slacker.

A: There is no way Steve passed the exam.

B: (B looks at C like they both know something) Well actually …

A: Wait. DID he pass the exam? (INCREDULITY)

I think this is in line with Gutzmann & Castroviejo Miró (2011)'s observation that a *verum* question requires there to be a question already present in the preceding context. If the question is about the answer to some question, which is my version of the effect, this pattern is predicted.

2.6 Discussion

I have presented a novel analysis of *verum* focus in English by appealing directly to the notion of the projected set. The core idea is that *verum* raises the issue of *what is a permitted resolution* to the issue at hand. So, it is an inquiry about the projected set.

One potential worry about this approach is that the certainty (the strong projection) *is* a part of what is on the Table, making it at-issue. This in principle predicts that this certainty should be challengeable. This of course has been shown to not be the case. It is hard to determine if this is bad news or good news for my analysis. The complication is that it is non-at-issue (specifically, illocutionary) meaning that is at-issue. The interaction of the two levels of meaning makes determine if the prediction is that a reaction like "That's not true!" to a *verum* assertion is supposed to be felicitous because that is what the speaker is committed to, or if it is supposed to be bad because the commitment is about something that does not have a truth value. My inclination is the latter but it is worthwhile evaluating what it means for non-at-issue and at-issue meaning to overlap in this way.

I'd like to end this chapter with a note on other expressions of *verum* in natural language. I start with additional considerations in English first, and follow with observations from Japanese.

2.6.1 Additional considerations in English

Verum focus in English shows up in WH-questions too, not just yes/no questions. Here is an example.

(167) A sent B on an errand to buy birthday party supplies.

A: Did you buy candles?

B: No.

A: Did you buy birthday hats?

B: No.

A: Did you buy balloons?

B: No.

A: Well what DID you buy??

I think the translation of A's emphatic WH-question is 'what is the POSITIVE answer to the question?' Currently B's answer to the QUD 'What are the things B bought for the party' is a negative one: 'not candles, not birthday hats, and not balloons.' These negative answers certainly help answer the QUD, but it is not the most helpful. All we know right now is that if he bought something it is not a candle, not a birthday hat, and not a balloon. That could be a lot of things. The emphatic WH-question is a way of asking no no, give me a positive proposition as your answer.

I stay agnostic of the compositional means of deriving *verum* WH-questions, but I am excited for the paraphrase above. The impressionistic meaning of a *verum* WH-question heavily echoes my approach to certainty as an issue about the positive answer in the context. With high hopes, I leave this for future work.

2.6.2 Japanese *-tomo*

What are cross-linguistic implications of my analysis of *verum*? First, consider the Japanese translation of this mild plot twist from Star Wars Episode IV.

(168) Ben: obiwan kenoobi? obiwan. iyaa, kono namae-o kiku-no-wa
Obi-Wan Kenobi? Obi-Wan. wow this name-ACC hear-FACT-TOP
hisashiburi-da. natsukashii.
not.in.long.time-COP how.nostalgic
'Obi-Wan Kenobi? Obi-Wan. Now, that's a name I've not heard in a long time. A long time.'

Luke ojisan-wa shitteru-mitainan-da. kare-ga iuniwa shinda-rashii-kedo
uncle-TOP know-EVID-COP he-NOM according.to died-REPORT-BUT
'I think my uncle knows him. He said he was dead.'

Ben: shin-deinai-yo. mada-ne.
die-NEG-NOTIF not.yet-CONFIRM
'He's not dead. Not yet.'

Luke: shi-tteiru-no?
know-ASP-FACT
'Do you know him?'

Ben: mochiron **shi-tteiru-tomo**. watashi-no-koto -da-yo.
of.course know-ASP-TOMO ME-GEN-FACT COP-NOTIF
'Of course I know him. He's me.'

The relevant example is the bolded portion of Ben (Obi-Wan)'s last line: *shi-tteiru-tomo*. The equivalent line in the original English script is 'of course I know him'. As the English version and the context suggest, this is an emphatic 'I know'. Compositionally, the source of the emphasis is the sentence-final particle (SFP) *-tomo*. A minimal pair is given below.

(169) a. shi-tteiru
know-ASP
'I know (him)'

b. shi-tteiru -tomo
know-ASP -TOMO
'of course I know (him)', 'I know (him) indeed', 'I DO know (him)', etc.

To the best of my knowledge, the present discussion of *verum* or polarity emphasis in Japanese is a new endeavor in the domain of formal semantics. Among some of the more

descriptive work, *-tomo* is mentioned in passing by Matsui (2000) in comparison to the notification particle *-yo*, and Nakamura (2000) comments on its impressionistically "masculine" tone. Prassol (2000) categorizes *-tomo* among particles associated with "strengthening the emphasis of the utterance," again forming a class with other more well-known particles like *-yo* and *-no*. Nakano (2013) cites many examples of *-tomo* found in modern Japanese literary works, and concludes with the impression that *-tomo* means 'without a doubt true', adding the comment that in some cases it has a weaker paraphrase of '(although you may not necessarily know directly,) it's certain that it should be so if you think about it' (my translation, p.104).

The online Japanese dictionary Weblio `<http://www.weblio.jp/>` defines the sentence-final *-tomo* as '(marking) a strong assertion, used when firmly declaring something' (my translation). Weblio's Japanese-English dictionary `<http://ejje.weblio.jp/>` translates *-tomo* as 'certainly; of course; to be sure; surely'. Both of these entries suggest the emphatic nature of *-tomo*. Beyond the converging intuition that *-tomo* involves some level of speaker certainty, there is no agreed upon answer to the question of what precisely *-tomo* does in discourse.

Given the obscure status of the SFP *-tomo*, we might ask if it is perhaps too low frequency or too marked otherwise to receive proper formal attention. I'd like to suggest that it is actually much more mainstream than the descriptive literature suggests. The following are naturally occurring examples of *-tomo* in Japanese, drawn from public microblog posts or "tweets" from Twitter between February 19th, 2017 and August 13th, 2017. Twitter was chosen as the corpus due to its informal platform mimicking natural, informal conversations best. Using an automated Twitter search code, tweets with the exact Japanese sequence *mashitatomo* (HON-PAST-TOMO) were collected during this time period. The decision to include the honorific marker was to get unambiguous use of *tomo* in the most efficient way (*tomo* alone is homophonous (pitch accent excluded) with 'also that', 'Tomo (a name)', 'friend', among other things). There are 91 total tweets with *mashitatomo* from this period,

which is a non-trivial amount of occurrences. Since the search did not include non-past forms or plain, non-honorific forms of *-tomo*, there are likely more tokens of the SFP in this corpus. Below are some selected examples from this dataset.

(170) a. (That reminds me of the movie I saw with a girl I liked at the time.) e? sono
hm that
onnanoko? furare-mashi-ta-tomo hahhahha
girl dump-HON-PAST-TOMO hahaha
'What's that? That girl? Of course she dumped me hahaha'

b. natsukashii. twitter hajimetate-no-koro kyooto iki-mashi-ta-tomo ee.
how.nostalgic Twitter just.started-GEN-time Kyoto go-HON-PAST-TOMO yes
kiyomizudera.
Kiyomizu.Temple
'Reminds me of the good ol' days. When I first started Twitter I went to Kyoto, yeah. Kiyomizu Temple.'

c. A: kudanka nau. homma tooyoko kuso
Kudanka now seriously Tooyoko shit
'At Kudanka (station) right now. The Tooyoko line seriously sucks'

B: tooyoko-wa 10-ppun-mae koodoo-de densha noranaito
Tooyoko-TOP 10-minutes-before action-with train have.to.get.on
kakujitsuni okureru-tte mukashi-kara iwareteru-kara
definitely be.late-QUOTE old.times-since has.been.said-because
shooganai
is.inevitable
'They've always said that if you're taking the Tooyoko line you need to get on the train 10 minutes earlier than you normally would. Nothing you can do about it.'

C: 20-ppun-mae-ni ie de-mashi-ta-tomo ee
20-minutes-before-DAT house leave-HON-TOMO yes
'I left my house 20 minutes in advance, yeah'

d. A: 2-mai-me mayuu
2-CL-one Mayu
'The second [picture] is me!'

B: kizui-teori-mashi-ta-tomo
notice-ASP-HON-PAST-TOMO

'Of course I'd noticed (already)!'

e. hai, hai baito oobo-itashi-mashi-ta-tomo
yes yes part.time.job apply-do.HON-HON-PAST-TOMO
'Yeah yeah, I did apply for a job'

f. ee ee nete-mashi-ta-tomo
yes yes sleep-HON-PAST-TOMO
'Yeah yeah, I was asleep'

g. A: a, pakut-ta
oh steal-PAST
'oh my god, you stole that (idea)'

B: pakuri-mashi-ta-tomo ee, ee
steal-HON-PAST-TOMO yes yes
'Yeah yeah, I stole it'

h. mochiron koocha-wa aaruguree-o ire-mashi-ta-tomo
of.course tea-TOP earl.grey-ACC pour-HON-PAST-TOMO
'As for tea, of course I served early grey '

i. A: hino-san-no kitagami-sama hajimete mi-ta-kamo-kamo
Hino-Ms.-GEN Kitagami-Ms.HON for.the.first.time see-PAST-maybe-maybe
'I think this might be the first time I've seen you (Hino) in a Kitagami cosplay!'

B: hajimete yari-mashi-ta-tomo
for.the.first.time do-HON-PAST-TOMO
'I did do it for the firs time, indeed'

j. SSA? mochiron hazure-mashi-ta-tomo
SSA of.course lose-HON-PAST-TOMO
'(the ticket for a concert at) Saitama Super Arena? Of course I wasn't selected for it.'

Like *verum* focus in Engish, all of these examples are emphatic of the truth of p. Many of the examples are translatable as *verum* focus in English (e.g., (170g)), but not all of them are (e.g., (170a)): sometimes the more relevant translation of the certainty is 'of course'. In addition to the flavor of 'of course,' many of the examples carry a defensive tone

paraphrasable as 'what are you going to do about it? (there's nothing you can do about it)'. (170f) is a good example: *I was asleep*-tomo. Even though there is no preceding context to this utterance, the most relevant reading of this is 'yeah I was sleeping, so what?', as in, the speaker knew that sleeping was going to be frowned upon, but he did it anyway. To clarify, this is an implicature (i.e., it is cancelable). Many of these examples (in fact, 32 out of the 91 total tokens) are accompanied by *ee*, 'yes', which is interesting since not all of them are explicitly preceded by a polar question. The sleeping example is one of the out-of-the-blue tweets with 'yes' (repeated twice) preceding the *-tomo* sentence. Forcing the reader to accommodate a question also adds to the factor the defensiveness of these instances of *-tomo*: it implies that what the speaker did was questionable. This defensive tone is comparable to the English 'that's right' used out of the blue: 'that's right I took a nap'.

A crucial difference between English *verum* and Japanese *-tomo* is that the latter is arguably not a force modifier, which was the analysis given to *verum* focus. *-tomo* cannot co-occur with the question marker *-ka* or any particle marking force for that matter, including the "soft" assertion marker *-wa* (often associated with feminine speech (Davis 2011; Minami 1993)).

(171) a. * nete-mashi-ta -ka -tomo?
sleep-HON-PAST -Q -TOMO
Intended: 'WERE you sleeping?'

b. * nete-mashi-ta -tomo -ka?
sleep-HON -TOMO -Q
Intended: 'WERE you sleeping?'

(172) ne-ta -wa
sleep-PAST -ASSERT
'I slept'

(173) * ne-ta -wa -tomo
sleep-PAST ASSERT TOMO
Intended: 'I slept, indeed'

(174) * ne-ta -tomo -wa
sleep-PAST ASSERT TOMO

Intended: 'I slept, indeed'

-tomo is likely a force particle itself, competing for the same position as the assertion marker and the question marker. One piece of evidence supporting this claim is the fact that *-tomo* appears after a proposition but before the notification particle *-yo* (cf., Chapter 4), which is the same distribution as *-wa* and *-ka*.

(175) a. neru -wa -yo
sleep ASSERT YO
'FYI, I'm going to sleep'

b. neru -ka -yo
sleep Q YO
'Like I would sleep!' or 'You're going to fucking sleep??'

(176) (Example from Twitter)

A: bocchide itta-no -ka?
alone went-FACT Q
'You went alone (to see the fireworks)?'

B: soo -tomo -yo
right TOMO YO
'That is correct, indeed!'

This means that *-tomo* sentences constitute an illocutionary class of its own. We can run tests from Chapter 1 to make sure that *-tomo* contributes certainty as a part of it illocutionary meaning, and not, for example, expressive meaning. First, it is fairly clear that the certainty is non-at-issue; it cannot be challenged with "That's not true!", or the more natural translation in Japanese, "That's a lie!". In the example below, I shift to a context of accusation in which certainty can be naturally challenged. These examples show that "That's a lie!" can only be targeting the proposition *There is evidence that Satoshi broke the vase*, and not the part about the speaker certainty.

(177) A: satoshi-ga kabin-o wa-tta -to-iu shooko-wa ari-masu-ka?
Satoshi-NOM vase-ACC break-PAST that-say evidence-TOP there.is-HON-Q
'Is there evidence that Satoshi broke the vase?'

B: ari-masu -tomo!
there.is-HON TOMO
'There IS evidence!'

C: uso-da! sonna shooko-wa -nai.
lie-COP such evidence-TOP there.is.NEG
'That's a lie! There isn't such evidence.'

(178) A: satoshi-ga kabin-o wa-tta -to-iu shooko-wa ari-masu-ka?
Satoshi-NOM vase-ACC break-PAST that-say evidence-TOP there.is-HON-Q
'Is there evidence that Satoshi broke the vase?'

B: ari-masu -tomo!
there.is-HON TOMO
'There IS evidence!'

C: ?? uso-da! sonnani kakushin-o motte-nanka-inai daro! (omae-wa
lie-COP that.much certainty-ACC have-PEJ-neg DARO you-TOP
satoshi-o hanninn-ni mise-tai kara tashikana furi-o shiteru
Satoshi-ACC culprit-DAT make.seem-want because certain act-ACC do.ASP
dake -da.)
only COP
'That's a lie! You're only pretending to be certain because you want to make it seem like Satoshi did it.'

Of course, the a THWT reaction is much more felicitous than "That's a lie!", again suggesting that the certainty is not at-issue meaning:

(179) A: satoshi-ga kabin-o wa-tta -to-iu shooko-wa ari-masu-ka?
Satoshi-NOM vase-ACC break-PAST that-say evidence-TOP there.is-HON-Q
'Is there evidence that Satoshi broke the vase?'

B: ari-masu -tomo!
there.is-HON TOMO
'There IS evidence!'

C: ha?? nan-da sorya. sonnani kakushin-o motte-nanka-inai daro!
huh WH-COP that.TOP that.much certainty-ACC have-PEJ-neg DARO
(omae-wa satoshi-o hanninn-ni mise-tai kara tashikana
you-TOP Satoshi-ACC culprit-DAT make.seem-want because certain
furi-o shiteru dake -da.)
act-ACC do.ASP only COP

'What the hell is that? You're only pretending to be certain because you want to make it seem like Satoshi did it.'

The next test is our moment of truth: the peripherality test. Is the certainty "beside the point" like a conventional implicature? First, here is a baseline example with honorific marking — a type of expressive meaning (McCready 2010) — being called into question.

(180) A: kono hon, dare-ga kai-ta -no?
this BOOK who-NOM write-PAST Q
'Who wrote this book?'

B: suzuki-sama-ga okakininarareta hon -desu.
Suzuki-HON-NOM write.HON.PAST book -COP.HON
'This book was written by Mr. Suzuki (whom I highly revere)'

A: Chotto matte. hanashi zureru kedo, Suzuki, sonnani sonkeesuru
a.little wait conversation shift but Suzuki that.much respect
hodo-no yatsu -janai -yo.
extent-GEN person.PEJ is.not YO
'Hold on. This goes off topic, but: Suzuki isn't someone you need to honor/revere/respect that much'

My best translation of *this is beside the main point* in Japanese is literally 'the (topic of the) conversation shifts', which approximates things being "on" or "off" topic.[2] The expression of reverence conveyed by the honorific marking in B's utterance is "extra" information in my judgment.

[2]As it turns out, *main point* is hard to translate into Japanese. Here is my attempt at translating it literally, but I find it slightly awkward and unnaturalistic still:

(1) Chotto matte. (B-san no i-tteru koto no) yooten to betsu -da
a.little wait B-san GEN say-PROG thing GA main.point than separate COP
kedo: Suzuki, sonnani sonkeesuru hodo-no yatsu -janai -yo.
but: Suzuki that.much respect extent-GEN person.PEJ is.not YO
'Hold on. This is separate from your main point, but: Suzuki isn't someone you need to honor/revere/respect that much'

The next judgment was admittedly a difficult one (and therefore would benefit from a large scale acceptability judgement task), but I still feel that it is degraded compared to (180).

(181) A: satoshi-ga kabin-o wa-tta -to-iu shooko-wa ari-masu-ka?
Satoshi-NOM vase-ACC break-PAST that-say evidence-TOP there.is-HON-Q
'Is there evidence that Satoshi broke the vase?'

B: ari-masu -tomo!
there.is-HON TOMO
'There IS evidence!'

A: ? chotto matte. hanashi zureru kedo, sonnani kakushin
a.little wait conversation shift but that.much certainty
aru-n-desu -ka?
have-FACT-HON Q
'Hold on. This goes off topic, but: you have *that* much certainty about this?'

So there is some validity to the argument that *-tomo* is a marker of force. It seems to be that while English expresses strong assertions by modifying the ASSERT head with VERUM, Japanese has a single morpheme that does two jobs in one. In other words, *-tomo* just may be the fusion of ASSERT and VERUM as a single force head.

(182) $[\![\text{-}tomo]\!] =$

$$\lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]\} \quad \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\forall C'' \succ C[T^{C''} = \emptyset \rightarrow [CG^{C''} \cup \{p\}]]\} \wedge \\ \forall C'' \succ C[\mathbf{goal}^{C}_{SPKR}(C'') \rightarrow [CG^{C''} \cup \{\text{S-PR}(p)(C)(C')\}]] \end{array} \right]$$

A question that follows from this is whether Japanese also has a force particle that fuses VERUM and Q. How a *verum* question translates into Japanese may be insightful.

(183) A: Satoshi is an idiot but I'm sure he didn't get a ZERO on the exam, at least.

B: Erm.. actually...

A: moshikashite {*majide/hontooni*} ree-ten da-tta -no -ka?
possibly seriously/truly zero-point COP-PAST FACT Q
'Is it possible that he actually got a zero?'

Somewhat surprisingly, *verum* manifests lexically in a question in Japanese. This raises the question of why *verum* does not show up functionally as it does with assertions. This is a question I am presently not prepared to answer, but I do think a more cross-linguistic picture would be insightful for the theory of *verum* for the future.

2.7 Conclusion

In this chapter I have argued for an analysis of *verum* or positive polarity emphasis as an illocutionary modifier that encodes a *strong projection* in the discourse that the addition of the affirmative $\{p\}$ is the only way to resolve the issue on the Table. In a *verum* assertion, this strong projection is the topic the speaker is committing to and making at-issue (i.e., 'the answer to this is p'), and in a *verum* polar question the speaker asks if this strong projection is valid (i.e., 'is it the case that the answer to this is p?'). Empirically, this approach accounts for a wider range of data than previously possible. Theoretically, this analysis allows for a treatment of *verum* focus as a variant of canonical contrastive focus: *verum* says that the mutual commitment to p is the only way to clear the Table, and that no other moves including adding $\neg p$ to the CG is allowed. Additionally, this analysis builds a lot of appeal for the Table framework as tool for analyzing illocutionary meaning: *verum* presents a case in which the concept of the projected set is very real and very vital.

Returning to the theme of this dissertation, the emphaticness or the intensity of *verum* is now clear: it creates a kind of context structure in which some of the addressee's discourse options are taken away. Dictating that $CG \cup \{p\}$ be the only way in which the conversation can end coerces the addressee into commitment of p in upcoming contexts. Although *verum* under this view does not directly impose a particular CG update as a result of utterance (e.g., unlike conventional implicatures), it still has the same effect in which the speaker takes exclusive control of what the participants' joint commitments are to be.

In Chapter 3, I examine yet another class of sentences that indirectly controls what enters the CG: EXCLAMATIVES.

CHAPTER 3

INVERSION EXCLAMATIVES AND NON-INQUISITIVE ILLOCUTIONARY ACTS

3.1 Introduction

The original intention of the Table framework by Farkas & Bruce (2010) was to account for the discourse behavior of assertions and questions, and because of this we have certainly come to understand the similarities and differences these two classes of sentences have at the illocutionary level. There are, however, types of sentences whose discourse contributions are still relatively mysterious. One such sentence type is EXCLAMATIVES. This chapter examines the dynamic semantics of exclamatives under the Table framework.

A common intuition about exclamatives is that they are *intensificative* in their meaning in some way. Consider (184a-c), for example: all of these sentences express the speaker's heightened emotion about the soup's spiciness.

(184) a. Boy, is this soup spicy! (POSITIVE INVERSION EXCLAMATIVE)

b. Isn't this soup spicy! (NEGATIVE INVERSION EXCLAMATIVE)

c. How spicy this soup is! (WH-EXCLAMATIVE)

Positive inversion exclamatives (cf., Clark & Lindsey 1990; Huddleston 1993; McCawley 1973; Rett 2011; Zanuttini & Portner 2003) have the form of a positive polar question. Its negative counter part is the negative inversion exclamative, which has only begun to receive attention in recent years (Taniguchi 2016b;c; Wood 2014). While both resemble yes/no questions in form, intonationally and pragmatically, they are not questions.

WH-exclamatives, which are the most studied of the types of exclamatives (cf., Abels 2010; Castroviejo Miró 2008a; Chernilovskaya & Nouwen 2012; Collins 2005; Delfitto & Fiorin 2014; Grimshaw 1979; Gutiérrez-Rexach 2008; Rett 2011; Zanuttini & Portner 2003; among others), employ WH words to express what is typically assumed to be the high degree

of some scalar property. The WH is typically *what (a)* or *how* cross-linguistically, although some languages like Dutch and Catalan have a wider range of WH-words that can be used to exclaim with (Castroviejo Miró 2006; Chernilovskaya & Nouwen 2012).

Much of the interest of exclamative researchers has been the degree(-like) interpretation that exclamatives are perceived to have. For example, *how spicy!* seems to suggest that the degree of spiciness is very high. The illocutionary meaning of exclamatives is often searched from this type of observation, and the question is usually why a sentence can mean 'very' without saying *very*, although in recent years there have been findings that suggest the intensification is not always about high degrees (Chernilovskaya & Nouwen 2012; Taniguchi 2016c). This chapter contributes further observations concerning the discourse properties of exclamatives. Particularly of interest is the idea that exclamatives seem to be emotive *reactions* to something rather than an invitation for discussion of something. While I am not the first to report this type of intuition (Castroviejo Miró 2008a; Collins 2005), I do provide empirical diagnostics to further this observation and propose a formal means of capturing this as an illocutionary relation using the Table framework. In this way this work is a first of its kind.

This chapter addresses the following four questions: (i) Why do exclamatives look like questions? (ii) What is the source of the intensity in exclamatives? (iii) Are they all the same for different exclamative subtypes? and (iv) How does this intensification relate to exclamatives' purpose in discourse? The short answers are: (i) They are an illocutionary class that derives from questions (ii) It depends on the type of exclamative, although (iii) They have in common that they dictate what goes in the CG by virtue of being a "self-answered question" and (iv) By not being inquisitive, they constitute a class of sentences that serve as reactions rather than issue-raisers.

This chapter will largely cover the more understudied INVERSION EXCLAMATIVES, starting with some empirical observations. In §3.2, I open with the discussion of *subjectivity*, a property that both positive and negative inversion exclamatives have in common. In §3.3, I

observe properties specific to the positive variant and introduce tools necessary to analyze them. In §3.4 will do the same with negative inversion exclamatives. An analysis using the λ-Table framework will be given in §3.5. Note that the review and criticism of previous analyses of exclamatives come late in the narrative in §3.6, in the context of evaluating the present analysis in contrast to the existing accounts. None of the formal tools from previous accounts will be presupposed in my analysis. I close with a discussion of the implications of my analysis and preview how it may extend to WH-exclamatives in §3.7.

3.2 Subjectivity in inversion exclamatives

3.2.1 Subjectivity and gradability: background

Previous work on exclamatives have either implicitly or explicitly assumed that exclamatives select for gradable predicates, and much of the objective in the exclamative literature has been to formally derive the supposed degree interpretation that this clause type evokes. This sensitivity to scalarity certainly seems to be present for for inversion exclamatives:

(185) Gradable predicates - Pos-Ex

a. Isn't that { tall, stupid, big, beautiful, mean }!

b. Isn't he a { jerk, idiot, genius, delight, asshole }!

(186) Gradable predicates - Neg-Ex

a. Boy, is that { tall, stupid, big, beautiful, mean }!

b. Boy, is he a/an { jerk, idiot, genius, delight, asshole }!

(187) Non-gradable predicates - Pos-Ex

a. ?? Boy, is that { dead, ceramic, non-refundable, electronic }!

b. ?? Boy, is he a/an { teacher, student, doctor, non-Methodist }!

(188) Non-gradable predicates - Neg-Ex

a. ?? Isn't that { dead, ceramic, non-refundable, electronic }!

b. ?? Isn't he a { teacher, student, doctor, non-Methodist }!

This characterization, however, is a tricky one, since gradable predicates are *subjective*, and subjective predicates are gradable (Bylinina 2017). By subjective, I am referring to predicates that intuitively depend on personal preferences for their truth condition. *Fun* is a classic case:

(189) Roller coasters are fun (Lasersohn 2005)

If I utter (189), I mean that roller coasters are fun for *me*; I am not saying that it is fun for everyone. Following the same sort of intuition, Lasersohn, who calls predicates like *fun* *predicates of personal taste*, analyzes them as lexically having a *judge* index of evaluation:

(190) $[\![\text{fun}]\!]^{w,j} = \lambda x.x$ is fun for j in w

This contrasts with objective predicates that do not have a judge index:

(191) $[\![\text{non-refundable}]\!]^{w} = \lambda x.x$ is non-refundable in w

One of the diagnostics for subjectivity is FAULTLESS DISAGREEMENT: if I assert that roller coasters are fun and someone else says that they are not (as in (192)), neither of us has said anything false.

(192) A: Roller coasters are fun.

B: No they aren't.

A: I guess we can agree to disagree.

In contrast, someone has to be wrong with *ceramic*, which is not subjective. The vase is either ceramic or it isn't; A and B cannot both be right in the discourse below.

(193) A: This vase is ceramic.

B: No it isn't.

A: ?? I guess we can agree to disagree.

One expectation from the judge account of subjective predicates is that you should be able to pronounce the judge argument overtly. The attitude predicate *find* is said to do exactly that (Sæbø 2009):

(194) a. I find rollercoasters fun

b. I find this soup spicy

(195) a. # I find this vase ceramic

b. # I find this shirt non-refundable

This diagnostic must be taken with a grain of salt. There is a debate in the literature as to what *find* is diagnosing, exactly (Bylinina 2017; Kennedy 2016; Stephenson 2009; Umbach 2016; van Wijnbergen-Huitink 2016). One of the issues surrounding this is that there are predicates like *tall* that exhibit faultless disagreement but are marked under *find*:

(196) (A and B know Steve's exact height: 5'9".)

A: Steve is tall.

B: No he's not.

A: I guess we can agree to disagree.

(197) ?? I find Steve tall

In (196), A and B are not in disagreement about Steve's actual height. They are in disagreement about the standard of tallness, about whether he counts as tall to each of them or not. In this way, *tall* is still subjective. The strangeness in (197), then, is surprising. An account of *find* will not be explored here (cf., aforementioned references), but it suffices to say here that subjectivity is not a homogenous category.

For the purposes of this chapter I will use *subjective predicates* to refer to *predicates that allow for faultless disagreement*. These are the predicates compatible with inversion exclamatives. I will risk oversimplification in favor of highlighting the issues most relevant to

this dissertation, which includes reactions to sentences (like contradiction and disagreement) as diagnostics of what is at-issue and non-at-issue.

3.2.2 Subjectivity in the λ-Table framework

I take a slight detour here to consider the formal means of analyzing subjectivity in language. You can disagree with subjective predicates, but you cannot not deny them (Beltrama 2016; Umbach 2016). Consider the pair of conversations below.

(198) A: Rollercoasters are fun.

B: I disagree. I don't find rollercoasters fun at all.

(199) A: Rollercoasters are fun.

B: ?? That's not true! I don't find rollercoasters fun at all.

B′: ?? That's not true! You don't find rollercoasters fun at all!

(198) is faultless disagreement again, with the disagreement explicitly articulated. (199) shows two attempts at contradicting A's statement, which prove unsuccessful. B's attempt is to claim that A's statement is false based on their (B's) contrary opinion; this is not possible. B′'s attempt is at claiming A's statement is false by denying A's opinion. That, of course, is also not possible: A presumably knows A's opinion best.

Umbach (2016) provides a Table analysis of subjective predicates embedded under the attitude verb *finden* in German. Her example (with her judgments) is reproduced below:

(200) Ann: Ich finde die Skulptur schön.

'I think that the sculpture is beatutiful.'

a. # Nein, sie ist nicht schön.

'No, it is not'

b. Ich finde sie nicht schön.

'I don't think it is beautiful.'

c. ? Ja, sie ist schön.

'Yes, it is.'

With the subjective attitude explicitly expressed with *finden*, Ann's assertion is of course uncontradictable. Umbach's analysis of the non-deniability is that subjective judgments *do not put anything on the Table*, therefore, it is not deniable. This means that the point of subjective assertions is NOT to add the propositional content to the CG. Rather, Umbach proposes, its purpose is to add it to the speaker's discourse commitment set only.

I agree with Umbach's intuition that subjective judgments allow for the speaker to commit to their opinion without putting that opinion on the Table, but I am skeptical about her claim that there is *nothing* on the Table. This skepticism stems from the observation that subjective judgments make perfectly good discussion starters. I do not have German judgments (and am not claiming that German *finden* and English *find* should necessarily have the same behavior), but at least in English, the following are natural conversation starters:

(201) a. What do you think? I find this sculpture beautiful.

b. What do you think? I think that this sculpture is beautiful.

Based on this, I think the purpose of stating an opinion is to seek the other person's opinion. What goes on the Table with a subjective predicate is 'do you agree with me?'

Beltrama (2016) makes a case for this line of analysis using the Table framework. I have translated his list notation into lambda notation below. Since the projected set does not have a major role in this chapter, I will leave it simplified instead of formally expanding it as I have done in Chapter 2.

(202) $[\![\text{ASSERT}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{p_{\text{SP}\bigoplus\text{AD}}, \neg p_{\text{SP}\bigoplus\text{AD}}\} \wedge \\ PS = \left\{ \begin{array}{c} CG^{C} \cup \{p_{\text{SP}\bigoplus\text{AD}}\}, \\ CG^{C} \cup \{\neg p_{\text{SP}\bigoplus\text{AD}}\} \end{array} \right\} \wedge \\ CG^{C'} = CG^{C} \cup \{p_{\text{SPKR}}\} \end{array} \right]$

(Beltrama (2016), reformulated; to be revised)

I've annotated judge-dependence as a subscript to p. Here is the informal paraphrase of what (202) says: (i) the issue at hand is whether p is true for both the speaker and the addressee, or if that is not the case, (ii) the expected response to this question is either yes or no, and (iii) the CG is trivially updated with the speaker's opinion that p. This captures both the intuition that subjective judgments are inquisitive wrt the addressee's opinion and the observation that the speaker's opinion cannot be challenged.

I will largely follow Beltrama's formulation, but I'd like to motivate one change. This change concerns the top most question on the Table: currently, $\{p_{\text{SP}\bigoplus\text{AD}}, \neg p_{\text{SP}\bigoplus\text{AD}}\}$. I find it troubling that subjective assertions have a non-singleton set while normal (factual) assertions have a singleton set ($\{p\}$) as the issue at hand — which, as a reminder, looks like this:

(203) $$[\![\text{ASSERT}_{\text{FACT}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p\} & \wedge \\ PS = CG^{C} \cup \{p\} & \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{p\} & \end{array}\right]$$

Farkas and Bruce's point of making the issue for assertions a singleton set was to distinguish it from a polar question. Since the PS is contingent on the issue on the Table for each move, it makes a prediction as to what the "expected" response is for an assertion vs. a question. To recall Chapter 1, one of their motivations for making the issue for assertions a singleton set is that accepting p is the default response move after an assertion has been made. One evidence that acceptance is the default is that if the addressee does not say anything in response to an assertion, the assumption is that they accept the positive proposition. This is not the case with questions. Consider the contrast below:

(204) A: There's someone outside.

B: (looks at A, silence)

A: I'm gonna go look to see who it is.

(205) A: Is there someone outside?

B: (looks at A, silence)

A: Well??? Is there??

I think this still holds for subjective assertions vs. questions as well.

(206) (A and B are both eating the same dish)

A: This is spicy!

B: (looks at A, silence)

A: I'll get us a glass of water!

(207) (A and B are both eating the same dish)

A: Is that spicy (for you)?

B: (looks at A, silence)

A: Well??? Is it??

It is still the case that silence after an assertion does not interrupt the discourse in (206), and it is still the case that the silence is judged uncooperative in (207). This also captures the intuition that when someone disagrees with your opinion, you are a little bit surprised — at least, a little bit offended. This would be a conversational crisis in Farkas and Bruce's terms, which only arises if the addressee suggests a CG update not a part of the original PS.

Taking this into consideration, the final revision of the subjective assertion CCP is the following:

(208) $[\![\text{ASSERT}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{p_{\text{SP}\bigoplus\text{AD}}\} \quad \wedge \\ PS = CG^{C} \cup \{p_{\text{SP}\bigoplus\text{AD}}\} \wedge \\ CG^{C'} = CG^{C} \cup \{p_{\text{SP}\bigoplus\text{AD}}\} \end{bmatrix}$

For explicitness, here is an example of a subjective assertion, *this is spicy*:

(209) $[\![\text{this is spicy}]\!] = [\![\text{ASSERT}_{\text{SUBJ}}\ \text{this is POS spicy}]\!]$

$$= \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \{\exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SP}\bigoplus\text{AD}}(\mathbf{spicy})\} \quad \wedge \\ PS = CG^{C} \cup \{\exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SP}\bigoplus\text{AD}}(\mathbf{spicy})\} \wedge \\ CG^{C'} = CG^{C} \cup \{\exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SPKR}}(\mathbf{spicy})\} \end{array} \right]$$

This translates into: 'This is spicy for my standard. This is spicy for your standard too, right?' Subjective polar questions can be thought of similarly as well, except that there is no trivial CG update with the speaker's opinion. Intuitively, asking *Is this spicy?* does not presuppose anything about the speaker's opinion of the matter. The denotation of a subjective question is shown below in contrast to a normal (factual) polar question.

(210) $$[\![\text{Q}_{\text{FACT}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \{p, \neg p\} \quad \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\}, \\ CG^{C} \cup \{\neg p\} \end{array} \right\} \end{array} \right]$$

(211) $$[\![\text{Q}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \{p_{\text{SP}\bigoplus\text{AD}}, \neg p_{\text{SP}\bigoplus\text{AD}}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p_{\text{SP}\bigoplus\text{AD}}\}, \\ CG^{C} \cup \{\neg p_{\text{SP}\bigoplus\text{AD}}\} \end{array} \right\} \end{array} \right]$$

The only difference between factual and subjective polar questions is a matter of judge-dependence (i.e., the $\text{SP}\bigoplus\text{AD}$ subscript). For comparison with *this is spicy* in (209), here is *is this spicy?*:

(212) $[\![\text{is this spicy?}]\!] = [\![\text{Q}_{\text{SUBJ}}$ this is POS spicy$]\!]$

$$= \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \left\{ \begin{array}{l} \exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SP}\bigoplus\text{AD}}(\mathbf{spicy})(d) \\ \neg\exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SP}\bigoplus\text{AD}}(\mathbf{spicy})(d) \end{array} \right\} \quad \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SP}\bigoplus\text{AD}}(\mathbf{spicy})(d)\}, \\ CG^{C} \cup \{\neg\exists d.\mathbf{spicy}(d)(\text{this}) \wedge d > \mathbf{standard}_{\text{SP}\bigoplus\text{AD}}(\mathbf{spicy})(d)\} \end{array} \right\} \end{array} \right]$$

The meaning is straight-forward: 'Do we agree that this surpasses the spiciness standard?'

Since my characterization of the effect that exclamatives has is 'the speaker is expressing their opinion for the sake of expressing their opinion,' the interaction that it will have with subjectivity will be crucial in the analysis later on.

3.3 Positive inversion exclamatives

I turn now to the properties that each type of inversion exclamatives have, starting with positive inversion exclamatives. Positive inversion exclamatives (Pos-Ex's) have the form of positive polar questions, but at the discourse level do not function as information-seeking constructions. Below are some naturally occurring Pos-Ex's (italicized) from the Corpus of Contemporary American English (COCA).

(213) a. I watched the court read the verdict. I saw Joe's shoulders slump, and I thought, '*Oh man, is this guy in trouble.*'

b. Volunteers have gathered every year give or take since the 1920s at this local lake to cut thousands of ice bricks to build the 20-foot tall structure. *Boy, is this boring.*

c. The idea behind the food runner, too, is that it speeds things up in the dining room (turn those tables). *Boy, is this place speedy.*

d. *My God, is it steep!* Are we still on the path? How can this car not turn over?

e. Troy Polamalu doesn't want to be known as a football player. *Boy, is he ever doing a lousy job of achieving that.*

f. Poseidon is the god of the oceans, and, *boy, is he mad at Odysseus!*

g. A: Well, public opinion surveys also don't convey tone. Right? So, you're asked, yes, no? You answer.

B: Approve, disapprove.

A: Yes, right. And on this, you get to say, yes, no and, *boy, is he a jerk.*

h. Brown is a designer first and a restaurateur second. *Boy, is he a designer*: In a space that a lesser soul could imagine as a storage locker, Brown has fashioned an oasis of edgy calm bathed in a neon green glow.

Several things can be noted from these examples. First, although Pos-Ex's resemble

yes-no questions, they do not actually seek an answer from the addressee. In fact, it is clear from most of these contexts that the speaker is committed to the propositional counterpart to the "question": in (213b) for example, the speaker is insisting that the construction of the ice statue is boring; they are not asking if it is.

Second, some gradable predicate is intensified in each Pos-Ex. This intensification seems to be degree intensification. (213d) is a clear example where the hill that the speaker is driving on is not just steep — it's *very* steep, considering the car is about to turn over.

The third and last observation is the sentence-initial particles (*boy*, *man*, *god*, etc.) that precede all of the Pos-Ex's. For many speakers the particle is obligatory for the exclamative, or it is otherwise marked without the particle (e.g., it requires particular prosody (Clark & Lindsey 1990)).

In the following subsections, I will elaborate on these three properties using diagnostics and theoretical background relevant to these properties.

3.3.1 A non-question question

There is no denying that exclamatives have the form of questions; this is particularly clear with inversion exclamatives, which look like polar questions. In this chapter, I argue that assuming the connection between interrogatives and exclamatives makes for a natural analysis of the different properties that each exclamative subtype has.

Pos-Ex's can be distinguished from normal polar questions in terms of the intonational contour (Clark & Lindsey 1990). Truly information-seeking yes/no questions have rising intonation (214a), but exclamatives have falling intonation (214b). I will mark rising intonation with <?> and falling intonation with <!> throughout the chapter.

(214) a. Is this spicy?↑ (positive polar question)

b. Boy, is this spicy!↓ (positive inversion exclamative)

Between questions and exclamatives, only questions are truly information-seeking, how-

ever. (215)-(216) show that questions can be felicitously answered, while exclamatives cannot:

(215) A: Is this spicy?

B: This is spicy.

(216) A: Boy, is this spicy!

B: ?? This is spicy.

Note that you *can* respond to exclamatives, for example, to express agreement as in (218). This is not possible with questions, as (217) shows. The response is of course felicitous with a preceding assertion as well, e.g., (219).

(217) A: Is this spicy?

B: ?? I agree.

(218) A: Boy, is this spicy!

B: I agree.

(219) A: This is spicy.

B: I agree.

The next property is the most striking about exclamatives, especially since this separates them from both assertions and questions. Exclamatives have the discourse property of not being inquisitive (in Ciardelli et al. (2013)'s sense), meaning that you are not necessarily looking from input from the addressee when you exclaim something. This can be shown by the fact that exclamatives make bad (or at least unnatural) discussion starters unlike assertions and questions:

(220) a. So, what do you think about this: this is spicy.

b. So, what do you think about this: is this spicy?

c. ?? So, what do you think about this: boy, is this spicy!

My intuition is that the weirdness of (220c) stems from the fact that the exclamative is a *reaction* to something: you are merely expressing your opinion that this is very spicy, and by no means are you implicitly asking the addressee for *their* opinion. This observation is congruous with Castroviejo Miró (2008a)'s characterization of exclamatives as a construction that allows "for the speaker to express him/herself" (p.62).

3.3.2 Degree intensification

One of the claims in the literature is that exclamatives have a degree interpretation akin to *very*. I will argue that this is true for only some types of exclamatives. In order to do so, I will use a particular context to diagnose degree intensification. I call this context *the overdramatic payment*. Here is how this goes:

(221) *It's Friday, May 12th. You have until the end of the month to pay your monthly student loan bill online. But just to take care of it before you forget, you'd put it on your to-do list today as the last thing to do. You log on to the payment website, but it's down for scheduled maintenance. They don't let you pay over the weekend either, so now you have to wait until Monday. You mutter to yourself:*

a. Well this is inconvenient.

b. ?? Well this is very/super/so/hella inconvenient.

The idea is that having to pay on Monday now is surely inconvenient, but not *very* inconvenient. (243a) in this context is felicitous; (243b) is not. Anything with a degree intensifier on *inconvenient* is overdramatic, if felicitous at all. To make it felicitous, we are forced to accommodate a context where it was especially important that the speaker pay the bill on Friday, May 12th. See Appendix for other similar contexts.

Pos-Ex's pattern the same way in the *overdramatic payment* context (abridged below).

(222) *You have a bill due in two weeks. You wanted to make an online payment today (Friday), but the website is down. Now you have to wait until Monday to pay.*

?? Boy, is this inconvenient!

The exclamative in this context is overdramatic. This suggests that Pos-Ex's have an interpretation like *very*.

3.3.3 McCready's *man*

I have a rather simple solution to the previous observation that Pos-Ex's invite an intensified degree interpretation: the culprit is the sentence-initial *boy*. *Boy* and the like are independently argued to be propositional degree modifiers (McCready 2008), seen with normal assertions as well:

(223) a. Boy, it's hot in here!

b. Man, that's spicy!

c. God, that's steep!

d. Damn, he's a jerk!

McCready proposes that these particles can do one of two things depending on the prosodic contour of the sentence. If there is a large prosodic break between the particle and the rest of the sentence, the interpretation is that the speaker evaluates the proposition in question positively or negatively (e.g., *man — I locked my keys in the car!*). I will not be concerned with this reading, since (as we will see) the *boy* in Pos-Ex's is not this type. The other prosody is what McCready calls the *integrated* one; this version has little to no pause between the particle and the modified sentence. McCready's observation is that integrated particles only appear with propositions that contain some gradable predicate (e.g., *hot*, *spicy*, *steep*, *jerk*). They are incompatible with the sentence if we swap out these predicates with non-gradable ones:

(224) a. ?? Boy, it's unventilated in here!

b. ?? Man, that's non-refundable!

c. ?? God, that's a prime number!

d. ?? Damn, he's a student!

This suggests that these particles are degree modifiers, and in fact, patterns as such in the *overdramatic payment* test:

(225) *You have a bill due in two weeks. You wanted to make an online payment today (Friday), but the website is down. Now you have to wait until Monday to pay.*

?? Boy, this is inconvenient! (integrated)

Empirically, the facts are straight-forward. Compositionally, a "long distance" *very* faces challenges. If *boy* truly is a propositional degree intensifier, then its complement, the proposition, must be gradable. McCready's solution to this is his proposed type shifter SD (sentence degree), which simply gives a proposition a degree argument:

(226) $[\![\text{SD}]\!] = \lambda p \lambda d.p(d)$ (McCready 2008)

where $\lambda d.p(d)$ is a set of degrees that satisfy a gradable predicate in p; undefined if no such predicate.

His proposal is that the proposition becomes gradable with respect to some gradable predicate inside the proposition. If this requirement is not met, the type shift fails. For example, $[\![\text{SD}]\!]$(this is spicy) would return $\lambda d.\textbf{spicy}(d)(this)$. If the proposition were *this is non-refundable*, the type shift would be unsuccessful since *non-refundable* is not gradable. This prevents *boy* from being able to apply to non-gradable predicates (e.g., #boy, this is non-refundable!).

If we accept the type shifting, the semantics of *boy* itself is basically the same as *very*: it says that the degree to which some property holds of an individual exceeds the contextual standard by a large amount. The only difference is that *very* is at-issue and *boy* is non-at-issue (i.e., it's an expressive). McCready has a discussion about the emotional attitude that *boy* carries as well, but this component will be suppressed in the present analysis since the

degree modification is what is most relevant here. A reformulation of McCready's denotation for *boy/man* — preserving his intuitions — is given below in (227). The CI subscript simply indicates that the output is of a CI (conventional implicature) type, drawing from Potts (2005)'s proposal that at-issue meaning and non-at-issue meaning are semantically distinct types of objects.

(227) $[\![\text{boy/man/god}]\!]^{\text{C}} = \lambda D_{\langle d,t\rangle}[\exists d.D(d) \wedge d \gg_{\text{C}} \textbf{standard}_{\text{C}}(D)]_{\text{CI}}$

(modified from McCready (2008))

For explicitness, a derivation of *boy, this is spicy!* under this analysis is provided below.

(228) $[\![\text{boy, this is inconvenient!}]\!]$

a. $[\![\text{SD}]\!]([\![\text{this is spicy}]\!]^{\text{C}})$

$= \lambda d.[\exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{\text{C}}(\textbf{spicy})](d)$

$\rightsquigarrow \lambda d.\textbf{spicy}(d)(\text{this})$

b. $[\![\text{boy}]\!]^{\text{C}}(\text{SD this is spicy}) =$

Expressive: $\exists d.\textbf{spicy}(d)(\text{this}) \wedge d \gg_{\text{C}} \textbf{standard}_{\text{C}}(\textbf{spicy})$

At-issue: 'this is spicy'

Type shifting is one way of accounting for the behavior of *boy/man*. However, the mechanism of SD is still a bit mysterious. Namely, how it is able to "pick out" a gradable predicate from a proposition (i.e., the transition from line 2 to line 3 in (228a), intentionally made vague with "$\rightsquigarrow$") is compositionally unclear. To get around this, I propose an alternate analysis that does not depend on this supposition.

I think a more compositional way of thinking about *boy* is that it is *not* a long-distance degree modifier: it is actually a local modifier, originating lower with the gradable predicate it is modifying. So my suggestion is this: let's suppose that the LF of *boy, this is spicy* is *this is boy spicy*. There are two natural questions for this proposal: (i) is there evidence of movement?, and (ii) why must it move?

The answer to (i) is yes, *boy* obeys island constraints as shown in (229a-b). (229c) shows that the fault with (229b) is not about *boy* being incompatible with verbs of saying; *boy* can modify verbs of saying as long as they are gradable like *emphasize*.

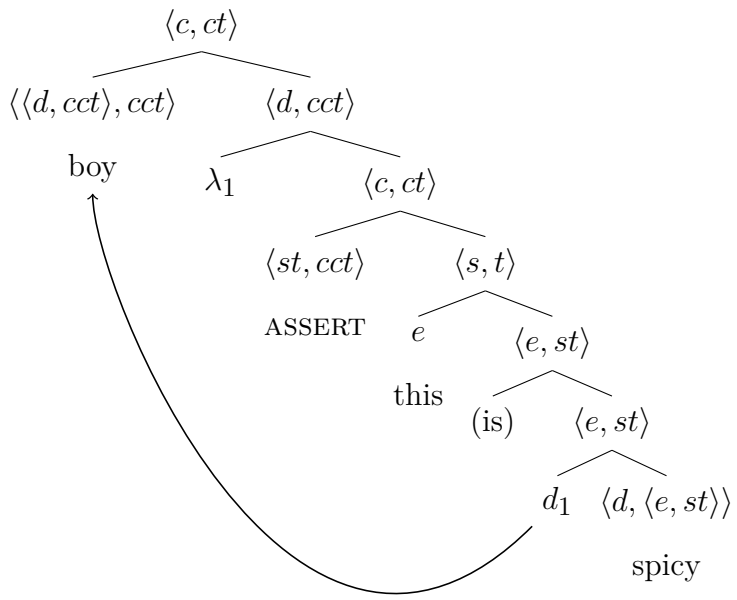
(229) a. ?? Boy, she drank water because the soup was spicy! (adjunct island)
Intended: 'She drank water because the soup was very spicy'

b. ?? Boy, he read the report that the soup was spicy! (noun complement island)
Intended: 'He read the report that the soup was spicy

c. Boy, he emphasized that we need to do this quickly!
'He really emphasized that we need to do this quickly'
NOT: 'He emphasized that we need to do this very quickly'

The answer to (ii) concerns the semantic type of *boy*, which is directly related to its distinction from *very*: *boy* is non-at-issue. In the framework of this dissertation (cf., Chapter 1), being non-at-issue means that the Table is not being manipulated — other discourse parts are. My proposal is that *boy* is a degree modifier at the discourse level: it adds (sans proposal) to the CG that the degree in question is large. It is a *CCP modifier*, particularly one that contributes a conventional implicature. Consider the following LF representation, annotated with types.

(230) LF of *boy, this is spicy!* (to be revised)



Boy is of type $\langle\langle d, cct\rangle, cct\rangle$, looking to modify a locution with an unsaturated degree argument. It moves due to a type clash with *spicy*, type $\langle d, et\rangle$. One piece of speculation is necessary to make the account work, but it is not a crazy one: *boy* leaves behind a trace of type d (not e), since it is a degree construction. This QR-style movement and the lambda abstraction over degrees is what allows us to non-locally access the scale of the gradable predicate inside the sentence. This was not (compositionally) possible under McCready's account.

Under this assumption, here is the denotation of *boy* and other sentence-initial particles of this category.

$$(231) \quad [\![\text{boy}]\!] = \lambda L_{\langle\langle d,cct\rangle,cct\rangle}\lambda C\lambda C'\exists d \left[\begin{array}{ll} L(d)(C)(C') & \wedge \\ CG^{C'} = CG^{C} \cup \{\mathbf{large}^{C}_{\text{SPKR}}(d)\} & \end{array}\right]$$

Informally, (231) can be paraphrased as: say whatever you (the speaker) were going to say, but also add to the CG the fact that the degree in question is large by the speaker's

standard. Let us see this in action with a step by step derivation. I have suppressed world arguments in the denotation of propositions for readability. Here is the first half.

(232) $[\![\text{this } \text{d}_1 \text{ spicy}]\!]$

a. $[\![\text{spicy}]\!] = \lambda d \lambda x.\mathbf{spicy}(d)(x)$

b. $[\![\text{spicy}]\!](\text{d}_1) = \lambda x.\mathbf{spicy}(d)(x)$

c. $[\![\text{d}_1 \text{ spicy}]\!](\text{this}) = \mathbf{spicy}(d)(\text{this})$

Nothing unusual so far. The trace of *boy* and the subject *this* saturate the degree and individual arguments, respectively. The degree variable is unbound. Now we assert this (recall that in a subjective assertion, the at-issue content concerns the speaker and the addresse's mutual opinion, and that the CG automatically gets updated with the speaker's opinion):

(233) $[\![\text{ASSERT}_{\text{SUBJ}} \text{ this } d_1 \text{ spicy}]\!]$

a. $[\![\text{ASSERT}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{p_{\text{SP}\bigoplus\text{AD}}\} & \wedge \\ PS = CG^{C} \cup \{p_{\text{SP}\bigoplus\text{AD}}\} & \wedge \\ CG^{C'} = CG^{C} \cup \{p_{\text{SPKR}}\} & \end{bmatrix}$

b. $[\![\text{ASSERT}_{\text{SUBJ}}]\!](\text{this } d_1 \text{ spicy})$

$= \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{\mathbf{spicy}^{C'}_{\text{SP}\bigoplus\text{AD}}(d)(\text{this})\} & \wedge \\ PS = CG^{C} \cup \{\mathbf{spicy}^{C'}_{\text{SP}\bigoplus\text{AD}}(d)(\text{this})\} & \wedge \\ CG^{C'} = CG^{C} \cup \{\mathbf{spicy}^{C}_{\text{SPKR}}(d)(\text{this})\} & \end{bmatrix}$

Then, the lambda abstraction opens up the degree argument again:

(234) $\lambda d \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{\mathbf{spicy}^{C'}_{\text{SP}\bigoplus\text{AD}}(d)(\text{this})\} & \wedge \\ PS = CG^{C} \cup \{\mathbf{spicy}^{C'}_{\text{SP}\bigoplus\text{AD}}(d)(\text{this})\} & \wedge \\ CG^{C} = CG^{C'} \cup \{\mathbf{spicy}^{C}_{\text{SPKR}}(d)(\text{this})\} & \end{bmatrix}$

And then *boy* intensifies this degree:

(235) a. $[\![\text{boy}]\!] = \lambda L_{\langle\langle d,cct\rangle,cct\rangle} \lambda C \lambda C' \exists d \begin{bmatrix} L(d)(C)(C') & \wedge \\ CG^{C'} = CG^{C} \cup \{\mathbf{large}^{C}_{\text{SPKR}}(d)\} & \end{bmatrix}$

b. $[\![\text{boy}]\!](\ (234)\ ) = \lambda C \lambda C' \exists d \left[\begin{array}{ll} top(T^{C'}) = \{\mathbf{spicy}^{C'}_{SP \bigoplus AD}(d)(\text{this})\} & \wedge \\ PS = CG^{C} \cup \{\mathbf{spicy}^{C'}_{SP \bigoplus AD}(d)(\text{this})\} & \wedge \\ CG^{C'} = CG^{C} \cup \left\{ \begin{array}{l} \mathbf{spicy}^{C}_{SPKR}(\text{d})(\text{this}) \wedge \\ \mathbf{large}^{C}_{SPKR}(\text{d}) \end{array} \right\} & \end{array} \right]$

The degree contribution of *boy* is successfully captured in the final conjunct of (235b): the CG has been updated with the fact that this is spicy for the speaker to some degree, and this degree is a large one (also from the speaker's perspective). This accounts for why you cannot challenge the degree component of *boy* sentences: it is not at-issue.

What is at issue seems to be reasonable as well. It is in the CG that this is spicy to a high degree for the speaker, and the issue on the Table is 'is this spicy to this same degree for the both of us?' In other words, the speaker is asking if this is very spicy for just them, or if everyone is on the same page.

3.4 Negative inversion exclamatives

Negative inversion exclamatives (Neg-Ex's) are understudied compared to their positive sibling. In fact, Zanuttini & Portner (2003) suggest that they are not even exclamatives at all. Their example is replicated below.

(236) Isn't he the cutest thing!

Their claim is that utterances of the form in (236) can be answered, therefore they must be questions, not exclamatives. Their diagnostics is shown in (237)

(237) A: Isn't he the cutest thing?

B: Yes.

There is one issue with Zanuttini & Portner's claim. They are inconsistent with their sentence-final punctuation (i.e., <!> vs. <?>) with their example throughout the paper, which makes it hard for us to determine if the construction in question has rising or falling

intonation. While I agree that *isn't he the cutest thing?* (rising intonation) is an information-seeking question, I do not think that *isn't he the cutest thing!* (pitch peak at *he*, final falling intonation) is fully answerable. Consider the difference below.

(238) A: Isn't he the cutest thing? (negative polar QUESTION, Neg-Q))

B: He IS the cutest thing. / He is.

(239) A: Isn't he the cutest thing! (negative inversion EXCLAMATIVE, Neg-Ex))

B: ?? He IS the cutest thing. / He is.

The answerability test is admittedly slightly difficult with the Neg-Q vs. Neg-Ex contrast, since Neg-Q's are confirmation questions with a bias for the positive answer (i.e., *he is the cutest thing*). The most felicitous answer for this kind of question requires *verum* focus (either that or ellipsis) as shown in (238); *he is the cutest thing* (no focus) is a slightly strange answer to the Neg-Q. The attempt to "answer" a Neg-Ex with the same string is not as natural. Even if the response is acceptable, (239) feels more like agreement than an answer to a polar question.

We can show that Neg-Q's are information-seeking while Neg-Ex's are not using another test from before: whether each one makes a good discussion starter or not. I think the contrast is sharper here.

(240) a. So, what do you think (about this): Isn't he the cutest thing?

b. ?? So, what do you think (about this): Isn't he the cutest thing!

My judgment of (240b) is the same as that from the Pos-Ex variant: *Isn't he the cutest thing!* is a reaction, not an inquiry for the addressee's agreement.

A variant of this test is the vocative *hey* test, where the *hey* explicitly signals that the speaker is expecting a response. This is only felicitous with the Neg-Q, and not with the Neg-Ex:

(241) (The speaker is talking to Steve about a puppy.)

a. Hey Steve, isn't he the cutest thing?

b. ?? Hey Steve, isn't he the cutest thing!

I think at this point it is safe to say that Neg-Ex's are not the same as Neg-Q's. But in case the reader feels that this is insufficient, there is further evidence from corpus data that Neg-Ex's are being used in non-inquisitive ways. Below are some naturally-occurring examples of Neg-Ex's (italicized) from COCA.

(242) a. A: I was wondering if there might not be a letter for me too.

B: For you? Don't make me laugh! Who the hell would write to you?

A: My girlfriend, sir.

B: Your girlfriend...

A: Yes, sir.

B: Well *isn't that nice*... The gentleman has a girlfriend.

b. The waitress set down my Bud and Barbara's margarita. "Can I get you folks anything to eat? Marty told me half-price on everything." "*Isn't he a dear*," Barbara said. "Can we drink now, think later?" "Perfect. Kitchen doesn't close till ten."

c. These new patrons stopped to look into the stroller. "*Isn't she a doll*!" one said. "Would you look at all that hair!" said another.

d. Look at Kelly! Oh, *isn't she a doll. Isn't she a little doll.* Oh, she's precious. She's just so sweet.

e. "Everybody dreams of sheltering himself in a sure and permanent home of his own," I read. "This dream, because it is impossible in the existing state of things, is incapable of realization and provokes an actual state of sentimental hysteria." "Well *aren't you a little prodigy*," he said. Then he tore out the page I'd been reading, crumpled it into a ball, and threw it toward the trashcan in the corner of his room.

f. A: Don't make me bust a cap in your ass, yo! Jedi's the most insulting installment, because Vader's beautiful, black visage is sullied when he pulls off his mask to reveal a feeble, crusty white man! They're trying to tell us that deep inside, we all want to be white!

B: Well *isn't that true!*

([A] pulls a nine millimeter from his belt, draws on [B] and fires.)

g. Good of you to take on that little one. *Isn't she a cutie*, with all that red hair.

There are several things that point to the fact that the Neg-Ex's aren't actual questions. First, when the exclamative is quoted, the quotative used is *said* (e.g., (242b, c, e)). The choice of punctuation in the corpus annotation is suggestive as well: none of these examples are marked with <?>. And lastly, examples like (242b) clearly shows that the conversation carries on without the Neg-Ex being "answered".

3.4.1 Not degree intensification

Let us start with the simplest observation about Neg-Ex's: they are completely felicitous in the OVERDRAMATIC PAYMENT context, meaning that the intensification associated with them is NOT degree intensification. This contrasts with Pos-Ex's, which are infelicitous in this context.

(243) *It's Friday, May 12th. You have until the end of the month to pay your monthly student loan bill online. But just to take care of it before you forget, you'd put it on your to-do list today as the last thing to do. You log on to the payment website, but it's down for scheduled maintenance. They don't let you pay over the weekend either, so now you have to wait until Monday. You mutter to yourself:*

a. ?? Boy, is this inconvenient! (Pos-Ex)

b. Isn't this inconvenient! (Neg-Ex)

This observation is not a trivial one, considering that it is often assumed in the literature that exclamatives generally involve degree intensification. The question then is: what *is* the source of the intensification if it is not degree intensification? My intuition of what (243b) is expressing is that it is *evident* that it is inconvenient. If we assume a Neg-Ex's semantic connection to Neg-Q's, this effect will fall out naturally.

3.4.1.1 Pejorativity, sarcasm, and "motherese"

Another peculiar fact about Neg-Ex's is that the most natural occurrences of them are *pejorative* in its use. They make natural insults, and have a flair of gloat that make them very compatible with pejorative predicates:

(244) Aren't you a(n) { idiot, jerk, smartass, / know-it-all, smug little brat }

Expectedly, non-pejorative predicates that occur in Neg-Ex's often take on a sarcastic interpretation, thereby making them pejorative. Consider some of the COCA examples from earlier:

(245) A: I was wondering if there might not be a letter for me too.

B: For you? Don't make me laugh! Who the hell would write to you?

A: My girlfriend, sir.

B: Your girlfriend...

A: Yes, sir.

B: Well *isn't that nice*... The gentleman has a girlfriend.

(246) "Everybody dreams of sheltering himself in a sure and permanent home of his own," I read. "This dream, because it is impossible in the existing state of things, is incapable of realization and provokes an actual state of sentimental hysteria." "Well *aren't you a little prodigy*," he said. Then he tore out the page I'd been reading, crumpled it into a ball, and threw it toward the trashcan in the corner of his room.

It is clear in these contexts that the Neg-Ex's with *nice* and *prodigy* are not meant to be sincere — they are extremely sarcastic. Consider a predicate like *fantastic* as well:

(247) (You got a free upgrade to business class on an international flight.)

??? Isn't this fantastic!

(248) (You missed the last train home by two seconds.)

Isn't this fantastic!

The context in which *isn't this fantastic!* is felicitous is when things aren't fantastic at all, as in (248). It is odd as a reaction when things are definitively fantastic, as in (247). Note that in contrast, the Pos-Ex *boy, is this fantastic!* is perfectly fine in this context. The systematic sarcasm is unique to Neg-Ex's.

Another common reading of Neg-Ex, I call, is the *motherese* interpretation. Returning to the COCA examples, when the Neg-Ex's are not sarcastic, they evoke baby-talk:

(249) Look at Kelly! Oh, *isn't she a doll. Isn't she a little doll.* Oh, she's precious. She's just so sweet.

(250) Good of you to take on that little one. *Isn't she a cutie*, with all that red hair.

The motherese cases are not insincere *per se*, but there is certainly something vaguely patronizing about them. Consider *linguist*: there is something odd about saying *well aren't you a linguist!* to Noam Chomsky, but the same exclamative is perfectly natural as a teacher's congratulatory reaction to a student having discovered voicing assimilation for the first time in class.

3.4.2 Relation to negative polar questions

I went out of my way earlier to show that Neg-Ex's and Neg-Q's are different, but I do want to say that the two are related semantically. As with Pos-Ex's, I argue that inversion

exclamatives have an underlying semantics of their question counterpart. We therefore need a discussion of what Neg-Q's mean.

It is widely known that Neg-Q's — sometimes called biased questions — are not neutral yes/no questions (Buring & Gunlogson 2000; Han 1998; Ladd 1981; Pope 1976; Romero & Han 2004). Consider the difference below.

(251) a. Is Steve tall? (positive polar question)

b. Isn't Steve tall? (negative polar question)

(251a) signals both *yes* and *no* as expected answers, but (251b) expects *yes* as the answer. One paraphrase of (251b) is 'I think Steve is tall; you agree with me, right?'

This bias makes negative polar questions infelicitous in neutral information-seeking contexts, such as on a U.S. naturalization application form:

(252) (On a U.S. citizenship application)

a. Are you a convicted felon?

b. # Aren't you a convicted felon?

You cannot ask *Aren't you a convicted felon?* unless you think the hearer is indeed a felon, which is a strange assumption in this context. The following would be a natural context for negative polar questions:

(253) a. (You thought you had heard that Anna moved to Austria, but Stefan just made a comment about her moving to Germany.)
Didn't Anna move to Austria?

b. (A felon insists on voting in the 2016 election.)
Aren't you a convicted felon?

Here is what makes negative polar questions felicitous: you believe that p (e.g., *Anna moved to Austria*, *you are a convicted felon*), but there is some indication in the discourse that not everyone agrees with you (Romero & Han 2004). One way of characterizing Neg-Q's

is that they present a halt in the discourse in order to set things straight, to ask "do we not agree that p is true?," or as Romero & Han put, "Is it not for sure that p?"

Romero and Han argue that a relevant operator for this notion of *certainty* is VERUM, a polarity emphasizer that intensifies the speaker's commitment to the truth of some proposition (Gutzmann & Castroviejo Miró 2011; Höhle 1992; Romero & Han 2004). *Verum* was extensively discussed in Chapter 2, so I will not repeat everything here. This section summarizes Romero and Han's account of Neg-Q's, which is the leading analysis in the literature.

3.4.2.1 Romero & Han 2004: 'for sure or not for sure in the CG?'

Romero and Han's analytical direction is that the negation in Neg-Q's trigger a *verum* operator. Their formulation of VERUM is repeated from Chapter 2 below.

(254) $[\![\text{VERUM}]\!] = \lambda p \lambda w. \forall w' \in \text{EPI}_{\text{SPKR}}(w) \cap \text{CONV}_{\text{SPKR}}(w)[p \in \text{CG}_{w'}]$

(reformulated, Romero & Han (2004))

As a reminder, $\text{EPI}_{\text{SPKR}}(w)$ is the set of worlds that conform to the speaker's beliefs in w, and $\text{CONV}_{\text{SPKR}}(w)$ is the set of worlds that conform to the speaker's conversational goals in w (i.e., the worlds in which there is maximal true information). Therefore, (254) says that in an ideal world w' in which what the speaker believes in w is indeed true, p is in the common ground. This translates into, from the perspective of the speaker, 'p should be added to the common ground', which they shorten as FOR-SURE-CG(p).

Their idea is that normal polar questions ask $\{p, \neg p\}$, while Neg-Q's ask $\{\text{FOR-SURE-CG}(p), \neg\text{FOR-SURE-CG}(p)\}$. Combined with the Table framework, the denotation of the example in (255) might look like (256).

(255) A: I visited Detroit, the capital of Michigan.

B: Isn't the capital of Michigan Lansing?

Bias: 'I thought the capital of Michigan was Lansing'

(256) [[Isn't the capital of Michigan Lansing?]]

$= [\![\text{Q} \neg \text{ FOR-SURE-CG } \textbf{MI capital is Lansing}]\!]$

a. $[\![\text{Q}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\} \ , \\ CG^{C} \cup \{\neg p\} \end{array} \right\} & \end{array} \right]$

b. $[\![\text{Q}]\!](\neg \text{ FOR-SURE-CG } \textbf{MI capital is Lansing})$

$= \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \left\{ \begin{array}{l} \neg\text{FOR-SURE-CG}(\textbf{MI capital is Lansing}) \ , \\ \neg\neg\text{FOR-SURE-CG}(\textbf{MI capital is Lansing}) \end{array} \right\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\neg\text{FOR-SURE-CG}(\textbf{MI capital is Lansing})\} \ , \\ CG^{C} \cup \{\neg\neg\text{FOR-SURE-CG}(\textbf{MI capital is Lansing})\} \end{array} \right\} & \end{array} \right]$

$= \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \left\{ \begin{array}{l} \neg\text{FOR-SURE-CG}(\textbf{MI capital is Lansing}) \ , \\ \text{FOR-SURE-CG}(\textbf{MI capital is Lansing}) \end{array} \right\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\neg\text{FOR-SURE-CG}(\textbf{MI capital is Lansing})\} \ , \\ CG^{C} \cup \{\text{FOR-SURE-CG}(\textbf{MI capital is Lansing})\} \end{array} \right\} & \end{array} \right]$

'Are for sure adding *MI is the capital of Lansing* to the CG?'

Romero and Han's explanation of the speaker bias concerns conversational economy. "Metaconversational" moves — like making reference to the CG — are only permitted if they are absolutely necessary. In other words, for a Neg-Q to be felicitous, there needs to be a dire reason for the speaker to question the addition of p to the CG. If the speaker has a bias for p but another discourse participant exhibits a conflicting belief $\neg p$, that would precisely be the context in which the CG addition would need to be discussed. Romero and Han hint that the bias is an implicature, but considering that it is not cancelable as shown in (257), this must be something stronger than conversational implicature — perhaps a conventional implicature or something with a stronger commitment otherwise.

(257) ?? Isn't the capital of Michigan Lansing? Not that I believe that it is.

3.4.2.2 Criticism of the *verum* approach

The motivation for the VERUM approach to Neg-Q's is the so-called Ladd's ambiguity (Ladd 1981). Romero and Han claim that Neg-Q's exhibit scopal ambiguity between the "high" reading and the "low" reading. Their example is replicated below.

(258) a. Isn't Jane coming (too)? ("high" reading)

= ⟦Q ¬ FOR-SURE-CG **Jane is coming**⟧

= {¬FOR-SURE-CG **Jane is coming**, ¬¬FOR-SURE-CG **Jane is coming**}

= {¬FOR-SURE-CG **Jane is coming**, FOR-SURE-CG **Jane is coming**}

'Should we or should we not add **Jane is coming** to the CG?'

b. Isn't Jane coming (either)? ("low" reading)

= ⟦Q FOR-SURE-CG ¬ **Jane is coming**⟧

= {FOR-SURE-CG ¬**Jane is coming**, ¬FOR-SURE-CG ¬**Jane is coming**}

'Should we or should we not add **Jane is not coming** to the CG?'

(i.e., 'Is Jane not coming?')

The "high" reading in (258a) is the same reading as the Lansing example we have been seeing already: there is a speaker bias for the positive answer. This can be characterized as the addition of the positive answer (Jane is coming) to the CG being questioned. The simplified derivation shows that this indeed is the final result. The PPI *too* brings out this interpretation; the claim is that the VERUM operator blocks NPI licensing in this configuration.

Romero and Han's "low" reading in (258b) is supposedly brought out by the NPI *either*. The reported interpretation of (258b) is one in which the negation is a lower sentential negation: 'Is Jane not coming?' This means that the proposition whose CG status is being contested is *Jane is NOT coming*. The analysis of this interpretation is that the VERUM operator is situated higher than the negation in this configuration, allowing for the licensing of NPIs.

There is a major issue with Ladd's ambiguity, as pointed out recently by AnderBois (2016): there is no ambiguity. At least in American English, many speakers (author included) find Neg-Q's with *either* unacceptable. This has in fact been experimentally shown by Sailor (2013) in an acceptability judgment survey, reporting that the "low" Neg-Q has an average score of 3.31 on a 7-point scale, as opposed to a 6.31 for the "high" Neg-Q reading.

Even if we assume that some speakers (including Romero and Han's informants) find (258b) acceptable in their dialect, using the scope configuration of negation to argue for this variability is problematic. This would predict that other NPI's should be licensed in Neg-Q's, but in reality the range of NPI's allowed in Neg-Q's is relatively restricted (Ladd 1981). There are NPI's that are downright ungrammatical in Neg-Q's:

(259) a. % Can't your father eat peanuts either? (AnderBois 2016)

b. * Didn't Christian leave until Sarah arrived? (AnderBois 2016)
(cf., Christian did not leave until Sarah arrived)

I agree with AnderBois (2016) that any apparent "low" readings of Neg-Q's must be something about the specific NPI's themselves. In this chapter, I will be concerned with the "high" interpretation of Neg-Q's only.

Another intuition that I am not fully convinced of is that the effect of bias in Neg-Q's *must* involve a VERUM operator. As discussed extensively in Chapter 2, there are polar questions with *verum* focus, as in *DID you cheat on the exam?*. It is even possible to put *verum* focus on Neg-Q's: *SHOULDN'T you go to class?*. I am not sure what Romero and Han would predict for such questions, and how they would differentiate them from Neg-Q's. This compels me to think that *verum* and Neg-Q's are independent phenomena. These observations alone do not discredit Romero & Han's analysis by any means (especially since it is not clear if they assume *verum* focus and Neg-Q's share the same VERUM operator), but what follows is a humble suggestion that there are other ways to characterize speaker bias.

3.4.2.3 Alternate analysis: CG downdate

Using the λ-Table framework, I'd like to propose an alternate account of Neg-Q's that (i) has a more direct encoding of speaker bias (i.e., that doesn't rely on a pragmatic principle), and (ii) captures a wider range of contexts that make Neg-Q's felicitous. I agree with Romero & Han that the relevant discourse part in Neg-Q's is the CG. Here I'd like to point to two situations that give rise to Neg-Q's, but both contexts will be characterizable as something about the speaker's prior assumptions about the state of the CG.

Neg-Q's are characterizable as being felicitous in contexts where there is an epistemic conflict. As paraphrased earlier, its common effect is 'I thought p but you seem to be acting on the assumption that $\neg p$ — can we resolve this?' I will call this the WAIT HOLD ON context; an example is provided below.

(260) WAIT HOLD ON context

(A and B are both from Georgia.)

A: So I went to Detroit, the capital of Michigan, and —

B: Wait hold on. Isn't the capital of Michigan Lansing?

- **B (the speaker) had assumed**: The capital of Michigan is Lansing
- **A (addressee) thinks**: The capital of Michigan is not Lansing

This is classic Neg-Q. However, there is another common context that is similar but not identical to WAIT HOLD ON. I dub this one the JUST CHECKING context, shown below.

(261) JUST CHECKING context

(Anna and Beth are both from Georgia. Curt is from Michigan.)

A: What's the capital of Michigan?

B: Lansing.

A: Really?

B: Yeah, I'm positive. Hey Curt, you're from Michgian. Isn't the capital of Michigan Lansing? Just checking.

- **B (the speaker) had assumed**: The capital of Michigan is Lansing
- **Curt (addressee) does NOT necessarily think**: The capital of Michigan is not Lansing

What makes WAIT HOLD ON and JUST CHECKING different is whether there is clash of assumptions between the speaker and the addressee or not. It is clear in WAIT HOLD ON that the addressee is acting as if *the capital of Michigan is NOT Lansing* is in the CG, in contrast to the speaker who had previously privately assumed that everyone was on board with *the capital of Michigan is Lansing*. So, there is a conflict of both p and $\neg p$ being in the CG.

In DOUBLE CHECKING, the addressee, and in fact, no one, is acting as if *the capital of Michigan is NOT Lansing* is a mutual belief. What is happening is that the QUD *what is the capital of Michigan* has already been resolved (cf., B: "Yeah, I'm positive") already, at least temporarily. This means that prior to asking the Neg-Q, B is acting as if *the capital of Michigan is Lansing* is in the CG. It is A's skepticism ("Really?") that prompts B to ask C the Neg-Q, in order to re-assess the truth of *the capital of Michigan is Lansing*.

The fact that p is in the CG prior to the Neg-Q utterance can be further accentuated in the PLAYER 3 ENTERS THE GAME context, which is a subtype of DOUBLE CHECKING.

(262) PLAYER 3 ENTERS THE GAME context

(Anna and Beth are in the kitchen, bored. After several failed attempts, Beth balances a penny on its side.)

A: Wow, impressive!

B: Aw yeah! (penny falls.) Aw.

(Curt walks into the kitchen, not having seen Beth's feat.)

B: I can't believe I balanced a penny on its side!

C: What seriously?

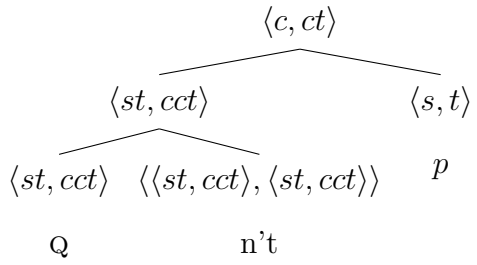
B: Yeah! Right, Anna? Didn't I balance a penny on its side?

It is clear from the PLAYER 3 context that *Beth balanced a penny on its side* has already entered the CG prior to C's arrival. Once C joins the conversation, it must be ***re-taken out of the CG*** for verification in front of the newcomer.

The part that I just emphasized is the thrust of my analysis: p must be taken out of the CG for assessment. What WAIT HOLD ON, JUST CHECKING, and PLAYER 3 have in common is that p being in the CG is stimulating the discussion. I will characterize this as a CG downdate in the λ-Table approach.

First, the decomposition I am assuming is shown in the type-annotated tree in (280) below. I take the negation to be a clitic on the question force head.

(263)



As for the semantics of the negation itself, it will be a CCP modifier. Its job is to take p out of the CG and put it back in the speaker's discourse commitment set. So it weakens the status of p from mutual belief to individual belief.

$$(264) \quad [\![\text{n't}]\!] = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \begin{bmatrix} F(p)(C)(C') & \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{p\} & \wedge \\ CG^{C'} = CG^{C} - \{p\} & \end{bmatrix}$$

One might pause here to ask why negation manifests as the spell out of such a morpheme. Non-logical, or *expletive* negation is independently known to occur in contexts that are non-

veridical (in Giannakidou (2002)'s sense) (Yoon 2013). Uncertainty is one type of non-veridicality. Consider the minimal pair below, one with negation and one without.

(265) a. I'll see if I can finish this by midnight

b. I'll see if I can't finish this by midnight (cf., Horn 1989; example mine)

'I'll see if I can finish this by midnight, but I'm not sure that I really can'

The one with *n't* is a weaker statement than its counterpart without: it expresses a stronger possibility that the speaker will not finish their task by midnight. In the interest of space I cut this discussion off short (I direct readers interested in expletive negation to Yoon (2013) and references therein), but the upshot is that *n't* in the Neg-Q also signals some level of uncertainty about the proposition.

Let us return to the derivation. Combined with the semantics of the question force head in (266a), ⟦Q n't⟧ (a Neg-Q) roughly ends up saying 'we need to take p out of the CG to reassess it. Is it p or not p? I believe p,' as formalized in (266b). Replace p with *the capital of Michigan is Lansing*, and we get the denotation of *Isn't the capital of Michigan Lansing?* in (266c).

(266) ⟦Isn't the capital of Michigan Lansing?⟧ = ⟦Q n't **capital of MI is Lansing**⟧

a. $[\![\text{Q}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\} \ , \\ CG^{C} \cup \{\neg p\} \end{array} \right\} & \end{array} \right]$

b. $[\![\text{n't}]\!](\text{Q}) = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\} \ , \\ CG^{C} \cup \{\neg p\} \end{array} \right\} & \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{p\} & \wedge \\ CG^{C'} = CG^{C} - \{p\} & \end{array} \right]$

c. ⟦Q n't⟧ (**capital of MI is Lansing**)

$$= \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \left\{ \begin{array}{l} \textbf{capital of MI is Lansing}, \\ \neg\textbf{capital of MI is Lansing} \end{array} \right\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\textbf{capital of MI is Lansing}\}\ , \\ CG^{C} \cup \{\neg\textbf{capital of MI is Lansing}\} \end{array} \right\} \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{\textbf{capital of MI is Lansing}\} \wedge \\ CG^{C'} = CG^{C} - \{\textbf{capital of MI is Lansing}\} \end{array} \right]$$

'Is the capital of Michigan Lansing? It was assumed at the time of utterance that everyone believed that it is, but now I'm not sure that we all agree. I believe it, though.'

The appeal of this approach is the directness of the speaker bias in Neg-Q's: the semantics says p is literally the speaker's commitment. The CG downdate component of course explains the contexts in which Neg-Q's are felicitous as well: it can only be used if p is in the CG already. This detail will be crucial in explicating the above mentioned properties that Neg-Ex's possess.

3.5 Inversion exclamatives in the λ-Table framework

With the tools set, we are prepared to analyze inversion exclamatives using the λ-Table framework. For convenience, here is a chart of the relevant findings so far:

POSITIVE INVERSION EXCLAMATIVE	NEGATIVE INVERSION EXCLAMATIVE
· Compatible with subjective predicates	· Compatible with subjective predicates
· Question form, but not up for discussion	· Question form, but not up for discussion
· Degree intensification via *boy*	· Non-degree intensification
	· Sarcastic

3.5.1 The common denominator

The common denominator between the two inversion exclamatives — seen from the chart above — is that they concern a subjective judgment that is not up for discussion. In other words, 'I don't care what you think' is the relevant sentiment.

As previewed before, one way of formalizing this effect is to reflexivize the locution, thereby excluding the addressee from participation in the discourse (at least temporarily). The EXCL operator, which is a force modifier, is repeated below.

(267) $[\![\text{EXCL}]\!] = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \left[\begin{array}{l} F(p)(C)(C') \quad \wedge \\ \text{ADDR}_{C'} = \text{SPKR}_{C} \end{array} \right]$

'Make the illocutionary act you were going to make, but do it addressing yourself'

One piece of evidence that exclamatives might be reflexivized questions comes from Japanese. Japanese WH-exclamatives appears with the particle *-daroo*, which also appears in 'deliberative' questions (translatable as 'I wonder'), but not in normal matrix questions:

(268) a. nante kireenan(o) -daroo -KA!
WH beautiful.is WONDER Q
'How beautiful this is!' (WH-exclamative)

b. kore-wa nan -daroo -ka
this-TOP WH DAROO
'I wonder what this is' (deliberative question)

c. kore-wa nan -desu -ka?
this-TOP WH is Q
'What is this?' (matrix WH-question)

I do not attempt a cross-linguistic analysis here, but there seems to be motivation for treating exclamatives as a sort of self-posed questions.

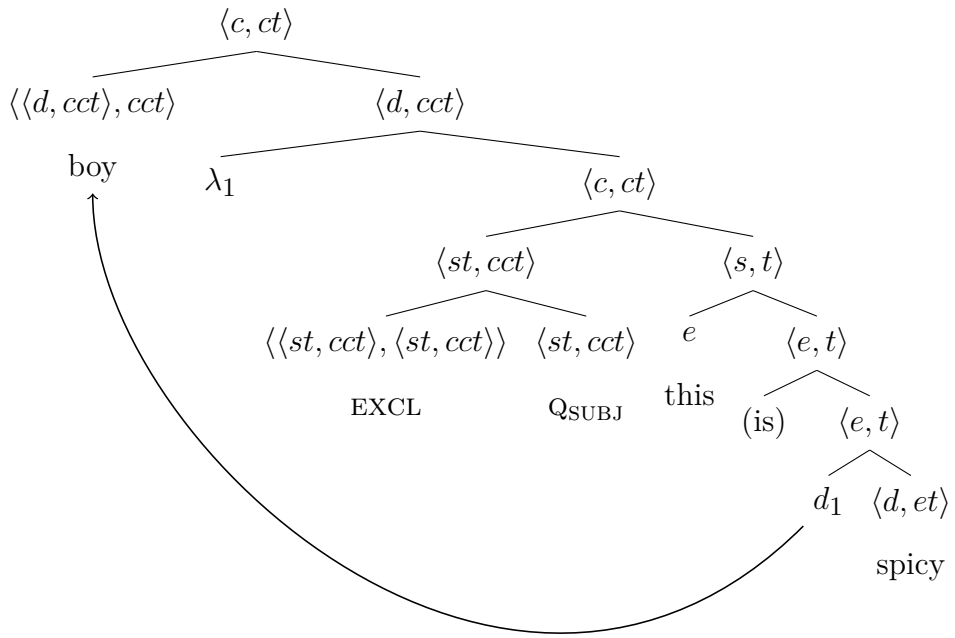
3.5.2 Positive inversion exclamatives

We will now derive the Pos-Ex *boy, is this spicy!* step-by-step.

(269) ⟦Boy, is this spicy!⟧ = ⟦boy$_1$ EXCL Q this is d$_1$ spicy⟧

The LF assumed, with movement and type annotations, is illustrated below.

(270) LF of *boy, is this spicy!*



The first step is to exclamativize the question force head, which only requires switching the issue to be speaker-oriented.

$$(271)\quad [\![\text{Q}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \{p_{SP \bigoplus AD}, \neg p_{SP \bigoplus AD}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^C \cup \{p_{SP \bigoplus AD}\}\ , \\ CG^C \cup \{\neg p_{SP \bigoplus AD}\} \end{array} \right\} \end{array} \right]$$

$$(272)\quad [\![\text{EXCL}]\!](\text{Q}) = \lambda p \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \{p_{SPKR}, \neg p_{SPKR}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^C \cup \{p_{SPKR}\}\ , \\ CG^C \cup \{\neg p_{SPKR}\} \end{array} \right\} \end{array} \right]$$

Assuming that *boy* has moved, we apply this force to the the proposition *this is* d_1 *spicy* (world argument ignored) to get an incomplete CCP:

(273) $[\![\text{EXCL Q}]\!](\textbf{this is d}_1\ \textbf{spicy})$

$$= \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{\textbf{spicy}_{\text{SPKR}}(d)(\text{this}), \neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\}\ , \\ CG^{C} \cup \{\neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\} \end{array} \right\} \end{array} \right]$$

And finally, *boy* says of this degree that it is large.

(274) $[\![\lambda_1\ \text{EXCL Q}\ \textbf{this is d}_1\ \textbf{spicy}]\!]$

$$= \lambda d \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{\textbf{spicy}_{\text{SPKR}}(d)(\text{this}), \neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\}\ , \\ CG^{C} \cup \{\neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\} \end{array} \right\} \end{array} \right]$$

(275) $[\![\text{boy}]\!] = \lambda L_{\langle\langle d,cct\rangle,cct\rangle} \lambda C \lambda C' \exists d \left[\begin{array}{ll} L(d)(C)(C') & \wedge \\ CG^{C'} = CG^{C} \cup \{\textbf{large}^{C}_{\text{SPKR}}(d)\} & \end{array} \right]$

(276) $[\![\text{boy}]\!](\ \lambda\ \text{EXCL Q}\ \textbf{this is d}_1\ \textbf{spicy})$

$$= \lambda C \lambda C' \exists d \left[\begin{array}{ll} top(T^{C'}) = \{\textbf{spicy}_{\text{SPKR}}(d)(\text{this}), \neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\} \wedge & \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\}\ , \\ CG^{C} \cup \{\neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})\} \end{array} \right\} & \wedge \\ CG^{C'} = CG^{C} \cup \{\textbf{large}^{C}_{\text{SPKR}}(d)\} & \end{array} \right]$$

Note the state of affairs in (276): the issue on the Table is not resolved yet. In principle, the speaker projects acceptance OR rejection, and since the question is self-directed, the speaker has the freedom of dictating how the CG will be updated.

Here is where *boy* becomes crucial: it has trivially updated the CG that the degree of spiciness is large for the speaker. Imagine what would happen if the "move" after this is updating the CG with $\neg\textbf{spicy}_{\text{SPKR}}(d)(\text{this})$:

(277) The CG in output context C' after denial of (276):

$$\exists d \left[CG^{C} \cup \left\{ \begin{array}{l} \neg\textbf{spicy}^{C'}_{\text{SPKR}}(d)(\text{this}) \wedge \\ \textbf{large}^{C'}_{\text{SPKR}}(d) \end{array} \right\} \right]$$

Here is what would be in the CG in this case: 'this is NOT spicy to a large degree'. This is a non-informative CG update: Is it medium-spicy? Slightly spicy? Not spicy? If the purpose of an exclamative is to express one's opinion, this is not much of an opinion at all.

The only move permitted after then, is acceptance. *Boy* necessitates this move, which explains why the particle is obligatory for many speakers in Pos-Ex's. This would be the end result:

(278) The CG in output context C' after acceptance of (276):

$$\exists d \left[CG^{\mathrm{C}} \cup \left\{ \begin{array}{l} \mathbf{spicy}^{\mathrm{C}'}_{\mathrm{SPKR}}(d)(\mathrm{this}) \wedge \\ \mathbf{large}^{\mathrm{C}'}_{\mathrm{SPKR}}(d) \end{array} \right\} \right]$$

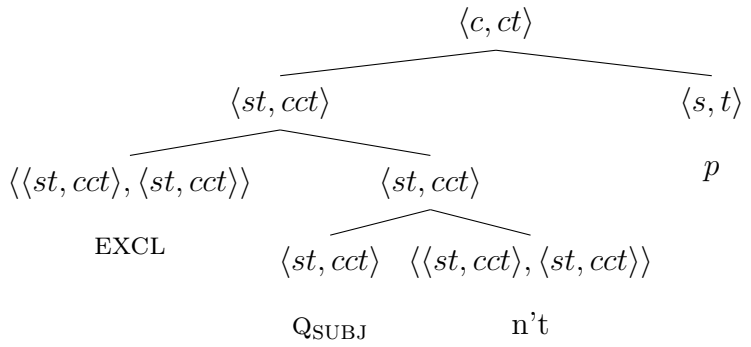
Now *that*'s what we call an opinion: (278) reads, 'this is spicy to a large degree'. The speaker has been able to selfishly update the CG with this opinion without inquiring what other discourse participants think. This is the purpose of Pos-Ex's.

3.5.3 Negative inversion exclamatives

Now we turn to Neg-Ex's, which unlike Pos-Ex's do not have a degree interpretation. Assuming their semantic connection to Neg-Q's, this is the proposed decomposition:

(279) $[\![$Isn't this spicy!$]\!]$ = $[\![$EXCL Q n't this is POS spicy $]\!]$

(280)



As a reminder, this is the proposed semantics of Q *n't*, the biased question force head (a subjective question shown here):

(281) $[\![\text{Q}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{p_{SP \bigoplus AD}, \neg p_{SP \bigoplus AD}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p_{SP \bigoplus AD}\} \ , \\ CG^{C} \cup \{\neg p_{SP \bigoplus AD}\} \end{array} \right\} \end{array} \right]$

(282) $[\![\text{n't}]\!] = \lambda F_{\langle t,cct \rangle} \lambda p \lambda C \lambda C' \left[\begin{array}{c} F(p)(C)(C') \quad \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} \wedge \\ CG^{C'} = CG^{C} - \{p\} \end{array} \right]$

(283) $[\![\text{n't}]\!](\text{Q}) = \lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{p_{SP \bigoplus AD}, \neg p_{SP \bigoplus AD}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p_{SP \bigoplus AD}\} \ , \\ CG^{C} \cup \{\neg p_{SP \bigoplus AD}\} \end{array} \right\} \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p_{SP \bigoplus AD}\} \wedge \\ CG^{C'} = CG^{C} - \{p_{SP \bigoplus AD}\} \end{array} \right]$

Neg-Ex's require fewer steps than Pos-Ex's. All there is left to do is reflexivizing the question with EXCL.

(284) $[\![\text{EXCL}]\!](\text{n't Q}) = \lambda p \lambda C \lambda C' \left[\begin{array}{c} top(T^{C'}) = \{p_{SPKR}, \neg p_{SPKR}\} \quad \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p_{SPKR}\} \ , \\ CG^{C} \cup \{\neg p_{SPKR}\} \end{array} \right\} \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p_{SPKR}\} \wedge \\ CG^{C'} = CG^{C} - \{p_{SPKR}\} \end{array} \right]$

With apologies for the enormity, we get the following by replacing p with *this is* POS *spicy*:

(285) $[\![\text{EXCL n't Q}]\!](\text{this is POS spicy})$

$= \lambda p \lambda C \lambda C' \left[\begin{array}{l} top(T^{C'}) = \left\{ \begin{array}{l} \exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{SPKR}(\textbf{spicy}) \ , \\ \neg \exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{SPKR}(\textbf{spicy}) \end{array} \right\} \quad \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{SPKR}(\textbf{spicy})\} \ , \\ CG^{C} \cup \{\neg \exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{SPKR}(\textbf{spicy})\} \end{array} \right\} \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{SPKR}(\textbf{spicy})\} \wedge \\ CG^{C'} = CG^{C} - \{\exists d.\textbf{spicy}(d)(\text{this}) \wedge d > \textbf{standard}_{SPKR}(\textbf{spicy})\} \end{array} \right]$

Here is a condensed version for readability:

(286) $[\![\text{EXCL n't Q}]\!]$(this is POS spicy)

$$= \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{\textbf{this is spicy}_{SPKR}, \neg\textbf{this is spicy}_{SPKR}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\textbf{this is spicy}_{SPKR}\} \ , \\ CG^{C} \cup \{\neg\textbf{this is spicy}_{SPKR}\} \end{array} \right\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\textbf{this is spicy}_{SPKR}\} & \wedge \\ CG^{C'} = CG^{C} - \{\textbf{this is spicy}_{SPKR}\} \end{array} \right]$$

What does (286) translate to? First, the speaker asks themself if this is spicy for them; they project acceptance and denial. However, the bias contributed by *n't* shows that the speaker is committed to the positive answer. The only non-contradictory move after this, then, is adding *this is spicy for me* to the CG. Since EXCL reflexivizes this entire process to exclude the addressee in the CG decision making, the speaker is able to assert her opinion ('this is spicy') without caring what the hearer thinks. Again, this is the essence of exclamatives: expressing an opinion just to express it, not intended as a topic of discussion.

Neg-Ex's inherit one curious property from Neg-Q's: the CG downdate contributed by *n't*, which is what captures the speaker's certainty clashing with other discourse participants' lack of the same certainty. A favorable outcome of assuming Neg-Ex's are semantically related to Neg-Q's is that this explains the sarcasm present in Neg-Ex's but not Pos-Ex's. It typically occurs when exclaiming about positive subjective predicates like *fantastic*:

(287) a. Isn't this fantastic!

'This is not fantastic'

b. $[\![\text{EXCL n't Q}]\!]$(this is POS fantastic)

$$= \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{\textbf{this is fantastic}_{SPKR}, \neg\textbf{this is fantastic}_{SPKR}\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\textbf{this is fantastic}_{SPKR}\} \ , \\ CG^{C} \cup \{\neg\textbf{this is fantastic}_{SPKR}\} \end{array} \right\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\textbf{this is fantastic}_{SPKR}\} & \wedge \\ CG^{C'} = CG^{C} - \{\textbf{this is fantastic}_{SPKR}\} \end{array} \right]$$

In (286), the discourse commitment in the third conjunct clearly suggests that the speaker is certain that this is fantastic by their standard. The downdate in the fourth conjunct, however, implies that *someone* doesn't agree that it is — which is the reason it would have to be taken out from the CG in the first place. This someone is perhaps an external judge evoked by the speaker, or even the speaker themself, considering that exclamatives are self-directed. Either way, the downdate leaves room for the speaker to *feign* the lack of commitment to the affirmative proposition, which can naturally be construed as sarcasm.

3.6 Evaluation of analysis in light of the exclamative debate

I'd like to begin the discussion and evaluation of the analysis of inversion exclamatives presented above by contrasting it with existing accounts of exclamatives in the literature. In particular, my work makes a contribution to the on-going debate concerning the status of the semantics of exclamatives. There are, broadly speaking, two approaches: the question approach and the degree approach. The former assumes a connection between exclamatives' question form and its semantics. The latter does not; this camp posits that covert degree operators are responsible for the intensificative effect that exclamatives have. I take an obvious stance in this debate: exclamatives are derivable from questions. But a more nuanced characterization of my approach is that I do appeal to degree morphemes like *boy* in certain classes of exclamatives. It's just that the presence of such morphemes are necessitated if we are assuming that inversion exclamatives are like polar questions. The novelty of my analysis is this marriage of the two sides of the debate.

This section will outline the most mainstream analyses as proposed by the question approach and the degree approach and evaluate how some of the phenomena concerning inversion exclamatives may fit into each one. It should be noted that unlike my proposal, the existing analyses I am about to summarize do *not* have the intention of accounting for the discourse properties of exclamatives (e.g., the non-inquisitiveness). Therefore, any mention of their inability to account for these properties should not be taken as criticism. My work

simply extends the meaning of exclamatives to other dimensions.

3.6.1 Exclamatives are underlyingly questions

In what I call the *question approach* to exclamatives, the semantics of exclamatives derive from actual questions. A WH-Exclamative (WH-Ex) like *How tall Steve is!* therefore underlyingly has the semantics of the question *How tall is Steve?* (Chernilovskaya 2010; Gutiérrez-Rexach 1996; Zanuttini & Portner 2003). I will outline Zanuttini & Portner (2003)'s most influential approach specifically here.

Assuming a Hamblinian semantics of questions, the denotation of *How tall is Steve?* is the set of possible answers to this question. For any average person, this might range from 5ft to 6ft, for example:

(288) $[\![\text{How tall is Steve?}]\!] = \left\{ \text{ 5'0", 5'1", 5'2" … 5'10", 5'11", 6'0" } \right\}$

The fact that exclamatives have this question semantics clashes with the traditional observation that exclamatives are also supposedly factive: they embed under factive predicates (e.g., *know*) but not under non-factive predicates (e.g., *don't know*), at least under the degree interpretation of the WH-clause (Abels 2010; Grimshaw 1979). This is shown in (289), with *very* helping to bring out the exclamative interpretation.

(289) a. I know how (very) tall John is

b. # I don't know how (very) tall John is

This means that exclamatives are factive questions — and factive questions are uninformative: you are essentially asking a question while knowing the answer. Zanuttini & Portner (2003) propose that *domain widening* is responsible for making exclamatives informative. What sets exclamatives apart from questions is the inclusion of an exceptional alternative that would not normally be in the domain: the domain *widens* to include an exceptional answer to the question. Under the same context of Steve's possible height, we may consider *6'5"* as an answer, for example:

(290) $[\![\text{How tall Steve is!}]\!] = \left\{ \text{ 5'0", 5'1", 5'2" … 5'10", 5'11", 6'0", } \mathbf{6'5"} \right\}$

This widening effect is responsible for the deviation-from-the-norm reading, and makes an otherwise defective question utterance-worthy. One criticism of the domain widening approach has been that it overgeneralizes: it does not specify what the source of the exceptionality is for the exceptional alternative. For example, it is not able to bar *how tall Steve is!* from meaning 'Steve's height (5'11") is the same number as my street number (511),' despite the arguable noteworthiness of such a coincidence.

For more immediate purposes, it is not immediately clear how domain widening would apply to to exclamatives with yes/no question forms, since yes/no questions have a strictly binary set of answers — p or $\neg p$ — which is unwidenable:

(291) a. $[\![\text{Is he an idiot?}]\!] = \left\{ \begin{array}{l} \text{He is an idiot} \\ \text{He is not an idiot} \end{array} \right\}$

b. $[\![\text{Boy, is he an idiot!}]\!] = \left\{ \begin{array}{l} \text{He is an idiot} \\ \text{He is not an idiot} \\ \text{???} \end{array} \right\}$

(292) a. $[\![\text{Isn't he an idiot?}]\!] = \left\{ \begin{array}{l} \text{He is an idiot} \\ \text{He is not an idiot} \end{array} \right\}$

b. $[\![\text{Isn't he an idiot!}]\!] = \left\{ \begin{array}{l} \text{He is an idiot} \\ \text{He is not an idiot} \\ \text{???} \end{array} \right\}$

Even if we were to somehow propose a widening mechanism for polar questions, since both negative and positive inversion questions would have the same set of answers, this predicts Neg-Ex's and Pos-Ex's to have the same semantics. This lack of variability is problematic if we are to model attested differences between the two constructions.

3.6.2 Exclamatives are degree constructions

A competing position is that exclamatives do not have the semantics of questions, but rather, that there is a degree morpheme responsible for the exclamative interpretation (Castroviejo Miró 2006; 2008a;b; Rett 2011; Wood 2014)[1]. I will summarize Rett (2011) as an example here.

For Rett, exclamatives encode two two illocutionary operators: an exclamation force operator (E-FORCE) and a degree measurement operator (M-OP):

(293) M-OP: $\lambda d \lambda P \lambda x . P(x) \wedge \mu(x) = d$

(294) E-FORCE(p), uttered by SPKR$_C$, is appropriate in a context C if p is salient and true in w_C. When appropriate, E-FORCE(p) counts as an expression that SPKR$_C$ had not expected that p.

E-FORCE adds the evaluative content of the exclamative: it encodes the speaker's surprise about a degree that holds for some property. This accounts for the degree interpretation of exclamatives like *How tall Steve is!*, where the speaker is surprised by Steve's height (i.e., he is very tall). One advantage of strictly tying the exclamative force to degrees in this way is that non-degree interpretations of surprise can be ruled out. Even if it is surprising that Steve's height (5'11") matches my street number (511), "Steve's height = my street number" does not fall on a scale; it is not a degree, therefore, it cannot be the target of surprise for exclamatives.

M-OP is necessary when the predicate to be exclaimed about lacks a scale. For example, *what a teacher!*, where *teacher* is not gradable. M-OP gives predicates like *teacher* a contextually determined scale; the scale of *amazingness* for a teacher for example. Her example, *What desserts John baked!*, with the help of M-OP, may mean 'what delicious desserts John

[1]Castroviejo Miró (2008b) and Wood (2014) do incorporate questions into their analyses, although a degree morpheme, rather than domain widening, is ultimately responsible for the degree interpretation of exclamatives for them.

baked' if the context is appropriate. The derivation for *What desserts John baked!* is shown below.

(295) What desserts John baked!

a. $[\![\text{M-OP desserts}]\!] = \lambda d.\lambda x.\text{desserts}'(x) \wedge \mu(x) = d$

b. $[\![\text{What desserts John baked}]\!]$
$= \lambda d.\exists x[\text{baked}'(j, x) \wedge \text{desserts}'(x) \wedge \mu(x) = d]$

M-OP first makes *desserts* gradable, and assigns it a scale (e.g., deliciousness) and gives it a degree argument. At this point a degree d' would be provided by the context, leaving the unbound expression $\exists x[\text{baked}'(j, x) \wedge \text{desserts}'(x) \wedge \mu(x) = d']$. This is existentially closed by E-FORCE, which also adds the illocutionary force of speaker surprise:

(296) a. $p = \exists x[\text{baked}'(j, x) \wedge \text{desserts}'(x) \wedge \mu(x) = d']$

b. E-FORCE(p) counts as an expression if $\exists d'$ such that s_C had not expected that $d' \in D$

c. Existential closure via E-FORCE: $\exists d'.\exists x[\text{baked}'(j, x) \wedge \text{desserts}'(x) \wedge \mu(x) = d']$
+ Illocutionary force "speaker didn't expect p"

What desserts John baked! therefore means that the speaker is surprised that the desserts John baked are so delicious (or whatever contextually salient property). Rett speculates how E-FORCE and M-OP might apply to Pos-Ex's[2] as well:

(297) Wow, did Sue win that race!

She observes that (297) does not express speaker surprise about *Sue* winning the race, which is an individual-oriented reading. It has an event-oriented reading: the manner in which Sue won the race is noteworthy. Following this, she analyzes Pos-Ex's as an exclamation about eventualities, which inherit degreehood from M-OP. She remains agnostic as

[2]She calls them *inversion exclamatives*.

to why inversion exclamatives specifically care about eventualities. Tying inversion exclamatives to eventualities poses an issue, however, since some states[3] are incompatible with Pos-Ex's:

(298) a. Boy, is Chad an idiot!

b. # Boy, is she a teacher!

c. # Boy, did she hold that baby!

(298a) is unproblematic: the state of Chad being an idiot is remarkable and surprising in some way. The contrast in (298b) and (298c) are problematic, since under this analysis M-OP should still kick in to assign these eventualities a degree — but it does not. In other words, why can't (298b) and (298c) mean that the way she is a teacher or the way she held the baby is remarkable?

Contrasting Neg-Ex's with Pos-Ex's is also not easy under this account, which posits that the source of variation between different exclamative constructions is what M-OP targets. If Pos-Ex's scalarize eventualities, then what do Neg-Ex's scalarize? Borrowed unmodified, it is not obvious how M-OP would be manipulated to distinguish the two inversion exclamatives.

Another issue with the existing accounts of exclamatives is their unidimensionality and the at-issue nature of the intensificative meaning. This is most clear with the question approach to exclamatives, where the domain widening in *What peppers he eats!* is essentially equivalent to saying 'he *even* eats habaneros' with the lexical domain widener *even*. The diagnostics from the previous section suggests that exclamative intensification is expressive, which necessitates a multi-dimensional analysis of exclamatives. Rett (2011) does propose that what she paraphrases as "speaker surprise about a degree" in exclamatives is illocutionary meaning, suggesting that its status is non-at-issue, but whether all types of exclamatives have degree readings in the first place is unclear. The degree approach to exclamatives also

[3]Assuming eventualities to include events and states.

lose the nice tribute to form and meaning that the question approach has: exclamatives have question syntax.

It is worthwhile to note here that Castroviejo Miró (2008b) has a sort of hybrid account of exclamatives.[4] She suggests that WH-exclamatives like *What things he eats!* does generate a set of possible answers to the question *what things does he eat?* but the alternatives are ordered by degree; for example, the possible degrees to which things are *spicy*:

(299) $\left\{ \begin{array}{l} \text{He eats } d_1 \text{ spicy things} \\ \text{He eats } d_2 \text{ spicy things} \\ \text{He eats } d_3 \text{ spicy things} \\ \vdots \end{array} \right\}$

She proposes that a particular intonational contour associated with exclamatives is the manifestation of an expressive operator that picks out the strongest true proposition from the above set of answers. In other words, it picks out a true proposition with the highest degree.

I agree with Castroviejo Miró (2008b)'s intuition that exclamatives involve expressive meaning, but one unfortunate outcome of a hybrid account such as this one is that it inherits the issues of both the question and the degree approaches: (i) the analysis does not extend easily to inversion (polar question syntax) exclamatives since they only have two alternatives in their set of answers, and (ii) some exclamatives (like Neg-Ex's) don't have a degree interpretation.

I end on the note that neither of the existing analyses have an obvious account of why exclamatives are not issue-raising like assertions and questions are. One benefit of borrowing the language of formal pragmatics to analyze exclamatives as I have is that it becomes clearer how such properties arise.

[4]Her subsequent work resembles the degree approach more, however.

3.7 Discussion

3.7.1 Predictions

A modification account of exclamatives One feature of EXCL is that it is a force *modifier*: it is type $\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$.

(300) $[\![\text{EXCL}]\!] = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C' \left[\begin{array}{ll} F(p)(C)(C') & \wedge \\ \text{ADDR}_{C'} = \text{SPKR}_{C} & \end{array}\right]$

This means that exclamatives do not have a force of their own under this analysis; they derive from other illocutionary classes. This may be disconcerting for some, since exclamatives are often construed as a sentence class alongside assertions, questions, and imperatives (Biber et al. 1999; Huddleston 1984; Quirk 2010). I'd like to make a case for this way of categorizing exclamatives, however — it has its perks.

First, we've seen EXCL take in Q specifically because we were dealing with inversion exclamatives, but in principle, the denotation in (300) does not select for Q specifically. As long as its modifiee is of type $\langle st, cct\rangle$, it should be compatible with the semantics of EXCL. For example, exclamative assertions should be possible.

This prediction is true, I believe. What some call sentential or declarative exclamations exist (Castroviejo Miró 2008a): they have the form of assertions, but tend to be prosodically marked (exaggerated pitch contour, slower speech rate, etc.). Below are some examples; <!!> marks the exaggerated prosody, the relevant emotion for which can perhaps be brought out with a preceding *oh my god!*.

(301) a. (Oh my god!) That is spicy!!

b. (Oh my god!) This is so inconvenient!!

Sentential exclamatives — or as I might call them, exclamative assertions — intuitive have the same effect as inversion exclamatives: (301a-b) are *reactions* to something, the

speaker expressing their sentiments for the sake of expressing them. This is easy to account for under the present analysis:

(302) a. $[\![\text{ASSERT}_{\text{SUBJ}}]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p_{\text{SP}\bigoplus\text{AD}}\} & \wedge \\ PS = CG^{C} \cup \{p_{\text{SP}\bigoplus\text{AD}}\} & \wedge \\ CG^{C'} = CG^{C} \cup \{p_{\text{SPKR}}\} & \end{array} \right]$

b. $[\![\text{EXCL}]\!](\text{ASSERT}_{\text{SUBJ}}) = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p_{\text{SPKR}}\} & \wedge \\ PS = CG^{C} \cup \{p_{\text{SPKR}}\} & \wedge \\ CG^{C'} = CG^{C} \cup \{p_{\text{SPKR}}\} & \end{array} \right]$

Exclamative assertions allow for the speaker to express their point of view without inviting discussion. Inversion exclamatives can do the same, but Pos-Ex's have the power of degree intensification, and Neg-Ex's can systematically evoke sarcasm or gloat. A modification account of exclamatives provides a unified account of exclamations more generally in this way.

About *boy* I have argued that sentence-initial particles like *boy* are responsible for the degree reading in Pos-Ex's. I have also shown that *boy* sentences, question form or not, are generally exclamative. This raises the question of whether Pos-Ex's and *boy* exclamations are distinguishable at all. Here are the two constructions side-by-side:

(303) [[boy, this is spicy!]] (*boy* exclamation)

$$= \lambda C \lambda C' \exists d \left[\begin{array}{ll} top(T^{C'}) = \{\mathbf{spicy}^{C'}_{\text{SPKR}}(d)(\text{this})\} & \wedge \\ PS = CG^{C} \cup \{\mathbf{spicy}^{C'}_{\text{SPKR}}(d)(\text{this})\} & \wedge \\ CG^{C'} = CG^{C} \cup \left\{ \begin{array}{l} \mathbf{spicy}^{C}_{\text{SPKR}}(\text{d})(\text{this}) \wedge \\ \mathbf{large}^{C}_{\text{SPKR}}(\text{d}) \end{array} \right\} & \end{array} \right]$$

(304) [[boy, is this spicy!]] (positive inversion exclamative)

$$= \lambda C \lambda C' \exists d \left[\begin{array}{l} top(T^{C'}) = \{\mathbf{spicy}_{\mathrm{SPKR}}(d)(\mathrm{this}), \neg\mathbf{spicy}_{\mathrm{SPKR}}(d)(\mathrm{this})\} \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\mathbf{spicy}_{\mathrm{SPKR}}(d)(\mathrm{this})\} \ , \\ CG^{C} \cup \{\neg\mathbf{spicy}_{\mathrm{SPKR}}(d)(\mathrm{this})\} \end{array} \right\} \qquad \wedge \\ CG^{C'} = CG^{C} \cup \{\mathbf{large}^{C}_{\mathrm{SPKR}}(d)\} \end{array} \right]$$

(303) and (304) both have the same effect: in the end, the speaker ends up expressing their opinion that the degree of spiciness is large for them. The Pos-Ex accomplishes this by more indirect means than the simple *boy* exclamation. This is because subjective questions, unlike subjective assertions, do not trivially update the CG with the speaker's opinion. The speaker eventually does get to perform the same update "for free" in the Pos-Ex too, however, thanks to *boy*'s semantics being incompatible with the negated proposition: the positive proposition among the projected CG updates, the update with *this is spicy* is the only logical one.

So then the empirical question is whether these two differ at all. The naive answer is no. I find both (303) and (304) fine and equivalent reactions to something being very spicy. I currently cannot think of a context that would make one infelicitous but the other felicitous. One subtle contrast between the two is that the inverted variant is stylistically more marked. There is something intuitively theatrical or even old-fashioned about the Pos-Ex compared to the *boy* exclamation. This may be attributable to the fact that in the inversion exclamative, you are performing a mini discourse with yourself. Diagnosing this subtlety would be quite a task, but at least at the intuitive level, this is a welcome observation for my analysis.

NPI licensing Adopting the question approach for exclamatives comes with its responsibilities. If they are questions at some level semantically, we should expect them to exhibit semantic behavior that are associated with questionhood. One such behavior is NPI licensing. It is well-known that questions are downward entailing environments, therefore license NPIs:

(305) a. Did she see anyone?

b. Did he lift a finger to help?

Do these questions with NPIs translate well into exclamatives? Absolutely not.

(306) a. ?? Boy, did she see anyone!

b. ?? Boy, did he lift a finger to help!

But (306a-b) are bad for independent reasons: *seeing anyone* and *lift a finger to help* are not subjective, and the whole point of exclamatives is to put forward one's subjective opinion. Many NPI's are incompatible with subjective predicates in the first place.

Consider *ever*, however, which is compatible with subjective predicates:

(307) Was she ever kind?

The good news is that *ever* works perfectly well with inversion exclamatives:

(308) Boy, was she ever kind!

It takes on a slightly different interpretation in the exclamative, but this is perhaps not surprising, considering exclamatives are not full-scale questions: they have assertive content in some ways, since it has the executive power of updating the CG.The contribution of *ever* in exclamatives should make for an interesting future project. Note that not all subjectivity-friendly NPIs are acceptable in exclamatives, for example, *at all*:

(309) a. Was she kind at all?

b. ?? Boy, was she kind at all!

I currently do not have an explanation of why *at all* does not work with exclamatives, but I suspect that the incompatibility stems from the semantics of *at all* specifically. I leave this for future research as well.

3.7.2 Extension to WH-exclamatives

I have used inversion exclamatives as a case study of the question approach to exclamatives, but the hope is that this analysis extends to WH-exclamatives as well. In this brief section, I will focus on the English *what a* exclamatives.

Here are some naturally occurring examples of *what a* exclamatives from COCA.

(310) a. Great writing, and *what a lovely tribute to this guy.*

b. He was one of those people lucky enough to grow up and live his dreams. And along the way made a tremendous impact. " How many people can say that? *What a wonderful life.*

c. This spoiled Muffy had known what she wanted and had acquired it. *What a rare accomplishment.*

d. I, along with millions of others around the world, always wished that Harper Lee had written another book, " Mr. Morrison said in a statement. " And *what a brilliant book this is.* "

e. Every Sunday night, Jen and Ryan Hidinger brought 10 paying guests into their Grant Park bungalow — four at the counter, six around the dining room table — to start feeding guests, forming relationships, getting to know the people who might support them in the dream of opening a restaurant. Then Ryan got sick with cancer, and he died a year later. But *what a year.*

f. Students design during school, after book check-out with their teachers, and after school with their parents. *What a great opportunity for everyone*!

WH-exclamatives have been extensively argued to have a degree intrepretation. The OVERDRAMATIC PAYMENT confirms this:

(311) *It's Friday, May 12th. You have until the end of the month to pay your monthly student loan bill online. But just to take care of it before you forget, you'd put it on*

your to-do list today as the last thing to do. You log on to the payment website, but it's down for scheduled maintenance. They don't let you pay over the weekend either, so now you have to wait until Monday. You mutter to yourself:

a. This is inconvenient.

b. ?? What an inconvenience!

The WH-exclamative is certainly overdramatic. The question is where the degree interpretation comes from, considering degree particles like *boy* is not obligatory in WH-exclamatives. Furthermore, the challenge for the question approach to exclamatives is that *what a* does not form a well-formed matrix question in English.

(312) a. * What a wonderful life is this?

b. * What a year has this been?

Not all hope is lost, however. At least up until the early 1800's, *what a* matrix questions existed in the English language. Consider the following examples from Shakespearean plays, the Hansard Corpus of the English Parliament, and Corpus of Historical American English.

(313) Shakespearean plays

a. Nerissa. Why, shall we turn to men?

Portia. Fie, *what a question's that*,

If thou wert near a lewd interpreter!

(The Merchant of Venice, Act III, Scene 4)

b. Henry V. How now, blown Jack! how now, quilt!

Falstaff. What, Hal! how now, mad wag!

what a devil dost thou in Warwickshire?

(History of Henry IV, Part I, Act IV, Scene 2)

c. Falstaff. There's villanous news abroad: here was

Sir John Bracy from your father; you must to the

court in the morning. That same mad fellow of the
north, Percy, and he of Wales, that gave Amamon the
bastinado and made Lucifer cuckold and swore the
devil his true liegeman upon the cross of a Welsh
hook? *what a plague call you him?*

Edward Poins. O, Glendower.

(History of Henry IV, Part I, Act II, Scene 4)

d. Henry V. Peace, ye fat-guts! lie down; lay thine ear close
to the ground and list if thou canst hear the tread
of travellers.

Falstaff. Have you any levers to lift me up again, being down?
'Sblood, I'll not bear mine own flesh so far afoot
again for all the coin in thy father's exchequer.
What a plague mean ye to colt me thus?

(History of Henry IV, Part I, Act II, Scene 2)

(314) Hansard Corpus

a. The consequence of the present proposition, he believed, would be, that the stock would become a heavy stock: But after all, he would ask, *what a loan were they to expect this year?* (House of Commons, 1812)

b. It was impossible they could stir a step except the commons agreed With them: Suppose, when the address was sent down to them for their concurrence, the commons should say, we chuse to proceed by impeachment, in *what a situation would their lordships be?* (House of Lords, 1806)

c. It appears by the report, that money voted for particular services has been applied to other services: *What a precedent does this set up? What a door does it open to fraud?* (House of Commons, 1805)

d. Mrs. C, upon her examination at the bar, told you that she had never said she was married to Mr. Dowler. Nicholls says, that when she first went to live at his house she represented that she was a widow, but when Mr. Dowler visited her there she pretended he was her husband, which pretence Mr. Nicholls must have very well understood, and could never have believed the fact, and *what a contradiction, he says, is this?* (House of Commons, 1809)

e. The consequence of the present proposition, he believed, would be, that the stock would become a heavy stock: But after all, he would ask, *what a loan were they to expect this year?* (House of Commons, 1812)

(315) COHA

I drove her husband to poverty and infamy – but for that he might have been a man, and she an angel! is she not yet an angel – but for me she is – (with horror) but for her father! but for him who should have kept her from temptation – but who instead hath play'd the damning fiend and lured her to destruction! o, *what a retrospective glance is this?* let me not shrink from it – I have too long shut out the light.

(The Italian Father (1799), William Dunlap)

Let us focus on particular examples to deduce what *what a* questions mean. The context of (313d) is this: Henry V has summoned Falstaff, an overweight man, to his palace, which is quite a ways from his home; Falstaff is complaining about the amount of walking and thus the physical fatigue he has had to endure. He asks Henry V, *What a plague mean ye to colt me thus?* I think this can be interpreted as 'What sort of plague/harm are you intending by horsing me around like that?'

Here is another one, this time from the House of Commons. (314c) reads:

It appears by the report, that money voted for particular services has been applied to other services: *What a precedent does this set up? What a door does it open to fraud?* (House of Commons, 1805)

This also can be naturally interpreted as, 'what sort/kind of precedent does this set up?' and 'what sort/kind of door does it open to fraud?'

My proposal is this: *what a* questions are questions about kinds. They are the WH variant of *such (a)*, as in *such a precedent* and *such a door*, which has been argued to be anaphoric to kinds (Carlson 1977; Constantinescu et al. 2011; Landman 2006; Landman & Morzycki 2003). Anderson & Morzycki (2015), using a wide variety of cross-linguistic data, make a case for the role of kinds in degrees. Their observation is that kind morphemes and degree morphemes are very often homophonous across languages. Here are some of their examples highlighting this connection:

(316) a. taki pies
such-MASC dog
'such a dog', 'a dog of that kind' (KIND reading)

b. tak wysoki
such tall
'that tall' (DEGREE reading)

(317) a. so einen Hund
such a dog
'a dog of the same kind' (KIND reading)

b. Ich bin so groß
I am such tall
'I am so tall' (DEGREE reading)

(318) a. Such a dog (as this) (KIND reading)

b. Clyde is such an idiot (DEGREE reading)

The rise of *what a* exclamatives from *what a* questions, then, is unsurprising, and the connection hard to ignore.

(319) a. What a contradiction is this? (cf., (314c)) (KIND reading)

b. What a contradiction this is! (DEGREE reading)

A full anlaysis of *what a* exclamatives under the λ-Table framework is still in the workings, but assuming the role of kinds makes for a promising start.

3.8 Conclusion

In this chapter, I provided novel empirical observations and diagnostics for two kinds of exclamatory constructions with yes/no question form: positive inversion exclamatives and negative inversion exclamatives. The main observation is that exclamatives are not inquisitive (i.e., are not issue raisers), an exceptional property that sets them apart from their other illocutionary siblings (assertions and questions). The proposal is that exclamatives are *reactions* rather than inquiries, which I have formally modeled using the λ-Table framework. The thrust of the analysis is that exclamatives derive from the illocutionary meaning of questions: they are "questions" modified by the illocutionary modifier EXCL, which turn them into essentially a self-posed question. The punchline is that this is a way for the speaker to express their subjective opinion without consulting the opinion of others: they are merely expressing their view for the sake of expressing their view. I argue that this non-collaborative illocutionary meaning translates naturally into the intensity that exclamatives are perceived to have.

There is an obvious common theme between this chapter about exclamatives and the preceding one about *verum*. Exclamatives and *verum* sentences are both a way for the speaker to get exclusive control in shaping the discourse context. Assertions and questions, which the Table framework is designed to originally account for, assume the cooperation of all discourse participants in order to increase the CG. What gives exclamatives and *verum* a certain *oomph* (intensity and discourse markedness) is that they forgo of this collaboration. We saw with *verum* that this is accomplished by posing a restriction on the future CG, but exclamatives do this in a more direct way by excluding the addressee from the discussion, which I argue is what the EXCL operator does.

In the following chapter, I turn to Japanese for a discussion of another type of construc-

tion in which the speaker imposes something on the addrresse: NOTIFICATIONS. This will also involve a discussion of mirativity (grammatical marking of speaker surprise), another perceptively intensificative class of sentences in natural language.

CHAPTER 4

NOTIFICATION, PRESENTATION, AND SURPRISE

4.1 Introduction

(320a) is a tweet from July 17th, 2016. Why does this feel different from the artificial variant I have created in (320b) without *yo*?

(320) a. Yo, you're a dog, not a cat

b. You're a dog, not a cat

I think in (320b), this could be the expression of the speaker's realization that a furry creature he mistook to be a cat was actually a dog (e.g., because they did not have their glasses on). The speaker has just acquired this new information. (320a) does not have this meaning. I think the source of the humor is that this sounds like that this is news to the *addressee*: they are informing the addressee, a dog, that they are a dog — implying that they might have not known this already. To reveal the context in which (320a) was tweeted: this tweet was accompanied by a picture of a dog sitting on top of the back side of a sofa, with their paws neatly together in front of them. Alas indeed the sentiment behind the tweet is 'in case you didn't know you were a dog'.

Alerting someone of new information is an act of NOTIFICATION. This chapter deals with such acts in discourse. In English, a bare assertion (e.g., (320b)) can be used to notify, so it is not so clear that this constitutes an illocutionary class of their own. In Japanese, however, there is a functional sentence-final particle that distinguishes canonical assertions from notificative ones. Somewhat coincidentally, this particle is *-yo* (there is no etymological connection with the English interjection).

(321) a. pochi-wa inu-da
Pochi (name)-TOP dog-COP
'Pochi is a dog'

b. pochi-wa inu- da -yo
Pochi (name)-TOP -COP -YO
'(Just so you know, for your information, etc.) Pochi is a dog'

The truth-conditional meaning of the sentences in (321) are both the same: Pochi is a dog. This would be false if he were anything but. However, the sentence ending with *-yo* has a slightly different illocutionary function than the version without: it feels as if the speaker is notifying the addressee of the fact that Pochi is a dog, similar to saying 'Just so you know' or 'For your information' in English.

-yo sentences relate to the theme of this dissertation, INTENSIFICATION, in that they are often described as being "emphatic" (Saigo (2001), citing definitions of major Japanese textbooks). They have also been described as "strong" assertions as well (McCready 2009). But this emphatic nature of *-yo* is not the same kind of emphasis as *verum*, for example, in Chapter 2. For instance, the difference between *verum* assertions and *-yo* assertions is that the latter unlike the former can uttered out of the blue, which is not surprising if what they encode is notification. My first objective is to model "notification" formally, and to provide a generalized picture of what intensity in discourse is.

My second objective concerns the observation that in addition to *-yo* assertions, there are *-yo* "questions" as well Davis (2011). Imagine in the following conversation between two roommates.

(322) (A sneaks up on B and throws a plastic snake at them. B screams.)

A: tadano omocha -da -yo
just toy COP YO
'It's just a toy'

B: nisemono -ka -yo!
fake Q YO
'What, it's FAKE??'

-ka-yo sentences are a sort of rhetorical questions that expresses the speaker's surprise. For example, here, B is shocked that the snake is fake. My goal is to provide a compositional

account of both *-yo* assertions and *-yo* questions using a singular proposal for the illocutionary semantics of *-yo*.

The core proposal of this chapter will be that notification is a type of *presentational* move. This draws from the literature concerning *evidentiality* (grammatical marking of information source), in which evidential sentences are analyzed as a distinct type of illocutionary act that "presents", but not assert, a proposition. Formally, I will appeal to a new part of the discourse context called the VIEW (Déchaine et al. 2016) to analyze notification and surprise in Japanese.

I start with existing analyses of *-yo* in the literature in §4.2. In §4.3, I present the relationship that notification has with presentation/evidentiality, and outline the tools that have been used to account for evidentials in the Table framework. I motivate some changes to these tools as a part of the process. §4.4 provides an analysis of *-yo* assertions in light of this approach, and in §4.5 I extend this to *-yo* interrogatives. I conclude with a discussion of observations relevant to notification in Japanese in §4.6.

4.2 *-yo*: a notification particle

4.2.1 Descriptive facts

Let us start with a minimal pair from Saigo (2001) to describe what notification is.

(323) (Saigo 2001)

a. toyota-san-no tanjoobi-wa shichi-gatsu yo-kka -da
Toyota-TITLE-GEN birthtday-TOP seven-month four-day COP
'Mr. Toyota's birthday is July 4th'

b. toyota-san-no tanjoobi-wa shichi-gatsu yo-kka -da -yo
Toyota-TITLE-GEN birthtday-TOP seven-month four-day COP YO
'FYI, Mr. Toyota's birthday is July 4th'

As with before, the truth condition of the two sentences are the same: Mr. Toyota's birthday is July 4th. The difference between the two is that in (323b), there is a clear sense

in which this information is intended for the addressee. A close translation of this effect in English is 'FYI (for your information)', which I will continue to use throughout the chapter. The flip side of this intuition is that the *-yo*-less variant in (323) sounds very matter-of-fact: this is simply the declaration of the fact that Mr. Toyota's birthday is July 4th.

The earliest of proposals in the *Nihongogaku* (Japanese studies) literature about the function of *-yo* posit that it is a marker that serves to draw the addressee's attention to the propositional content (Uyeno 1972, Oshima (2011)'s translation). Others have proposed that it signals some sort of opposition between speaker vs. addressee knowledge (Cheng 1987; Masuoka 1991). Yoshimi (1997) has a similar proposal that *-yo* signals non-shared affective stance. This line of intuition is often analyzed in contrast to the particle *-ne* in Japanese, which is often used to confirm shared knowledge:

(324) toyota-san-no tanjoobi-wa shichi-gatsu yo-kka -da -ne
Toyota-TITLE-GEN birthtday-TOP seven-month four-day COP NE
'Mr. Toyota's birthday is July 4th (I assume you know this)'

So one way of characterizing the *-yo* version of this in (323b) is that the speaker knows Mr. Toyota's birthday while the addressee does not. But as subsequent authors including Saigo (2001) point out, knowledge cannot be the only property that *-yo* and *-ne* are sensitive to, considering *-ne* can be used in contexts where the addressee has no knowledge at all about the information conveyed by the proposition. Here is one such case (cf., Uyeno 1972, Saigo 2001):

(325) (A is an employee at a clothing store. B is a customer. B like a particular shirt but there is no price tag on it.)

A: suimasen, kore ikura -desu -ka?
excuse.me this how.much COP Q
'Excuse me, how much is this?'

B: a, sore, san-zen-yen -desu -ne.
oh that three-thousand-yen COP NE
'Oh, that's three thousand yen (30 USD).'

I think this is true the other way around as well: *-yo* can be used even if the speaker thinks the addressee knows about the proposition already. This is in line with e.g., Uyeno (1972)'s original characterization that *-yo* simply draws the addressee's attention to the proposition. For instance, a *-yo* sentence can be preceded by 'You might know this already':

(326) moo shitteru -kamoshirenai -kedo, kaigi-wa 3-ji -kara -desu -yo
already know might but meeting-TOPIC 3-o'clock from COP YO
'You might know this already, but (FYI) the meeting starts at 3 o'clock.'

In a case like this, the appropriate paraphrase of *-yo* is perhaps 'just so you know' or 'just so we're clear'. So it cannot always be the case that the addressee is ignorant of the information.

Following similar arguments, subsequent researchers have proposed different analyses of what *-yo* marks. For example, Shirakawa (1993)'s take on it is that it is used to heighten the addressee's awareness so that they"for sure" hear the utterance and absorb the information. (Hasunuma 1996) describes it similarly as a command to activate one's cognitive capabilities, which is required because of some dissonance between what the speaker and the addressee perceive in the context. This is also in line with Noda (2003)'s more general description that when using *-yo*, the speaker thinks that the content of the proposition should be "recognized" by the hearer. I think all of these descriptions have in common that *-yo* differentiates the different roles that the speaker and the addressee have in the discourse interaction as Lee (2007) says. I strongly agree with the intuition that underlies all of these approaches: *-yo* is something about the addressee being the "recipient end" of the information.

Kinsui & Takubo (1998) and Takubo & Kinsui (1997) have framed this idea in terms of cognitive space. They propose that different particles make reference to different parts of the human memory database, which has two subdomains *D-Domain* and *I-Domain*. The D-Domain hosts long term memory, which corresponds to information acquired through direct experience. The I-Domain is the locus of short-term, temporary memory, which is information acquired through *indirect* experience (e.g., hearsay). Their characterization of

what *-yo* does is that it puts information in the addressee's *I-domain* for further inference. I ask the reader to retain this particular idea for when I present my analysis of notification in the λ-Table framework. The concept of evidentiality — which I think notification is a type of — will be highly reminiscent of Takubo and Kinsui's idea of *how a piece information was acquired*.

Others, e.g., Saigo (2001; 2006) have put these observations into a language that is more specific to *interactions* in discourse, which comes very close to the idea of illocutionary relations and dynamic semantics. Saigo's basic idea is that *-yo* poses a restriction on the way in which the addressee should respond to the assertion at hand. He gives us a concise definition of what *-yo* does:

> *yo* is used at the end of a sentence when the speaker wants or expects the addressee to respond with a new sentence which follows from or is related to it in some way. Although most often it will be the addressee who responds, the speaker may also continue himself/herself with a new or related idea. *A sentence marked with yo will typically contain something unknown to the addressee or sometimes even controversial.*
>
> (Saigo 2001; (p.217, emphasis added))

This gives us a great starting point for contemplating the formal pragmatics of *-yo*, and in fact, some of the existing formal analyses of the particle have taken facts like the one in the last line (emphasized above) to be a real part of its illocutionary meaning (Davis 2011). I take this as cue to turn to existing accounts of *-yo* in the formal semantics literature.

4.2.2 Previous formal accounts

Formalizing "notification" is tricky. McCready (2009) (citing Noda (2003), but see also Saigo (2001; 2006)) characterizes *-yo* as an requirement that the addressee be interested in

the information provided by the proposition. This means that in (327b), it is understood that the addressee is interested in knowing what time the movie starts.

(327) (Davis 2011; McCready 2009) (my translation)

a. eega-wa hachi-ji kara -da
movie-TOP 8-o'clock from COP
'The movie starts at 8'

b. eega-wa hachi-ji kara -da -yo
movie-TOP 8-o'clock from COP YO
'(FYI) the movie starts at 8'

McCready therefore analyzes *-yo* as a particle marking the *relevance* of its propositional complement to the hearer. While I agree (like many of the Japanese studies authors i have cited earlier) that typically, one does not notify others if the information is irrelevant to them, like Davis (2011) I believe that this analysis is too unconstrained: what counts as relevant and what does not is not specified enough.

A part of the difficulty is that there seems to be more than one use of *-yo*, which is something that Saigo (2001)'s definition of *-yo* suggests. To look deeper into the different pragmatics of *-yo*, Davis (2011) points to two distinct contexts in which *-yo* are used: GUIDE TO ACTION and CORRECTIVE.

(328) (Davis 2011)

a. GUIDE TO ACTION context

A: eega-o miru mae-ni gohan-o tabe-yoo -ka
movie-ACC watch before-DAT food-ACC eat-HORT Q
'Shall we eat before watching the movie?'

B: moo shichi-ji sugi deshoo? eega-wa hachi-ji kara da yo
already 7-o'clock past right movie-TOP from COP YO
'It's already past 7, right? (FYI) the movie starts at 8.'

b. CORRECTIVE context

A: eega-wa ku-ji kara dakara gohan-o taberu jikan-wa
movie-TOP 9-o'clock from because food-ACC eat time-TOP
juubunni aru ne
sufficiently there.is PRT
'Since the movie starts at 9, there's plenty of time to eat.'

B: chigau -yo. eega-wa hachi-ji kara da yo.
wrong YO movie-TOP 8-o'clock from COP YO
'That's wrong. (FYI) the movie starts at 8.'

The first one, the GUIDE TO ACTION use of *-yo*, has an imperative-like flavor: by using *-yo* in (329a), B, in Davis's terms, is using the notice *the movie starts at 8* to suggest an "optimal action": we should eat after the movie. In the CORRECTIVE context, it helps to read B's response with a little bit of disgust or offendedness: the *-yo* here indicates 'ugh, no (you idiot), let me correct your incorrect information: the movie starts at *8*'.

Davis's innovative observation was that GUIDE-TO-ACTION *-yo* has a RISING pitch (⇑) while CORRECTIVE one has *falling* (⇓):

(329) (Davis 2011)

a. GUIDE TO ACTION context

A: eega-o miru mae-ni gohan-o tabe-yoo -ka
movie-ACC watch before-DAT food-ACC eat-HORT Q
'Shall we eat before watching the movie?'

B: moo shichi-ji sugi deshoo? eega-wa hachi-ji kara da yo⇑
already 7-o'clock past right movie-TOP from COP YO
'It's already past 7, right? (FYI) the movie starts at 8.'

b. CORRECTIVE context

A: eega-wa ku-ji kara dakara gohan-o taberu jikan-wa
movie-TOP 9-o'clock from because food-ACC eat time-TOP
juubunni aru ne
sufficiently there.is PRT
'Since the movie starts at 9, there's plenty of time to eat.'

B: chigau -yo. eega-wa hachi-ji kara da yo.
wrong YO movie-TOP 8-o'clock from COP YO⇓

'That's wrong. (FYI) the movie starts at 8.'

What the two contexts have in common, again, is that *the movie starts at 8* is a notice of some sort to the addressee. This is the 'FYI' bit contributed by *-yo* itself. Where they diverge is what the addressee is to do with this newly acquired information: the rising variant suggests that they take a contextually salient action, and the falling variant instructs them to correct their previously held belief. These are the contributions of the respective intonation, which Davis takes to be the spell out of CCP modifiers in Japanese.

Prosodic segments as carriers of discourse information is not a phenomenon restricted to Japanese. For simplicity's sake we have been ignoring English sentence-final intonation in this dissertation thus far, but pitch contour actually plays a crucial role in the discourse semantics of sentences more generally (Pierrehumbert & Hirschberg 1990). The minimal pair in (330) is a classic example (↓ = falling pitch, ↑ = rising pitch).

(330) (Pierrehumbert & Hirschberg 1990)

a. Legumes are a good source of vitamins. ↓ (FALLING declarative)

b. Legumes are a good source of vitamins? ↑ (RISING declarative)

The falling declarative in (330a) is a canonical assertion in which the speaker commits to the truth of *legumes are a good source of vitamins*. The rising variant has a distinct meaning, however. The rising pitch in (330b) signals *verification*: the speaker is confirming the addressee's belief that legumes are a good source of vitamins.

Gunlogson (2004) analyzes rising and falling declaratives of this sort using a dynamic semantic framework, and we need to elaborate this beyond what was covered in Chapter 1 in order for us to understand Davis's analysis of *-yo*. Gunlogson follows the basic Stalnakarian notion of context change in discourse semantics, but her innovation comes in two areas: (i) the individualization of discourse commitments, and (ii) the change of the semantic type of force heads.

Prior to Gunlogson (2004), assertions were treated as an addition of a proposition to the CG — the set of propositions that all discourse participants are committed to — but Gunlogson argues that the intonational phenomenon suggests a split between what the speaker believes and what the addressee believes. Intuitively, it is the speaker that believes the vitamin benefits of legumes in (330a), and it is the addressee that believes this in (330b).

Gunlogson calls each discourse participant's set of propositions they are committed to *Discourse Commitments* (*DC*'s). Davis (2011) re-dubs them *public belief sets* (PB's), which I will use in this review. PB_{SPKR} is the speaker's public belief set, and PB_{ADDR} is the addressee's public belief set. Formally, the CG can be re-imagined as the intersection of every discourse participant's PB. Simplifying the discourse to just two participants, the speaker and the addressee, this can be viewed in the following way:

(331) $CG^{\text{C}} = PB^{\text{C}}_{\text{SPKR}} \cap PB^{\text{C}}_{\text{ADDR}}$

The idea is an intuitive and simple one: I believe certain things, you believe certain things, and whatever we agree on, that is the CG.

The individualization of PB's is crucial for explicating falling vs. rising declaratives. Gunlogson's other innovation is the decomposition of an assertion into the force head and an intonational morpheme. What falling and rising declaratives have in common is that *someone's* PB is being updated — the catch is that you don't know *whose* PB until the intonation kicks in. The falling contour anchors this to the speaker, and the rising contour anchors this to the addressee. This means that the force of assertion, shown as the ASSERT morpheme in my formulation below, has an unsaturated slot for an individual argument.

(332) $[\![\text{ASSERT}]\!] = \lambda x \lambda p \lambda C \lambda C' [PB^{\text{C}'}_x = PB^{\text{C}}_x \cup \{p\}]$

The intonation provides the x. Type-wise, $\uparrow$ and $\downarrow$ are $\langle\langle e, \langle st, cct\rangle\rangle, \langle st, cct\rangle\rangle$ modifiers. S should be read as 'Sentence', an object of type $\langle e, \langle st, cct\rangle\rangle$ (i.e., a locution without the agent specified). The denotations are provided below.

(333) a. $[\![\downarrow]\!] = \lambda S_{\langle e, \langle st, cct\rangle\rangle} \lambda p \lambda C \lambda C'.S(p)(C)(C')(\text{SPKR}_{\text{C}})$

b. $[\![\uparrow]\!] = \lambda S_{\langle e,\langle st,cct\rangle\rangle}\lambda p\lambda C\lambda C'.S(p)(C)(C')(\textsc{addr}_{\textsc{c}})$

Taking the falling declarative *legumes are a good source of vitamins* as an example, here is the full effect with the pieces combined:

(334) a. $[\![\downarrow]\!](\textsc{assert}) = \lambda p\lambda C\lambda C'[PB^{\textsc{c}'}_{\textsc{spkr}} = PB^{\textsc{c}}_{\textsc{spkr}} \cup \{p\}]$

b. $[\![\textsc{assert}\ \downarrow]\!]$ (legumes are a good source of vitamins)

$= \lambda C\lambda C'[PB^{\textsc{c}'}_{\textsc{spkr}} = PB^{\textsc{c}}_{\textsc{spkr}} \cup \{\text{legumes are a good source of vitamins}\}]$

(334b) corresponds to our paraphrase from before: the speaker gets committed to the proposition *legumes are a good source of vitamins*. The rising variant can be easily obtained by replacing the $\downarrow$ with $\uparrow$, thus SPKR with ADDR.

Davis's claim is this: *-yo* in Japanese is also a supplier of the x. He calls *-yo* an INCLUSIVE LOCUTIONARY OPERATOR; it says that the x is *all* discourse participants. His analytical intuition is that what the two uses of *-yo* have in common is that in addition to yourself, you are committing the *hearer* to a proposition as well. This is one way of characterizing "FYI" or "notification" at the discourse level.

One empirical motivation for the involvement of the addressee in *-yo* is the fact that you generally cannot use it in a monologue. The following utterance is infelicitous if the speaker is at a bus stop, talking to no one in particular:

(335) ?? basu kita *-yo*
bus came YO
Intended: 'Oh, (FYI) the bus is here' (Davis 2011)

This has the same weirdness as saying "FYI" in a monologue. I agree with Davis's informants that in order for (335) to be felicitous, it must be accommodated that the speaker is speaking to himself or some imaginary discourse participant.

With this in mind, the following is Davis's take on the denotation of *-yo* as an inclusive locutionary operator, where DSCP is the set of all salient discourse participants.

(336) $[\![\text{yo}]\!] = \lambda S_{\langle e,\langle st,cct\rangle\rangle}\lambda p\lambda C\lambda C'.S(p)(C)(C')(\textsc{dscp}_{\textsc{c}})$

Now we take an interim pause to see the semantics of the assertion *the movie starts at 7* YO, without any pitch marking. This will look very similar to English rising and falling declaratives.

(337) a. $[\![\text{YO}]\!](\text{ASSERT}) = \lambda p \lambda C \lambda C' [PB^{\text{C}'}_{\text{DSCP}} = PB^{\text{C}}_{\text{DSCP}} \cup \{p\}]$

b. $[\![\text{ASSERT YO}]\!](\text{the movie starts at 7})$
$= \lambda C \lambda C' [PB^{\text{C}'}_{\text{DSCP}} = PB^{\text{C}}_{\text{DSCP}} \cup \{\text{the movie starts at 7}\}]$

The paraphrase thus far is 'Now we all know that the movie starts at 7', which is a version of 'FYI the movie starts at 7'. Now we can introduce the semantics of GUIDE TO ACTION ⇑ and CORRECTIVE ⇓. L should be read as a variable for *locution*, which is a type $\langle c, ct \rangle$ object (e.g., a *-yo* sentence). I have simplified the denotation of ⇑ from its original version for readability (this modification will not bear on the rest of the chapter).

(338) a. $[\![\Uparrow]\!] = \lambda L_{\langle c,ct \rangle} \lambda C \lambda C' \left[\begin{array}{l} L(C)(C') \quad \wedge \\ \exists a \in \mathcal{A}[\neg \textbf{optimal}^{\text{C}}_{\text{ADDR}}(a) \wedge \textbf{optimal}^{\text{C}'}_{\text{ADDR}}(a)] \end{array} \right]$

b. $[\![\Downarrow]\!] = \lambda L_{\langle c,ct \rangle} \lambda C \lambda C' \left[\begin{array}{l} L(C)(C') \quad \wedge \\ \exists q[q \in PB^{\text{C}}_{x} \wedge q \notin PB^{\text{C}'}] \end{array} \right]$

Each pitch contour is a CCP modifier: it takes in a CCP and returns another CCP, but with further restrictions on it. ⇑'s restriction is that post-utterance, there is an optimal action a (among a set of salient actions A) that the addressee must take. This would be the GUIDE TO ACTION component. The restriction posed by ⇓ is a PB downdate on the addresse's part: it says to take q — understood to be a proposition incompatible with p — out of your PB. This translates into 'you were wrong,' or the CORRECTIVE use of *-yo*⇓.

Davis's paraphrase of *-yo*⇑ is that it is used to "motivate a particular action" (p.96). I would like to briefly point to a counterexample to this that Oshima (2011) provides, replicated below.

(339) (Situation: A and B are eating together. B is going to have a buffalo wing. A knows that it is very spicy, but does not know if B likes spicy food or not.)

A: sore, karai -yo
that spicy YO
'(FYI) that's spicy'

(Oshima 2011)

Here is the issue: in this context, A literally does not know what the optimal action for B is — eating the wings would be optimal if they like spicy food, but not eating the wings would be optimal if they do not. Oshima claims that this poses a problem for the Guide to Action account of *-yo*⇑: to say that *-yo*⇑ is used to "motivate a particular action" is too strong in this case.

I agree with Oshima that (339) is a perfectly natural example of rising *-yo*, but I do not think that this is actually a problem for Davis. It is only seemingly problematic given Davis's paraphrase ("motivate a particular action"), which makes it sound as if the speaker has a particular action in mind in the input context. Formally, however, nothing in Davis's denotation in (338a) says that there is a certain unique action that the addressee should take: there is only an *existential* claim being made in reference to actions, not a definite one. Upon closer inspection, what (338a) says is that in the output context, there is *some* optimal action ($\exists a \in A$), whatever it may be. This means that *-yo*⇑ is felicitous as long as post-utterance, the addressee takes an action that they deem optimal for the situation. The speaker has no say in what this action is according to the denotation. This is like saying 'use this information — it will be helpful for your decision making process', which is perfectly fine even in Oshima's example.

I do, however, have objections to ⇓. While it is true that *-yo*⇓ is often used for suggesting revision, *-yo*⇓ can also be used in non-corrective contexts as well. Consider the following contexts.

(340) (At the office. A young girl walks in and hands B an envelope. She leaves.)

A: ima-no dare desu -ka?
now-GEN who COP Q
'Who was that that just came in?'

B: aa, imooto -da -yo⇓
oh younger.sister COP YO
'Oh, that's my younger sister.'

I am not convinced that in (340) A is "correcting" B's belief that the mystery woman is *not* A's sister. Davis does note that sometimes the corrective nature of *-yo*⇓ is subtle, and that in those cases it indicates "only that the addressee was unduly biased against the truth of the proposition asserted" (p.124), but my intuition is that even that is not the appropriate characterization of (340). This *-yo*⇓ carries no annoyance towards the addressee's ignorance, which is what usually characterizes the "corrective" contexts. All it does is acknowledge B's ignorance, and makes the appropriate move to notify them of the situation.

I think the common denominator of the Corrective contexts and the context above is this: 'pre-utterance, the addressee did not know that *p*'. In other words, ⇓ is not necessarily a revision of the addressee's commitments — it is simply an indicator of their ignorance of the correct information. Is this ignorance requirement really specific to ⇓? I think the answer is yes. The rising variant *p-yo*⇑ has no explicit requirement that the addressee not know that *p*, which can be shown by the fact that it can be preceded by 'you might know this already but' (we saw this earlier, but without mention of pitch). This is a lot more downgraded for *p-yo*⇓.

(341) a. moo shitteru -kamoshirenai -kedo, kaigi-wa 3-ji -kara -desu
already know might but meeting-TOPIC 3-o'clock from COP
-yo⇑
YO
'You might know this already, but (FYI) the meeting starts at 3 o'clock.'

b. # moo shitteru -kamoshirenai -kedo, kaigi-wa 3-ji -kara -desu
already know might but meeting-TOPIC 3-o'clock from COP
-yo⇓
YO
'You might know this already, but (FYI) the meeting starts at 3 o'clock.'

My sense of the weirdness in (341b) is that the whole purpose of *-yo*⇓ is to say 'since

you clearly don't know,' but the preceding qualifier says 'you might know this already'; it's contradictory. I therefore re-dub *-yo*⇓ as ADDRESSEE IGNORANCE *-yo*.

4.2.3 Notification in the λ-Table framework

4.2.3.1 -yo is not a discourse commitment update

How can "notification" be modeled in a formal discourse framework? As a reminder, Davis's take on notification is that it's a commitment mutualizer: it commits all discourse participants to p.

(342) *-yo* as a commitment mutualizer

a. $[\![\text{YO}]\!](\text{ASSERT}) = \lambda p \lambda C \lambda C' [PB^{\text{C'}}_{\text{DSCP}} = PB^{\text{C}}_{\text{DSCP}} \cup \{p\}]$

b. $[\![\text{ASSERT YO}]\!]$(the movie starts at 7)
$= \lambda C \lambda C' [PB^{\text{C'}}_{\text{DSCP}} = PB^{\text{C}}_{\text{DSCP}} \cup \{\text{the movie starts at 7}\}]$
'We are all committed to *the movie starts at 7 now*'

Given Davis's use of a dynamic semantic framework, the translation into the Table framework is in principle easy. Let's see how far the translation gets us. Simplifying the discourse to just two participants (the speaker and the addressee), the following would be equivalent to (342). PB has been changed to DC to conform to the Table framework language.

(343) $[\![\text{ASSERT YO}]\!]$(the movie starts at 7)

$$= \lambda C \lambda C' \left[\begin{array}{l} DC^{\text{C'}}_{\text{SPKR}} = DC^{\text{C}}_{\text{SPKR}} \cup \{\text{the movie starts at 7}\} \wedge \\ DC^{\text{C'}}_{\text{ADDR}} = DC^{\text{C}}_{\text{ADDR}} \cup \{\text{the movie starts at 7}\} \end{array} \right]$$

Under the Table framework, ASSERT also puts $\{p\}$ on the Table, and projects acceptance. Just to be clear, *-yo* assertions *do* have at-issue content: it can be contradicted with 'That's a lie!':

(344) A: eega-wa hachi-ji kara -da -yo⇑/⇓
movie-TOP 8-o'clock from COP YO
'(FYI) the movie starts at 8'

B: uso-da! ku-ji kara -da -yo⇓
lie-COP 9-o'clock from COP YO
'That's a lie! It's starts at 9.'

If the YO ASSERT force applies to *the movie starts at 7*, we get the following.

(345) [[ASSERT YO]](the movie starts at 7)

$$= \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{\text{the movie starts at 7}\} & \wedge \\ PS = CG^{C} \cup \{\text{the movie starts at 7}\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\text{the movie starts at 7}\} & \wedge \\ DC^{C'}_{ADDR} = DC^{C}_{ADDR} \cup \{\text{the movie starts at 7}\} & \end{array} \right]$$

This causes a problem. Recall that the CG is the intersection of DC_{SPKR} and DC_{ADDR} (cf., Chapter 1, Gunlogson (2004)). This means that the last two lines of (345) reduce to the following:

(346) [[ASSERT YO]](the movie starts at 7)

$$= \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{\text{the movie starts at 7}\} & \wedge \\ PS = CG^{C} \cup \{\text{the movie starts at 7}\} & \wedge \\ CG^{C'} = CG^{C} \cup \{\text{the movie starts at 7}\} & \end{array} \right]$$

But then, the strange consequence is that since p is in the CG, p should be taken off the Table. We could think of this in one of two ways: (i) *-yo* sentences have nothing at-issue (nothing on the Table), or (ii) *-yo* makes a proposition already in the CG at-issue. Neither is an elegant explanation, and more crucially, it is not empirically true that p trivially updates the CG in a *-yo* sentence since the propositional content is still challengeable with 'that's not true'.

I have further empirical objections to the idea that the *addressee* DC is being updated, which for Davis is the important distinction between canonical assertions and *-yo* assertions. This again partly takes inspiration from Gunlogson's rising declaratives, but I think the involvement of the manipulation of the addressee's commitment is far more clear with the

original phenomenon than with *-yo*. For instance, the addressee can explicitly object to their DC being updated in reaction to a rising declarative:

(347) A: Legumes are a good source of vitamins?↑

B: { What? I don't believe that! / What? I never said that! / Huh? No one made such a claim. }

The Japanese equivalent of these responses do NOT make felicitous replies to a *-yo* statement.

(348) A: kaigi-wa 7-ji kara desu -yo⇑/⇓
meeting-TOP 7-o'clock from COP YO
'(FYI) the meeting is at 7 o'clock'

B: # { ha? sonna koto omotte-nai-yo⇓. 'What? I don't believe that.' / ha? sonna koto itta oboe nai -yo⇓. 'What? I don't remember saying that.' / e? daremo sonna koto ittenai yo⇓. 'Huh? No one said such a thing.' }

The above conversation should be good if *-yo* updates the addressee's commitments, at least as a subpart of its denotation. This is not the case.

Another piece of evidence that points away from commitments as the relevant discourse part in *-yo* is that there is a reaction unique to notifications: 'thank you'.

(349) A: kaigi-wa 7-ji kara desu -yo⇑/⇓
meeting-TOP 7-o'clock from COP YO
'(FYI) the meeting is at 7 o'clock'

B: a, arigatoo.
oh thank.you
'Oh, thank you'

'Thank you' is slightly stranger as a response if the preceding statement does not end with *-yo*. For example, if A is just reading off the schedule for the day to their colleagues in a matter-of-fact way, 'thanks' is a marked response:

(350) (A is reading off of the schedule for the day)

A: kaigi-wa 7-ji kara desu
meeting-TOP 7-o'clock from COP YO
'The meeting is at 7 o'clock'

B: ?? a, arigatoo.
oh thank.you
'Oh, thank you'

To make B's response felicitous in (350), I must accommodate a nuance where A intends 'the meeting starts a 7' to be a relevant piece of information for B — i.e., a *-yo*-like interpretation. The contrast is even clearer with the following examples:

(351) A: ame futteru-yo⇑
rain fall-YO
'(FYI) it's raining'

B: a, arigatoo.
oh thank.you
'Oh, thank you'

(352) A: ame futteru
rain fall-YO
'It's raining'

B: ?? a, arigatoo.
oh thank.you
'Oh, thank you'

B's gratitude in (351) is in reference to A notifying them that it is raining, which comes from *-yo*. Without it in (352), A's statement is just a matter-of-fact observation that it is raining (e.g., maybe the both of them just stepped outside), irrelevant to B's needs. In this case, B's *arigatoo* is a very strange reaction, since A's statement was not "for" B.

Considering these empirical observations, I'd like to take an approach where notification is fundamentally a different phenomenon from discourse commitments.

4.2.3.2 Notification is not a common ground update either

If notification via *-yo* is not a commitment update, then what part of the discourse *is* it manipulating? What kind of non-at-issue meaning is it? Here I start with the null hypothesis that it is simply a type of conventional implicature (CI) that adds 'the speaker is notifying the addressee that p' (e.g., NOTIF(p)) directly to the CG. I will ultimately reject this hypothesis.

I will use the *peripherality* test for CI meaning as a diagnostic (cf., Chapter 1). As a reminder of the pattern, here is the observation: appositives (a type of CI meaning) is a 'peripheral' point compared to the at-issue meaning.

(353) A: Steve, who is Amy's husband, wrote this paper.
B: # { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } he didn't write this paper.
(contesting the at-issue meaning)

(354) A: Steve, who is Amy's husband, wrote this paper.
B: { Wait. This is peripheral to your point, but: / Wait. This is beside the point, but: } he isn't Amy's husband.
(contesting the appositive meaning)

The reason that this particular reaction is infelicitous in (353) is because the issue that Steve wrote this paper was the whole point of the utterance: it is not "peripheral" or "beside the point" by any means. On the other hand, this is a natural way to stop the conversation to correct the appositive content: the appropriate sentiment is 'not that this error matters for your overall point, but — let me correct this anyway'.

Coming back to *-yo*, the hypothesis is this: *-yo* is perhaps an off-hand comment that the speaker is notifying the addressee of p, giving it the same discourse status as an appositive — a direct CG update. Before diagnosing *-yo*, I would like to establish a point of comparison with contexts that pass the peripherality test in Japanese. Appositives are not a good baseline since they are always prosodically integrated in Japanese (Del Gobbo 2014). That is, the restrictive relative clause does not have comma intonation in (355).

(355) atsuko-no otto dearu satoshi-ga kono hon-o kai-ta
Atsuko-GEN husband be.ASP Satoshi-NOM this book-ACC write-PAST
(Roughly) 'Atsuko's husband Satoshi wrote this book'

We do have other forms of CI meaning in Japanese: honorifics, as argued by (McCready 2010). Recall from Chapter 2 that honorifics pass the peripherality test:

(356) A: suzuki-sama-ga okakininarareta hon -desu.
Suzuki-HON-NOM write.HON.PAST book -COP.HON
'This book was written by Mr. Suzuki (whom I highly revere)'

B: Chotto matte. hanashi zureru kedo Suzuki, sonnani sonkeesuru
a.little wait conversation shift but Suzuki that.much respect
hodo-no yatsu -janai -yo.
extent-GEN person.PEJ is.not YO
'Hold on. This goes off topic, but: Suzuki isn't someone you need to honor/revere/respect that much'

-yo does *not* have the same feel of "off-side comment". The peripherality test fails with *-yo* sentences. The context in (357)-(358) is that A and B are movers moving household items. First, (357) shows that the infelicity of the notificative nature of *-yo can* be explicitly addressed in a context like this, where the "notification" of the obvious is unwarranted. The question is whether this is a peripheral issue, however. The judgment is subtle (I will elaborate on this shortly), but (358) is degraded for me.

(357) A: gurando piano, omoi -desu -yo
grant piano heavy COP.HON YO
'FYI, the grand piano is heavy.'

B: ha? sore, shiraseru tsumori-de itteru -no? (atarimaejan.)
huh that to.notify intention-with saying -Q of.course.it's.true
'The hell? You're notifying me of this? Of course it's heavy.'

(358) A: gurando piano, omoi -desu -yo
grant piano heavy COP.HON YO
'FYI, the grand piano is heavy.'

B: ?? Chotto matte. hanashi zureru kedo: sore, shiraseru tsumori-de
a.little wait conversation shift but that to.notify intention-with
itteru -no? (atarimaejan.)
saying -Q of.course.it's.true
Intended: 'Hold on. This goes off topic, but: you're notifying me of this? Of course it's heavy.'

The complication with the judgment is that the meaning of *-yo* is certainly non-at-issue (i.e., not on the Table), since 'Liar! You're not notifying me of this!' is not a felicitous reaction to a *-yo* sentence. To elaborate on my double question mark in (358), the intuition that I have is 'but it's NOT the case that it's not the main point *per se*'. In some sense, the entire *point* of this sentence was to notify. This is a sharp contrast with honorific marking, whose contribution clearly feels like secondary information. This compels me to think that the meaning of *-yo* has a much more prominent status in the discourse: it is illocutionary meaning. This leads the next question, which is: well, what is this illocutionary meaning?

4.3 Notification is a type of presentation

One simple analysis for the act of notifying is that it is a type of illocutionary modifier that makes reference to a part of the discourse structure specific to notification. If '*-yo* is a CI (i.e., a CG update)' was hypothesis 1, this is hypothesis number 2 — also to be rejected shortly.

If *-yo* modifies an assertion under this hypothesis, the overall force would literally just be 'assert and notify'. One way of formalizing 'notify' could go something like this: if discourse participants have a set of discourse commitments, they also perhaps have a set of discourse *notes* (DN's). DN's could be a set of propositions that have been "noted" or "acknowledged", which are not necessarily propositions participants are committed to the truth of. *-yo* would hypothetically be something that adds a proposition to this set:

(359) $[\![yo]\!] = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C' \left[\begin{array}{ll} F(p)(C)(C') & \wedge \\ DN^{C'}_{\text{ADDR}} = DN^{C}_{\text{ADDR}} \cup \{p\} & \end{array}\right]$

(HYPOTHESIS 2, to be rejected)

What this analysis of *-yo* says is 'please add p to your notes'. There is nothing wrong with this idea in terms of accounting for the discourse behavior of *-yo*, but there is actually already an independent proposal in the Table framework literature for the concept of a "non-commitment" set. In this section, I will outline this idea by Déchaine et al. (2016) (called the VIEW), accompanied by a discussion of evidentiality, which is what this system is designed to account for.

4.3.1 Evidentiality in discourse

Evidentiality is the marking of the source of information (Aikhenvald 2004; Murray 2010). Many languages have grammatical markings for various types of evidence, including direct evidence, hearsay evidence, inferential evidence, and more. Here are some examples from Japanese.

(360) a. satoshi-wa kaet-ta -rashii
Satoshi-TOP return-PAST EVID.HEARSAY
'I hear Satoshi went home'

b. satoshi-wa kaet-ta -mitai -da
Satoshi-TOP return-PAST EVID.VISUAL COP
'I gather that Satoshi went home'

Unlike Japanese, English does not have evidential marking as functional morphemes, but it can express evidentiality with specific verbs, for example (Murray 2010).

(361) a. Steve passed the exam

b. It seems / I gather / I hear that Steve passed the exam

The sentences in (361b) all make reference to the source of the speaker's information on Steve passing the exam, which is what sets it apart from the bare variant in (361a).

Much of the debate in the evidential literature concerns what level of meaning evidentials occupy. The main split is between the at-issue and non-at-issue camps. Proponents of the at-issue side analyze evidentials as something that changes the modal base of a proposition (e.g., 'in all worlds compatible with what the speaker hears…' etc.) (Faller 2006; Kratzer 1991; Matthewson 2011; Matthewson et al. 2007; McCready & Ogata 2007; among others). The non-at-issue side splits into two approaches: some think evidentials contribute CI meaning (Murray 2010) while others propose that they operate at the illocutionary level (Faller 2002; Portner 2006; Rett & Murray 2013).

The View approach that I am about to present of course falls in the "evidentiality is illocutionary meaning" camp. As a part of the presentation I will cite examples of what I think are compelling evidence against the other approaches, but I acknowledge the on-going-ness of the evidential debate and the existence of complex types of evidentials that put a damper on the non-at-issue approaches (e.g., evidentials that make reference to events, putting the at-issue approach in favor (Matthewson 2011)). By adopting this particular approach, I by no means claim to have a solution to all of the puzzles present in the evidential literature; that is beyond the scope of this dissertation. For readers interested in the particular mechanism of each approach, Matthewson (2011) is fantastic recent overview.

4.3.2 Déchaine et al. 2016: the View

It has been argued that normal assertions like (361a) and evidential statements like (361) do fundamentally different things at the discourse level: assertions propose to put p in the CG, while evidential sentences merely *present* p, not necessarily meant to update the CG (Déchaine et al. 2016; Faller 2002; Portner 2006)

One motivation for separating presentation from assertion is that you cannot challenge evidentials in the same way that you challenge assertions (Faller 2002; Murray 2010). The evidential component (at least if it is functionally (and not lexically) marked) is clearly unchallengeable, even if the speaker feels that the person making the evidential claim is

lying about the source of information.

(362) Functional evidential (Japanese)

A: satoshi-ga kabin-o wattta -rashii
Satoshi-TOP vase-ACC broke EVID.HEARSAY
'I hear that Satoshi broke the vase '

B # uso-da! sonna uwasa kiite -nanka -inai -daro! omae-wa satoshi-ga
lie-COP such rumor hear PEJ NEG DAROO you.PEJ-TOP Satoshi-NOM
kirai dakara soo kiita furi-o shi-teiru dake -da
unfavorable because so heard act-ACC do-PROG only COP
'That's a lie! You did not hear such a rumor. You're just pretending to have heard it because you hate Satoshi.'

(363) Lexical evidential (English)

A: I hear that Steve broke the vase.

B: ? That's not true! You did not hear that, you are just pretending to have heard that to turn us against Steve!

My judgment for the Japanese example is 'well it's not a *lie*'. The insincere use of the hearsay evidential is just infelicitous. The level of badness of the English counterpart is not as bad for me, but I do feel that it's a bit strange. I don't think the contrast between functional and lexical evidentials is surprising.

Focusing on Japanese, I further add that THWT (the hell was that) type reactions are much more natural, confirming that this the evidentiality is some sort of non-at-issue meaning.

(364) Functional evidential (Japanese)

A: satoshi-ga kabin-o wattta -rashii
Satoshi-TOP vase-ACC broke EVID.HEARSAY
'I hear that Satoshi broke the vase '

B # ha?? nan-da sorya. sonna uwasa kiite -nanka -inai -daro! omae-wa
huh WH-COP that.TOP such rumor hear PEJ NEG DAROO you.PEJ-TOP
satoshi-ga kirai dakara soo kiita furi-o shi-teiru dake -da
Satoshi-NOM unfavorable because so heard act-ACC do-PROG only COP

'What the hell is that? You did not hear such a rumor. You're just pretending to have heard it because you hate Satoshi.'

Now for the peripherality test, which separates CI meaning from illocutionary meaning.

(365) Functional evidential (Japanese)

A: satoshi-ga kabin-o wattta -rashii
Satoshi-TOP vase-ACC broke EVID.HEARSAY
'I hear that Satoshi broke the vase '

B: # Chotto matte. hanashi zureru kedo, sonna uwasa-ga atta -no?
a.little wait conversation shift but such rumor-NOM there.was -Q
'Hold on. This goes off topic, but: there was a rumor like that?'

I judge the hearsay evidential to be *definitely* not peripheral to the main point. That was *the* point of A's utterance. This suggests that evidentiality, at least in Japanese, is a type of illocutionary meaning.

To add to this observation a bit further, Déchaine et al. (2016) also provides types of reactions in discourse that prompt evidence, such as *what makes you say that?*.

(366) Adapted from Déchaine et al. (2016)

(Context: Where was Barack Obama born?)

A: Barack Obama was born in Hawaii. (assert p)

B: No way. What makes you say that? (rejects p, requests evidence for p)

A: Well, I've seen his birth certificate, and it says he was born in Hawaii.
(present evidence for p)

B: Oh ok. (endorse p)

The presence of such reactions alone does not serve as evidence for the illocutionary status of evidentials, but I follow Déchaine et al. (2016)'s intuition that sentences that mark evidence feel like a separate class of sentences.

Adapting the Table framework, Déchaine et al. (2016) propose discourse parts that evidentials are sensitive to: the VIEW and the ORIGO GROUND (OG). The main idea is this: evidentials put propositions into *View* by presenting evidence for it. The purpose of putting it into View is to add it to the *origo ground*, the set of propositions that discourse participants have evidence for. There is also the *origo commitment* set (OC_X), which is the set of propositions each individual X has experiential evidence for.

I will illustrate their approach using the discourse in (366) as an example. I will use lists instead of their box notation for readability. The relevant moving parts associated with each discourse move is marked with a star. The normal bullets are components imported from the immediately preceding discourse context.

(367) a. K1: A asserts *Barack Obama was born in Hawaii*

- ★ $top(T) = \{\text{O was born in HI}\}$
- ★ $DC_A = \{\text{O was born in HI }\}$
- ★ $PS = CG_{K1} \cup \{\text{Obama was born in HI}\}$

b. K2: B rejects *Barack Obama was born in Hawaii*

- $top(T) = \{\text{O was born in HI}\}$
- $DC_A = \{\text{O was born in HI }\}$
- ★ $DC_B = \{\neg\text{O was born in HI}\}$
- ★ $PS = \emptyset$ CRISIS!

c. K3: A presents evidence for *Barack Obama was born in Hawaii*

- $top(T) = \{\text{O was born in HI}\}$
- $DC_A = \{\text{O was born in HI }\}$
- $DC_B = \{\neg\text{O was born in HI}\}$
- $PS = \emptyset$

- ★ $top(V_A) = \{\text{O was born in HI}\}$
- ★ $OC_A = \{\text{O was born in HI}\}$
- ★ $OG = OG_{K2} \cup \{\text{O was born in HI}_A\}$

d. K4: B endorses *Barack Obama was born in Hawaii*

★ $top(T) = \{\emptyset\}$ STABLE! ★ $top(V_A) = \{\emptyset\}$

★ $DC_A = \{\emptyset\}$ • $OC_A = \{\text{O was born in HI}\}$

★ $DC_B = \{\emptyset\}$ • $OG = OG_{K3} \cup \{\text{O was born in HI}_A\}$

★ $CG = CG_{K3} \cup \{\text{O was born in HI}\}$

★ $PS = \{\emptyset\}$

(367c) requires some explanation. V is the View; for Déchaine et al., the View is individualized to each discourse participant: there are propositions that A presents, and propositions that B presents, etc. When a discourse participant makes a presentative move (e.g., provides evidence), they put p into their View. They also commit to this evidence by adding p to their OC. According to Déchaine et al., this move also updates the OG with p_A, which is evidence for p from A's perspective. Déchaine et al. have an independent objective of providing a unified analysis of evidentials and assertions of personal taste (e.g., *Rollercoasters are fun*, cf., Lasersohn (2005)), which is why this judge-dependence is necessary. For the criticism I am about to present, I presuppose that alternate mechanisms are possible for modeling predicates of personal taste and judge-dependence; for my analysis of these, I direct the reader to Chapter 3 of this dissertation.

I find the core idea of the View appropriate and intuitive as a way of modeling evidentiality, but there are a few concerns. Evidentials present p, which puts it into View. What is not clear to me is how p goes *off* View. Déchaine et al. say, "Presentation of a proposition updates the og, and this update removes propositions from View" (p.28). But presenting a proposition is what puts it in View; as they describe it: "by virtue of volunteering information …A puts [p] in View and thereby updates the og" (p.33). From how I understand this, this means that evidentials put p in View and take it off View simultaneously. I fail to understand the role of the View if this is the case.

What makes more sense to me is making the View an analog of the Table: evidence that goes in View are up for *inspection*, which would be a parallel of issues on the Table being up for discussion. Intuitively, if you present evidence, you must get the other person to accept it as good evidence. We have already seen that evidentials do not have truth values, but you can still contest it by other means. There are many ways to deny the proposal of a piece of evidence:

(368) A: Obama was born in Kenya.

B: Really? What makes you say that?

A: I saw his birth certificate, it says he was born in Kenya. (present evidence for p)

B: { That's bullshit. / I don't believe you. / No way. / You made that up. } No such thing exists. (reject evidence for p)

(369) A: I heard that Steve passed the exam. (present evidence for p)

B: { That's bullshit. / I don't believe you. / No way. / You made that up. } No one said that. (reject evidence for p)

Equally, there are ways to accept evidence:

(370) A: Obama was born in Hawaii.

B: Really? What makes you say that?

A: I saw his birth certificate, it says he was born in Hawaii. (present evidence for p)

B: { Good point. / That's convincing. / Oh ok. / (silence) } (accept evidence for p)

(371) A: I heard that Steve passed the exam. (present evidence for p)

B: { I believe that. / I heard that too. / Oh ok. / (silence) } (accept evidence for p)

The silence implying acceptance suggests that accepting evidence is the default move, which may be why Déchaine et al. construed it as automatic OG update. But the possibility of denial suggests that it can be UNDER INSPECTION when in View (to contrast it with at-issue content being under *discussion* on the Table). The evidence only goes in the OG — which I will reformulate as the set of mutually accepted p's with experiential basis — only if all of the discourse participants agree on it.

Here is my reformulation of PRES (for *presentational*), the illocutionary force responsible for evidentials.

(372) $$[\![\text{PRES}]\!] = \lambda p \lambda C \lambda C' \begin{bmatrix} top(V^{C'}) = \{p\} \\ OC^{C'}_{\text{SPKR}} = OC^{C}_{\text{SPKR}} \cup \{p\} \\ PO = \{OG^{C} \cup \{p\}\} \end{bmatrix}$$

(373) V = the View; the stack of propositions whose evidence is under inspection

$top(V)$ = topmost proposition in the View

OC_X = origo commitment of X; the set of propositions that X has experiential evidence for

PO = projected origo ground; the anticipated origo ground

OG = origo ground; the set of propositions for which there is mutual experiential basis

(372) does three things to the discourse structure. First, it presents evidence for p by putting it in View, and offers it for inspection. Second, it commits the speaker to the evidence that p by adding p to the origo commitment set of the speaker. Third, it projects acceptance by having p's addition to the origo ground the only member of the projected origo. This is literally like an assertion, except that it operates based on the View instead of the Table. The correlation is analytically satisfying.

For explicitness, here is an example with the English reportative *hear*. The source of information for reporatives like *hear* and visual evidentials like *seem* are clearly different, but the distinction is suppressed for the sake of simplicity here.

(374) $[\![$I heard that Steve passed the exam$]\!] = [\![\text{PRES}]\!]$(Steve passed the exam)

$$= \lambda C \lambda C' \left[\begin{array}{c} top(V^{C'}) = \{\text{Steve passed the exam}\} \\ OC^{C'}_{\text{SPKR}} = OC^{C}_{\text{SPKR}} \cup \{\text{Steve passed the exam}\} \\ PO = \{OG^{C} \cup \{\text{Steve passed the exam}\}\} \end{array} \right]$$

After the presentation of the evidence for *Steve passed the exam*, the addressee would accept or deny this piece of evidence, and the OG would be updated accordingly. The purpose of increasing the OG would be to gather as much information as possible to resolve the issue on the Table.

4.4 Analysis: *-yo* assertions

How does the View relate to *-yo* and notification? (375) is my formal proposal of what it means.

(375) $$[\![yo]\!] = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \left[\begin{array}{ll} F(p)(C)(C') & \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} & \end{array} \right]$$

The denotation above poses a restriction on whatever force F is at play. On top of the CCP that F (e.g., ASSERT) assigns, *-yo* adds an instruction to update the addresse's OC

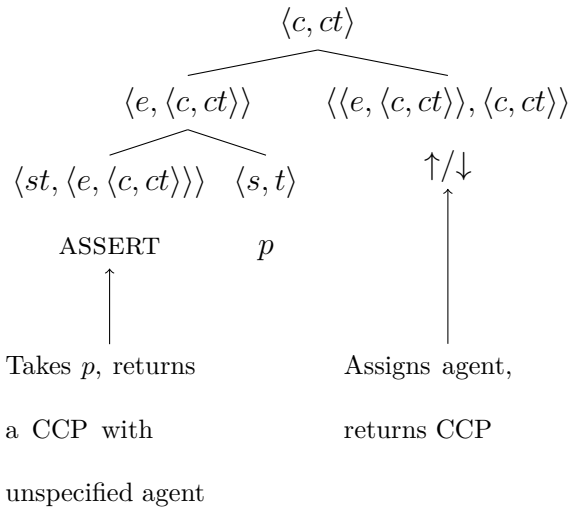
with p in the output context. Note that this still captures the oft-cited intuition that *-yo* is somehow addressee-oriented.

What does it mean for the speaker to put p in the set of propositions that the *addressee* has sensory evidence for? This is like saying 'you have sensory evidence of p'. This is actually a very appropriate paraphrase of notification, because by virtue of the speaker stating p, the addressee effectively has *hearsay evidence of* p. This is precisely what a notification is: 'you have hereby heard this from me'. This is what *-yo* marks. This is very similar to Kinsui & Takubo (1998)/Takubo & Kinsui (1997)'s idea that *-yo* classifies a piece of information as something that the hearer has indirect experience for.

Now I would like to turn to how *-yo* interacts with force, starting with assertions. One important technicality to address before decomposing *-yo* assertions is the fact that the semantic type of *-yo* under my analysis is drastically different from that of Davis's.

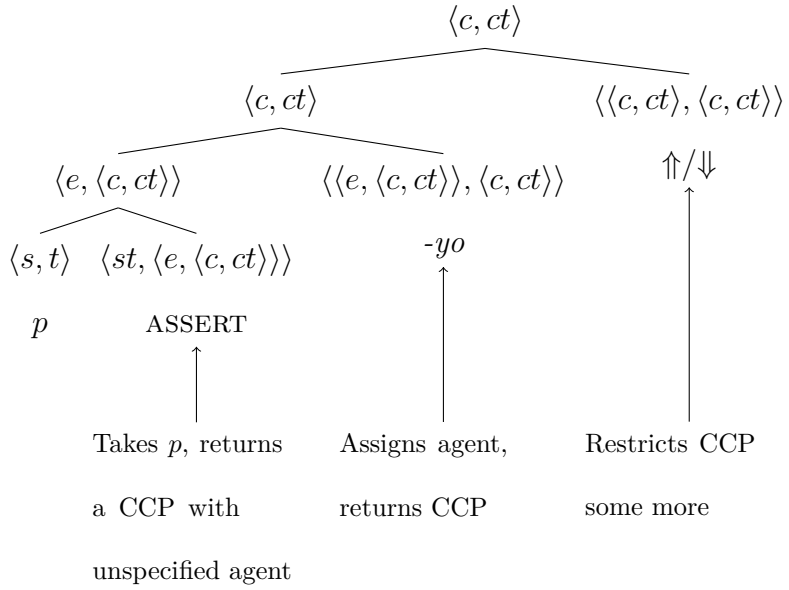
As previously discussed, Davis's analysis of *-yo* takes inspiration from Gunlogson's analysis of rising and falling declaratives. To recapitulate, Gunlogson's idea is that the force of assertion updates the discourse commitment of some discourse participant, but it does not say *who* on its own. The sentence-final intonation provides the *who*: falling is the speaker, and rising is the addressee. The decomposition may look like this:

(376) Gunlogson's decomposition of rising/falling declaratives in English



-yo is comparable to Gunlogson's ↑/↓ for Davis. If ↓ says 'me' and ↑ says 'you', *-yo* says 'us'. They are all agent assigners. His decomposition of *-yo* assertions below therefore mirrors (376) in many ways.

(377) Davis (2011)'s decomposition of *-yo* assertions



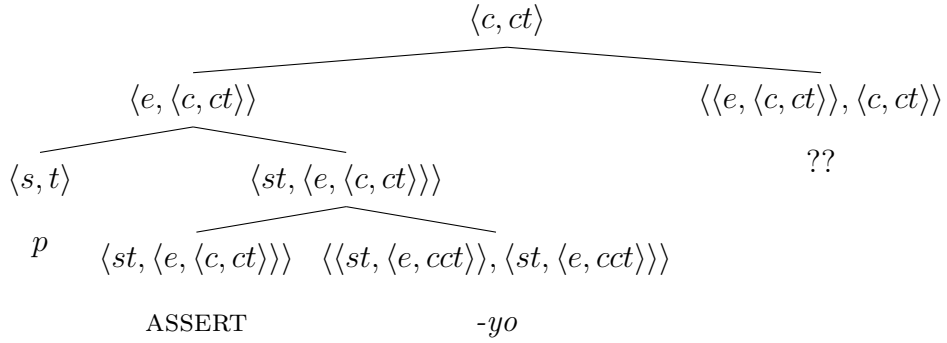
One additional component that is important for him, of course, is the rising and falling pitch on *-yo*. They are treated as CCP modifiers in (377), which is his proposal. The job of the pitch morpheme is to constrain the existing CCP in a particular way: ⇑ says 'there is an optimal action you should take (to resolve your decision making problem)', and ⇓ says 'there is a proposition that must be taken out of your commitment set (because you're wrong about it)'. Both are existential statements that are added on to the CCP it takes in.

I argued previously in this chapter that *-yo* actually cannot be an agent assigner; my proposal is that it is better understood as an addressee-oriented evidential marker. In addition to the force it is modifying, it says 'you hereby have (hearsay) evidence that p'. The crucial move I am making here is that *-yo* manipulates the at-issue proposition p in the discourse structure, meaning that it needs access to this p while it is still unvalued. In other words, it needs to be a force modifier, not a CCP modifier. This means that *-yo* would be nested one projection below where Davis proposed it should be:

(378) $[\![yo]\!] = \lambda F_{\langle st,\langle e,cct\rangle\rangle}\lambda p\lambda C\lambda C'\left[\begin{array}{ll} F(p)(C)(C') & \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} & \end{array}\right]$

(if F is type $\langle st, \langle e, cct\rangle\rangle$, to be revised)

(379) Revised decomposition (to be revised)



As the agnostic question marks suggest, the assumption that *-yo* is not an agent assigner creates a problem: something else must be an agent assigner instead. We could suppose that the default agent in Japanese is the speaker (Davis suggests that sentential-final fall indicates a default speaker agent), but then the question is whether we need to compositionally represent this at all, since we have lost the motivation for *-yo* being associated with addressee (and speaker) agent assignment. To rephrase the problem: is there evidence — one that does not rely on *-yo* — that suggests that Japanese has a DC_{SPKR} and DC_{ADDR} distinction?

The natural question then is what the translation of a rising declarative is in Japanese, since they arguably involve the update of DC_{ADDR}. The answer I'm afraid is unexciting: it would just be a normal polar question in many cases.

(380) mame-tte karada-ni ii-no?
beans-QUOTE body-DAT good-Q
'Are legumes good for you?' OR 'Legumes are good for you?'

(380) would be felicitous both as a question out of the blue (= polar question in English) *or* as a question verifying the addressee's belief (= rising declarative in English). There is, however, an interesting observation that without the polar question particle *-no*, the question

canNOT be interpreted as a rising declarative equivalent. In fact, questions of personal taste exhibit a split in the polar question vs. rising declarative interpretation, depending on the presence of *-yo*:

(381) a. jasutin biibaa suki?
Justin Bieber favorable
'Do you like Justin Bieber?' (out of the blue), NOT 'You like Justin Bieber?'

b. jasutin biibaa suki-na -no?
Justin Bieber like-ADJ Q
'You like Justin Bieber?', NOT 'Do you like Justin Bieber' (out of the blue)

Although such an analysis connecting *-no* to DC_{ADDR} seems possible, it is hard to conclude that *-no* necessarily marks addressee commitment just from this informal glance. While the contrast above merits a more in-depth inspection, I will leave this for future research since it does not bear directly on my analysis of *-yo*.

Before I drop this subject completely, I'd like to look one more time in the rich inventory of Japanese sentence-final particles for anything that approximates 'addressee belief', even if it does not translate into a rising declarative in English. The confirmation particle *-ne* comes to mind (cf., Saigo (2001) and references therein):

(382) niihongo-tte omoshiroi -ne
Japanese-QUOTE interesting NE
'Japanese is interesting (I assume you agree with me)'

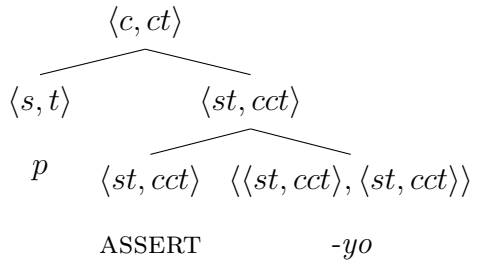
To clarify, (382) is not an information-seeking question at all (i.e., it's not 'Isn't Japanese interesting?)'. There is, however, the speaker presumption that the addressee has the same opinion as them. Although I stay agnostic of the analysis, I think *-ne* is promising as a particle that motivates DC_{ADDR} in Japanese.

That being said, for the purposes of this chapter, I take the conservative road of abandoning the agent variable X as a part of the semantics of ASSERT because I do not have sufficient evidence for motivating the DC_{SPKR}/DC_{ADDR} contrast in Japanese. I will assume for the time being that the ASSERT head updates DC_{SPKR}, with the agent pre-determined as

a part of its semantics. This decision is also for the sake of readability and simplicity: this neglect does not have any effect on my semantics of *-yo*.

Here is the final revision for the decomposition of *-yo* utterances, with the types modified to pre-Gunlogsonian assumptions.

(383) Revised decomposition



Based on this, here are the denotations of ASSERT and *-yo* I will be assuming below. I implicitly assumed that *-yo* has type $\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$ already when I introduced the denotation earlier; the formulation has not changed from (375). ASSERT is also the same as the denotation assumed in the previous chapters.

(384) $[\![\text{ASSERT}]\!] = \lambda p \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{p\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} & \\ PS = \{CG^{C} \cup \{p\}\} & \end{bmatrix}$

(385) $[\![yo]\!] = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \begin{bmatrix} F(p)(C)(C') & \wedge \\ OC^{C'}_{ADDR} = OC^{C}_{ADDR} \cup \{p\} & \end{bmatrix}$

Following this, the denotation of a *-yo* assertion is simple: it would be the combination of (384) and (385). For explicitness, the full derivation of *the movie starts at 7* YO (pitch on *-yo* excluded; to be introduced shortly) is provided below.

(386) $[\![yo]\!]([\![\text{ASSERT}]\!]) = \lambda p \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{p\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} & \wedge \\ PS = \{CG^{C} \cup \{p\}\} & \wedge \\ OC^{C'}_{ADDR} = OC^{C}_{ADDR} \cup \{p\} & \end{bmatrix}$

The paraphrase of the combined effect of ASSERT and *-yo* is 'Let's discuss p, I believe p, I anticipate that you'll agree that p, and you hereby have (hearsay) evidence for p.

4.4.1 Non-falling *-yo*: Action implicature

Davis suggests that "rising" *-yo* has a "guide to action" use, wherein the addressee has a *decision problem* in the input context, and the problem is resolved by some "optimal" action in the output context. As far as I can tell, his suggestion is that this contribution of the pitch morpheme is semantic, not pragmatic. He observes that in contexts where the speaker intends to guide the addressee's action, *-yo*⇑ declaratives are felicitous, but crucially, *-yo*⇑-less declaratives are *infelicitous*. The following is his example.

(387) Context: The addressee is driving at a speed of 55 miles per hour. The speaker says the following with the intention of getting the hearer to lower her speed.

a. koko-no seigensokudo jisoku 40-mairu da -yo⇑
here-GEN speed.limit per.hour 40-mile be YO
'The speed limit here is 40 miles per hour *yo*⇑'

b. # koko-no seigensokudo jisoku 40-mairu da
here-GEN speed.limit per.hour 40-mile be
'The speed limit here is 40 miles per hour'

While I agree with the contrast in judgment above, I think the speaker's intention to guide the addressee is cancelable in the *-yo*⇑-ful utterance, meaning that it is an implicature. The following would be a perfectly fine supplement to the same *-yo* utterance.

(388) Context: The addressee is driving at a speed of 55 miles per hour.

koko-no seigensokudo jisoku 40-mairu da -yo⇑. dakara doo shiro-tte
here-GEN speed.limit per.hour 40-mile be YO therefore how do-QUOTE
wake -janai -kedo.
case is.not but
'The speed limit here is 40 miles per hour *yo*⇑ — it's not that I'm telling you do something because of that, but.'

My idea of what *-yo* generally does, rising or falling, is similar to 'just so you know': the speaker is simply making the addressee aware of the fact that p. I think this reasonably creates the implicature that the addressee should do something with this information, but I do not think that this is an entailment of $\Uparrow$. The infelicitousness of the bare declarative in (387) is for me traceable to a problem of force: the speaker in (387b) is attempting to notify without marking the force of notification. I am not convinced that this particular example makes a case for an independent semantics for $\Uparrow$.

My position regarding the "guide to action" use of *-yo* is that the rising (or as I might call it, non-falling) variant is simply the unmarked use of *-yo*. *-yo* itself comes with a guide-to-action implicature. Therefore, I will not propose a semantics that is specific to $\Uparrow$. I do believe, however, that $\Downarrow$ adds observable constraints to the CCP of a *-yo* utterance.

4.4.2 Falling *-yo*: addressee ignorance

As argued earlier, *-yo*$\Downarrow$ does not necessarily have a "corrective" use as Davis says, although it is true that natural occurrences of *-yo*$\Downarrow$ are *often* corrective. Here is one example of the corrective context.

(389) A: a, mata jugyoo sabotta-n-desho
oh again class skip-FACT-DESHO
'You skipped class again today, didn't you!'

B: kyoo-wa it-ta -yo$\Downarrow$
today-TOP go-PAST YO
'I went today (how dare you think that I didn't)!'

I think the correctiveness of *-yo*$\Downarrow$ is reducible to the guide-to-action implicature of *-yo* itself. The suggested action that is being implicated here is 'correct your beliefs'. Like the more general action implicature of the non-falling *-yo* from earlier, this suggestion is cancelable:

(390) A: a, mata jugyoo sabotta-n-desho
oh again class skip-FACT-DESHO

'You skipped class again today, didn't you!'

B: kyoo-wa it-ta -yo⇓. betsuni shinjitekure -naku -temo -ii -kedo
today-TOP go-PAST YO particularly you.believe NEG even.if good but
'I went today (how dare you think that I didn't)! You don't have to believe me, but...'

But the question is why the action implicated by *-yo*⇓ here is *correction* particularly. There must be something that the falling pitch contributes that shapes the implicature in this way.

The key to understanding the contribution of ⇓ is the case in which its use is *not* corrective. (**??**) is a replication of a previous example — it shows that ⇓ is not always corrective.

(391) (At the office. A young girl walks in and hands B an envelope. She leaves.)

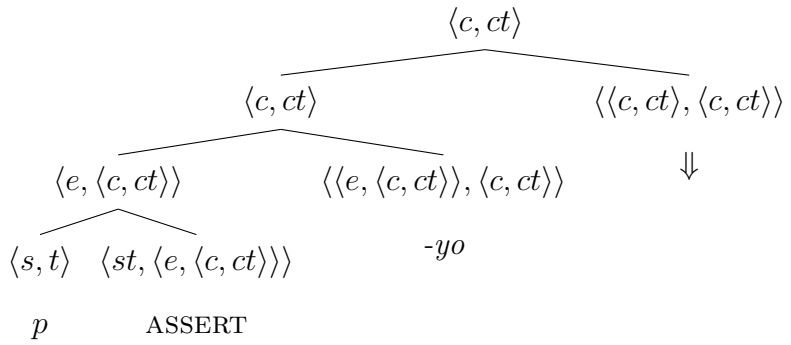
A: ima-no dare desu -ka?
now-GEN who COP Q
'Who was that that just came in?'

B: aa, imooto -da -yo⇓
oh younger.sister COP YO
'Oh, that's my younger sister.'

To repeat the observation from earlier, it is fairly clear that A did not hold any "wrong" beliefs prior to B's *-yo*⇓ utterance. B is not correcting A; A's only fault is that they were ignorant of the fact that the young girl was B's sister. The common denominator of a context like this and the more canonical "corrective" context is exactly that: ADDRESSEE IGNORANCE.

Following this observation, I propose that ⇓ is a modifier that restricts the input context of a CCP relation: it requires that p not be in the addressee's DC in the input context. Before formalizing this effect, a position regarding the semantic type of ⇓ must be taken. As a reminder, Davis assumes that it is type $\langle\langle c, ct\rangle, \langle c, ct\rangle\rangle$, a CCP modifier. His decomposition is repeated below.

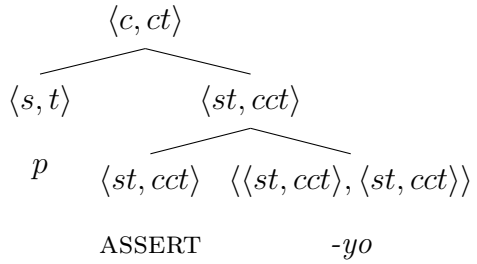
(392) Davis (2011)'s decomposition of *-yo* assertions



However, $\langle\langle c, ct\rangle, \langle c, ct\rangle\rangle$ for ⇓ only works if its contribution is independent of p. For example, Davis's take on ⇓ was 'there is a proposition q that is to be taken out of the addressee's public belief set'. Being an existential statement, this works as a $\langle\langle c, ct\rangle, \langle c, ct\rangle\rangle$ modifier: all it has to do is conjoin this restriction with what a *-yo* assertion already does.

My case is different. Since my version of ⇓ is 'the addressee did not know that p', we still need access to the base proposition p in its semantics. This means that it cannot be a $\langle\langle c, ct\rangle, \langle c, ct\rangle\rangle$ modifier where this access has already been lost. I start with the decomposition I have motivated earlier to consider our options for the type of ⇓.

(393) Revised decomposition

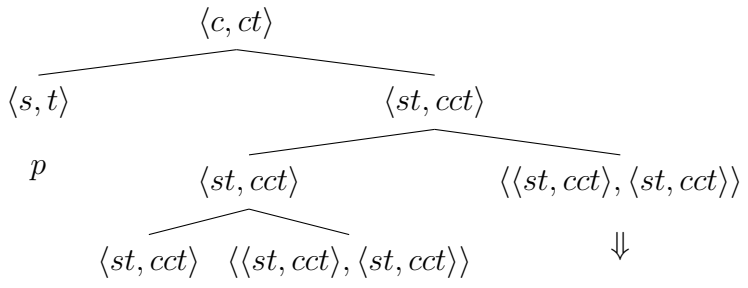


Put simply, the question is: *Where do we stick in ⇓ in the above tree?*.

Here is Option 1: ⇓ is a $\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$ modifier. It composes with ASSERT *-yo*:

(394) Option 1: ⇓ is $\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$

a.



b. $[\![\Downarrow]\!] = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C' \left[\begin{array}{c} F(p)(C)(C')\wedge \\ p \notin DC^{\text{C}}_{\text{ADDR}} \end{array}\right]$

One prediction that option 1 makes is that ⇓ is type compatible with any $\langle t, cct\rangle$ force head, including just ASSERT. This is hard to diagnose, however, since plain assertions in Japanese by default have falling intonation sentence-finally. A more testable prediction is that ⇓ should be compatible with *-ka*, a question marker of type $\langle st, cct\rangle$. Questions generally have a sentence-final rise, so the question is whether *-ka* can take on falling pitch. I think the answer is yes. With the precaution that this pitch contour may not be identical to my ⇓, I will annotate it as ↓ (and ↑ correspondingly).

(395) a. oono-kun ki-mashi-ta -ka↑
Oono-KUN come-HON-PAST Q
'Did Oono come?'

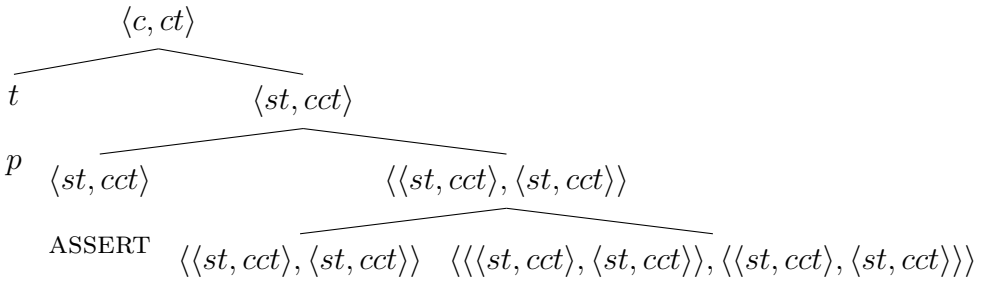
b. oono-kun ki-mashi-ta -ka↓
Oono-KUN come-HON-PAST Q
'Oono came, huh.'

(395a) is a normal polar question with rising contour. When this falls as in (395b), this turns into what some have called CONFIRMATIVE questions (Yokoyama 2013): it is a type of non-information seeking question wherein the speaker is processing the proposition at hand. Its best English gloss is (sentence-final) *huh*, or perhaps also the Canadian confirmative particle *eh*. I think this phenomenon is independently interesting, but it is not clear if this final fall is the same creature as ⇓. I will not deny the possibility that confirmative questions may be able to be framed in terms of ignorance, but this is not immediately intuitive to me.

I believe the safer option is Option 2: ⇓ is of type $\langle\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle, \langle\langle st, cct\rangle, \langle st, cct\rangle\rangle\rangle$. It is of a much higher type in this case — a modifier of a modifier. What this means is that it modifies *-yo* directly:

(396) Option 2: ⇓ is $\langle\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle, \langle\langle st, cct\rangle, \langle st, cct\rangle\rangle\rangle$

a.



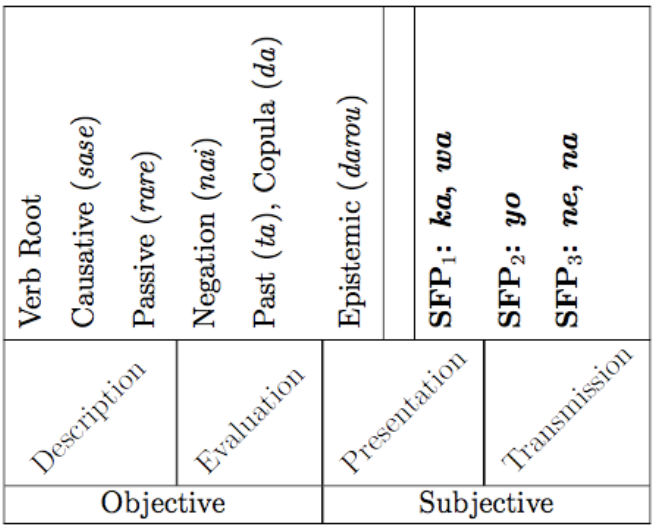
b. $[\![\Downarrow]\!] = \lambda M_{\langle\langle st,cct\rangle,\langle st,cct\rangle\rangle}\lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C' \begin{bmatrix} M(F)(p)(C)(C')\wedge \\ p \notin DC^{\mathrm{C}}_{\mathrm{ADDR}} \end{bmatrix}$

Making ⇓ a modifier of a modifier still raises the question of *does it modify anything other than -yo?*. A question within such a question is *is anything else type* $\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$ *(-yo's type)?*. The descriptive observation is that the position of *-yo* is extremely rigid: it must occur after particles that mark force, but before confirmation particles *-ne*/*-na*. Figure 4.1 shows a sketch of the Japanese right peripherary, taken from Davis (2011), who cites Minami (1993).

We can see from the table that *-yo* forms its own category, and to the best of my knowledge no other particle (in standard Japanese) can occupy the same position as it. So our answer to the question *does ⇓ modify anything other than -yo?* is no, but this is not an unfavorable answer if *-yo* is the sole force modifier (i.e., object of type $\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$) in Japanese.

My decision is therefore Option 2 for the purposes of this chapter. I do however think that there are deeper questions to be asked about the Japanese right peripherary and semantic type, including the question of whether *-ne*/*-na* in the chart above is the same type as what I am proposing for ⇓. I leave this for future research.

Figure 4.1: The Japanese right peripherary (Davis 2011)



As per usual, the full derivation of (396a) is provided below for explicitness. The sentence is *the movie is at 7* YO⇓.

(397) a. $[\![\text{ASSERT}]\!] = \lambda p \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{p\} & \wedge \\ DC^{C'}_{\text{SPKR}} = DC^{C}_{\text{SPKR}} \cup \{p\} & \wedge \\ PS = \{CG^{C} \cup \{p\}\} & \end{bmatrix}$

b. $[\![yo]\!] = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \begin{bmatrix} F(p)(C)(C') & \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} & \end{bmatrix}$

c. $[\![\Downarrow]\!] = \lambda M_{\langle\langle st,cct\rangle,\langle st,cct\rangle\rangle} \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \begin{bmatrix} M(F)(p)(C)(C') & \wedge \\ p \notin DC^{C}_{\text{ADDR}} & \end{bmatrix}$

(398) a. $[\![\Downarrow]\!](yo) = \lambda F_{\langle st,cct\rangle} \lambda p \lambda C \lambda C' \begin{bmatrix} F(p)(C)(C') & \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} & \wedge \\ p \notin DC^{C}_{\text{ADDR}} & \end{bmatrix}$

b. $[\![\Downarrow yo]\!](\textsc{assert}) = \lambda p \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{p\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{p\} & \wedge \\ PS = \{CG^{C} \cup \{p\}\} & \wedge \\ OC^{C'}_{ADDR} = OC^{C}_{ADDR} \cup \{p\} & \wedge \\ p \notin DC^{C}_{ADDR} & \end{bmatrix}$

c. $[\![\textsc{assert}\ yo \Downarrow]\!](\text{movie is at 7})$

$= \lambda C \lambda C' \begin{bmatrix} top(T^{C'}) = \{\text{movie is at 7}\} & \wedge \\ DC^{C'}_{SPKR} = DC^{C}_{SPKR} \cup \{\text{movie is at 7}\} & \wedge \\ PS = \{CG^{C} \cup \{\text{movie is at 7}\}\} & \wedge \\ OC^{C'}_{ADDR} = OC^{C}_{ADDR} \cup \{\text{movie is at 7}\} & \wedge \\ \text{movie is at 7} \notin DC^{C}_{ADDR} & \end{bmatrix}$

'You did not know that the movie is at 7, but you hereby have (hearsay) evidence that it is at 7. Also: I am asserting that the movie is at 7.'

4.5 *-yo* "interrogatives" and compositional surprise

One reason that *-yo* is treated as a force modifier and not an independent force of its own is because in addition to *-yo* assertions, there are also *-yo* interrogatives Davis (2011). The purpose of this section is to derive the semantics of *-yo* interrogatives compositionally. I will begin with polar questions (marked with *-ka*) with *-yo*, and then go into a discussion of WH-questions (marked with the copula *-da*) with *-yo*.

4.5.1 Polar questions with *-yo*

4.5.1.1 Data

When I say *-yo* "interrogatives," I use this term rather loosely in terms of its pragmatics: questions marked with *-yo* actually are not obviously information seeking. As Davis (2011) says, they are often rhetorical. Here are some naturally-occurring examples of polar questions in Japanese with *-yo*, extracted from Twitter. Since Twitter is a written corpus, the pitch

judgment on *-yo* (obligatorily falling) is mine; Davis (2011)'s consultants also report that *-ka-yo* canNOT have rising pitch.

(399) Nominals (non-subjective)

a. kyuushuu-mo jishin -ka -yo⇓
Kyushu-MO earthquake Q YO
'What the hell? Earthquake in Kyushu too??'

b. yabe, moo konna jikan -ka -yo⇓
bad already like.this time Q YO
'Crap, it's already this late??'

c. koe-ga yosugiru to omo-ttara kimura-san -ka -yo⇓
voice-NOM too.good that think-when Kimura-Mr. Q YO
'Damn, (the voice actor is) Kimura?? I knew the voice was too good'

d. kore-wa kaze hiita na... nodo itai, mata nodo -ka -yo⇓
this-TOP cold pull NA throat hurt again throat Q YO
'I definitely have a cold... my throat hurts, ugh the fucking throat again??'

e. shazai-mo nee -no -ka -yo⇓
apology-MO there.is.NEG FACT Q YO
'Not even a fucking apology??'

(400) Adjectival (non-subjective)

a. maji -ka -yo
serious/real Q YO
'This is for fucking real??'

b. hidoina, nihon-dake henkinfuka -ka -yo
awful Japan-just non-refundable Q YO
'This is awful, non-refundable just in Japan??'

Each of these examples are perfectly fine monologues: they need not be answered, and in fact, they have an exclamative-like flavor in which they are *reactions* to something. The rising declarative in the translation is intentional, there to convey the intuition that the speaker has a bias for *p* in *p-ka-yo* sentences. For example, (399a) is only felicitous if there really was an earthquake in Kyushu. Furthermore, the *-ka-yo* utterance is the speaker's

surprised reaction to the fact that there was an earthquake in Kyushu; the double question mark in the translation is my annotation of this disbelief. Native speakers of Japanese will also agree that this surprise is an unpleasant one in particular; most of the examples are translated using aggressive language to approximate this what-the-hell-ness in English.

An overwhelming number of examples from Twitter (and in my judgment, the most canonical use of *-ka-yo*) falls in either of the above two categories: appearing with non-subjective nouns (or otherwise nominalized clauses, like (399e)) or non-subjective adjectives. Both classes express 'the speaker is unpleasantly surprised by the fact that *p*'.

The reason that I distinguish subjectivity is because there is a rather contemporary use of *-ka-yo* with subjective predicates (Taniguchi 2016d). While this is not in my personal dialect, Twitter is a minefield of subjective *-ka-yo*'s. Below are some actual examples.

(401) Adjectival, subjective

a. saikoo -ka -yo
awesome Q YO
'This is awesome!!'

b. kawaii -ka -yo
cute Q YO
'This is cute!!'

c. hansamu -ka -yo
handsome Q YO
'He's handsome!!'

d. kakkoyo-sugi -ka -yo
cool-too Q YO
'That is too cool!!'

e. yukata sagashi tanoshii -ka -yo
summer.kimono search fun -Q YO
'Shopping for yukata's is fun!!'

The use of subjective *-ka-yo*, as far as I can tell, is exclamative-like. For instance, the first example *saikoo-ka-yo* — which is the most stereotypical example of this new *-ka-*

yo use — means 'that it's super awesome' according to a consultant with this dialect (a female speaker in her 20's), used as a reaction to something particularly very awesome (this particular example was in reference to a concert). Although the standard non-subjective *-ka-yo* cases will be my main source of analysis, I will comment on why subjective *-ka-yo* with this particular interpretation might arise after my proposal.

Another case of *-ka-yo* with a distinct interpretation are the verbal ones. This is a part of standard Japanese. Without *-no* on the VP, VP-*ka-yo* often creates the meaning that its contrary is true (Davis 2011). Like the previous cases of *-ka-yo*, it has a noticeably aggressive tone. Here are some examples from Twitter.

(402) Verbal

a. shiru -ka -yo
know Q YO
'I don't fucking know'

b. burokku-ga kowakute twitter-nante dekiru -ka -yo
block-NOM afraid.because Twitter-PEJ can.do Q YO
'I can't fucking use Twitter, I'm too afraid of being blocked (by people)'

c. haʔ sonnan-de bibiru -ka -yo
ha such.a.thing-with be.afraid Q YO
'Ha, as if something as stupid as that would scare me'

know-ka-yo means the opposite of what we might anticipate: 'I *don't* know'. My judgment of the aggression is paraphrasable as 'It would be ridiculous if I did know' or 'why would you expect that I know'; there is a sense that *someone* thought p would be true, and the speaker is offended by this (or is otherwise deriding this idea). This applies for the other examples as well above.

This negative interpretation is distinct from the non-subjective nominal/adjectival cases we saw earlier, since the meaning of those were 'unpleasant surprise'; it never suggested $\neg p$. Davis (2011) reports that without *-no*, the negative interpretation is obligatory, but as I have pointed out in Taniguchi (2016d), this is not the case. There are VP-*ka-yo*'s with

the standard 'unpleasant surprise' interpretations, without a negative interpretation (the following example is from Twitter):

(403) konndake kaite soko hannnoo suru -ka -yo
this.much write there react do Q YO
'What the hell, I write this much and you react to THAT part??'

Again, I will start my analysis focusing on the most canonical 'unpleasant surprise' interpretation of *-ka-yo* of this sort, but in the discussion I will test how far my story extends to this "negative" *-ka-yo*.

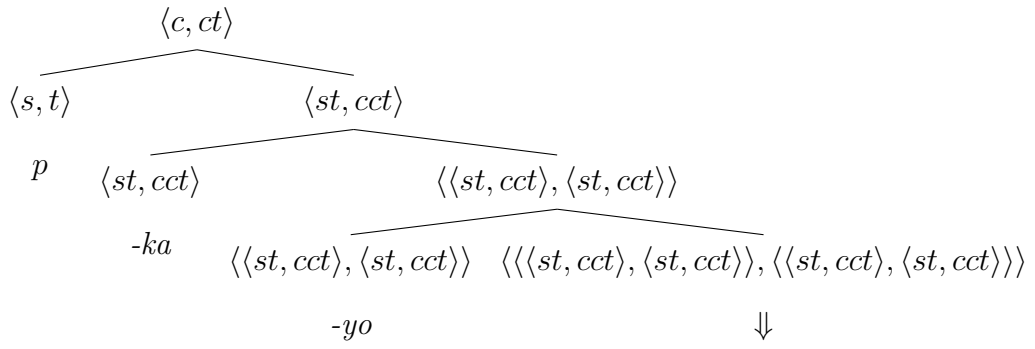
4.5.1.2 Analysis: questioning despite evidence = disbelief

The running example in my analysis will be *(there was an) earthquake-ka-yo*, one of the typical expressions of unpleasant surprise from earlier.

(404) jishin -ka -yo⇓
earthquake Q YO
'What the hell, a fucking earthquake??'

The task is fairly simple here: combine the semantics of the polar question particle *-ka*, the notification particle *-yo*, and the ignorance marker ⇓, and hopefully the effect is 'what the hell'. Following motivations from earlier, the assumed decomposition is shown below.

(405)



I take the standard assumption in the Table framework that polar question particles combine with p to raise $\{p, \neg p\}$ as an issue, projecting both p and $\neg p$ as anticipated resolutions.

Here are our lexical entries.

(406) $[\![ka]\!] = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\}, \\ CG^{C} \cup \{\neg p\} \end{array} \right\} & \end{array} \right]$

(407) $[\![yo]\!] = \lambda F_{\langle st,cct \rangle} \lambda p \lambda C \lambda C' \left[\begin{array}{l} F(p)(C)(C') \quad \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} \end{array} \right]$

(408) $[\![\Downarrow]\!] = \lambda M_{\langle \langle st,cct \rangle, \langle st,cct \rangle \rangle} \lambda F_{\langle st,cct \rangle} \lambda p \lambda C \lambda C' \left[\begin{array}{c} M(F)(p)(C)(C') \wedge \\ p \notin DC^{C}_{\text{ADDR}} \end{array} \right]$

Here is what happens when we literally put (406)-(408) together. The initial news is not good.

(409) a. $[\![\Downarrow]\!](yo) = \lambda F_{\langle st,cct \rangle} \lambda p \lambda C \lambda C' \left[\begin{array}{l} F(p)(C)(C') \quad \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} \wedge \\ p \notin DC^{C}_{\text{ADDR}} \end{array} \right]$

b. $[\![yo \Downarrow]\!](ka) = \lambda p \lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \{p, \neg p\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{p\}, \\ CG^{C} \cup \{\neg p\} \end{array} \right\} & \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{p\} \wedge & \\ p \notin DC^{C}_{\text{ADDR}} & \end{array} \right]$

c. $[\![ka\ yo \Downarrow]\!]$(there was an earthquake) =

$\lambda C \lambda C' \left[\begin{array}{ll} top(T^{C'}) = \left\{ \begin{array}{l} \text{there was an earthquake}, \\ \neg \text{there was an earthquake} \end{array} \right\} & \wedge \\ PS = \left\{ \begin{array}{l} CG^{C} \cup \{\text{there was an earthquake}\}, \\ CG^{C} \cup \{\neg \text{there was an earthquake}\} \end{array} \right\} & \wedge \\ OC^{C'}_{\text{ADDR}} = OC^{C}_{\text{ADDR}} \cup \{\text{there was an earthquake}\} \wedge & \\ p \notin DC^{C}_{\text{ADDR}} & \end{array} \right]$

'Was there an earthquake? You didn't know there was an earthquake, but you hereby have evidence that there was one.'

When we combine all of the morphemes together, we get a strange effect in which the speaker is inquiring whether there was an earthquake, all the while presenting evidence that there indeed was one. Since the speaker is the one presenting evidence, why should they have to ask if they effectively know the answer already? Answering one's own question in itself is not an illicit move, considering exclamatives do just that in order to indirectly manipulate the CG (cf., Chapter 3). The problem is even if *-ka-yo* is a self-answered question of this sort (note that it is a roundabout way of doing so however), this does not translate at all into 'the speaker is (unpleasantly) surprised that p'.

Let me begin an alternate analysis with what may sound like a cheat (bear with me): here is what I *want -ka-yo* to say.

(410) a. $[\![\Downarrow]\!](yo) = \lambda F_{\langle st,cct\rangle}\lambda p\lambda C\lambda C' \left[\begin{array}{l} F(p)(C)(C') \quad \wedge \\ OC^{C'}_{\text{SPKR}} = OC^{C}_{\text{SPKR}} \cup \{p\} \wedge \\ p \notin DC^{C}_{\text{ADDR}} \end{array}\right]$

b. $[\![yo \Downarrow]\!](ka) = \lambda p\lambda C\lambda C' \left[\begin{array}{l} top(T^{C'}) = \{p, \neg p\} \quad \wedge \\ PS = \left\{\begin{array}{l} CG^{C} \cup \{p\}, \\ CG^{C} \cup \{\neg p\} \end{array}\right\} \wedge \\ OC^{C'}_{\text{SPKR}} = OC^{C}_{\text{SPKR}} \cup \{p\} \ \wedge \\ p \notin DC^{C}_{\text{SPKR}} \end{array}\right]$

c. $[\![ka\ yo \Downarrow]\!]$(there was an earthquake) =

$$\lambda C\lambda C' \left[\begin{array}{l} top(T^{C'}) = \left\{\begin{array}{l} \text{there was an earthquake}, \\ \neg\text{there was an earthquake} \end{array}\right\} \quad \wedge \\ PS = \left\{\begin{array}{l} CG^{C} \cup \{\text{there was an earthquake}\}, \\ CG^{C} \cup \{\neg\text{there was an earthquake}\} \end{array}\right\} \wedge \\ OC^{C'}_{\text{SPKR}} = OC^{C}_{\text{SPKR}} \cup \{\text{there was an earthquake}\} \ \wedge \\ p \notin DC^{C}_{\text{SPKR}} \end{array}\right]$$

'Was there an earthquake? I didn't know there was an earthquake, but I hereby have evidence that there was one.'

I have made just one change to the previous denotations: I changed ADDR to SPKR. This question is self-directed.

The key here is that the speaker has been presented with evidence that there was an earthquake, but *they are still asking the question of whether there was one*. One way to interpret this is *disbelief*: 'Is it really the case that there was an earthquake? Is it true what the evidence is suggesting?' The other point in our favor is the speaker ignorance (the flipped $\Downarrow$ in the last conjunct) in the denotation. The speaker is not just in disbelief; that there was an earthquake is completely news to them. This accounts nicely for why *-ka-yo* is a construction of surprise. The combination of it all is that the speaker is in disbelief of the surprising information that they just got — I think this easily translates into 'what the hell' pragmatically. This derives the aggression that often accompanies *-ka-yo*.

Now the question is why everything is speaker-oriented in *-ka-yo*. I think there are two possible explanations. One appeals to the fact that *-yo* is technically an evidential construciton. There is an independently observed fact that in languages that have evidential marking, it exhibits a property called the INTERROGATIVE FLIP (Faller 2002). In an evidentially marked assertion, the person with the evidence is usually the speaker. Interrogative flip describes the phenomenon in which when the evidential marking is put in a question, the source of the evidence is suddenly anchored to the *addressee*. This is illustratable with English *seems*, even:

(411) a. Steve seems angry.
'Given what I see, Steve is angry.'

b. Does Steve seem angry?
'Given what YOU see, is Steve angry?' (INTERROGATIVE FLIP)

We can see in this case that the person witnessing Steve's rage is different in each sentence type: the speaker in the assertion, and the addressee in the question.

With *-ka-yo*, the flip is not from the speaker to the addressee, but rather, from the addressee to the speaker. Still, there may be something to said about this hypothesis that

this is the result of *-yo* being a type of evidential marking. To my knowledge there is no explanation of *why* the interrogative flip occurs, but there is perhaps a systemacity that could extend to *-ka-yo*.

The other hypothesis for explaining the speaker-orientedness of *-ka-yo* is the intonation on *-ka*. We saw earlier that falling pitch is generally allowed on *-ka*; it creates a self-posed question. My impression is that in *-ka-yo* the pitch on *-ka* is falling in addition to the falling *-yo*, but I would need phoneticist friends to confirm this. If the pitch indeed is noticeably falling on *-ka* in *-ka-yo*, there may be a way of compositionally explicating that the entire CCP is self-directed as a result of the falling *-ka*.

I am not committed to either of the hypotheses presently. I leave this for future work.

4.5.2 WH-questions with *-yo*

Before concluding, I would like to discuss another class of *-yo* "interrogatives": *-yo* as it appears in WH-questions. *-yo* in this case appears with WH-questions ending in *-da*, a copula;[1] I will therefore refer to this class as "WH-*da-yo*" interrogatives.

[1]Contrary to the popular but misleading label of *-ka* as a 'question marker', it actually does not appear in matrix WH-questions at all in casual speech. In fact, it is ungrammatical:

(1) a. dare -da?
who COP
'who is it?'

b. * dare -da -ka?
who COP Q
Intended: 'who is it?'

The descriptive fact (although often ignored) is that WH-questions are only grammatical with *-ka* if there is honorific marking (*-masu*/*-desu*) present:

(2) dare -desu -ka?
who COP.HON Q
'Who is it? (I'm asking this in a polite manner)'

Answering the question of why honorific marking is required for WH matrix questions is beyond the scope of this dissertation, but I strongly feel that this is a fundamental issue in Japanese semantics worthy of closer inspection.

WH-*da-yo* is briefly mentioned in Davis (2011). The example below is his, with his translation.

(412) omae asa doko itteta -n -da -yo⇓
you morning where go.PROG.PAST NO COP YO
'Where did you go this morning? (You shouldn't have been out!)'

Davis's analysis relies a lot on the parenthetical part of his translation: there is an implication that the addressee should have not been out, despite what they might have thought. Informally, his analysis is that the correct answer to the WH-question 'Where were you?' is 'none of the above'. The role that *-yo*⇓ has according to him is indicating that the speaker's previously held belief (that the answer should've been 'none of the above') has been disconfirmed.

Although I agree that in this particular example there is a strong implicature that the speaker is annoyed that the addressee went out at all, WH-*da-yo* does *not* always mean 'the answer should have been *none of the above*'. In my judgment, 'you should not have X' is not the intuitive contribution of *-yo*⇓ in a WH-question. Rather, my intuition is that it contributes *the speaker's insistence that the addressee reveal the answer*. The way that I would translate (412) is 'where the hell were you this morning', which has a similarly aggressive nuance of 'I have no idea what the answer is so you better tell me right now'.

To illustrate this contestation further, here is a slightly different *where* question with *-yo*. Imagine the context of hide-and-seek: the addressee is particularly good at hiding, and after the seeker gives up trying to find them, they come out of hiding to reveal themself. The speaker did not see where exactly the addressee came out from, so they ask:

(413) omae doko kakureteta -n -da -yo⇓
you where hide.PROG.PAST NO COP YO
'Where the hell were you hiding?'

Clearly, in the context of hide-and-seek, it is not at all the case that the answer to 'where were you hiding?' should have been 'none of the above'. The addressee definitely should have

been hiding somewhere; it's just that this hiding spot was beyond the speaker's imagination. This example calls Davis's line of analysis into question. Again, the intuition of the effect that *-yo*⇓ has here is that the speaker doesn't have a clue as to what the answer is, but the addressee clearly has an answer: in other words, 'please reveal the answer'.

As with *-ka-yo*, the pitch on *-yo* is obligatorily falling in WH-*da-yo* (Davis 2011). So how exactly does a WH-question with *-yo*⇓ differ from its unmarked counterpart? (**??**) is a minimal pair to highlight the contrast.

(414) You are putting together a table from IKEA. You are reading the instructions, and realize that there is one unidentified piece in the box. You can't figure out what part of the table this is. You ask yourself:

a. kore-wa nan -da?
this-TOP WH -COP
'What is this?'

b. ?? kore-wa nan -da -yo⇓
this-TOP WH -COP YO
'What (the hell) is this? (Tell me what this is)'

A basic WH-question is felicitous in this monologue, but with *-yo*⇓ it is quite degraded. My judgement of the strangeness is 'it sounds like you are talking to someone' — in fact, one way to coerce a felicitous interpretation out of (414b) is by imagining that the speaker is addressing IKEA.

(415) on the other hand is precisely the place in which you would use *-yo*⇓ in a WH-question. B is *surprised* by A's casual mention of a name B does not recognize.

(415) You have no idea who Tanaka-san is.

A: kinoo tanaka-san-ga kyuuri kureta -yo
yesterday Tanaka-san-NOM cucumber gave YO
'Tanaka-san gave us a cucumber yesterday'

B: tanaka-san-tte dare -da -yo.
Tanaka-san-QUOTE who COP YO

'Who (the hell) is Tanaka-san? (Tell me who Tanaka-san is)'

The situation is that A is clearly exhibiting behavior that suggests they know who Tanaka is (i.e., by virtue of mentioning the name). The conflict is that B in contrast doesn't have a clue as to who this person is. B is therefore suggesting that A tell them the answer. This suggestion is an implicature since it is cancelable. For example, B's utterance in (415) could be a sort of "haha what the hell" reaction that just highlights the you-know-but-I-don't-know contrast, and not necessarily an instruction for A to answer.[2]

(416) You have no idea who Tanaka-san is.

A: kinoo tanaka-san-ga kyuuri kureta -yo
yesterday Tanaka-san-NOM cucumber gave YO
'Tanaka-san gave us a cucumber yesterday'

B: tanaka-san-tte dare -da -yo. betsuni oshietekure-naku -temo
Tanaka-san-QUOTE who COP YO particularly inform-NEG even.if
ii -kedo.
good but
'Who (the hell) is Tanaka-san (haha)... You don't have to tell me, but.

(417) is also another natural context for WH-*da-yo* questions: accusation.

(417) You had one can of beer left in the refrigerator, and you were looking forward to drinking it after work. You get home, and it's not in the fridge. There's an empty beer where your roommate is sitting. You ask if he drank your beer and he says no. So then you ask:

a. (jaa) kore-wa nan -da?
then this-TOP WH -COP
'(Then) what is this?'

b. (jaa) kore-wa nan -da -yo⇓
then this-TOP WH -COP YO
'(Then) what the hell is this? (Tell me what this is)'

[2]For readers familiar with Japanese comedy, I mean that this is a *tsukkomi* (i.e., straight-man, contra funny man in a duo) use.

The difference between (417a) and (417b) is that the former without the *-yo* is not necessarily an accusation: it could be a 'hm, then I wonder what this is then' kind of question, a genuine bafflement by the empty beer can. (417b) in contrast is more clearly an accusation. The idea is that if the addressee insists that they did not drink the beer, the speaker does not see a reasonable explanation for the empty beer can — so the addressee needs to provide an answer, quick. This is still in line with my characterization of the other examples, which is 'I don't have a reasonable answer but you clearly do, so I insist that you reveal this answer'.

Since I have not analyzed the extendability of the Table framework to WH-questions in this dissertation, I will not attempt a formal analysis here. However, I do feel that the outlook is optimistic. Informally, here is how I see the composition:

(418) What is this YO⇓

a. WH-Q: 'What is this?' +

b. YO: 'There is evidence that there is an answer to this question' +

c. ⇓: 'I sure don't know what the answer is' +

d. = 'Please tell me what the answer is'

If the evidence marking via *-yo* can be framed in terms of the answer to the question (a reasonable hypothesis, given that the meaning of a WH-question is the set of possible answers to the question (Hamblin 1973)), then I think a compositional analysis is possible. Combined with the speaker ignorance contributed by ⇓, WH-*ka*-*yo* could be construed as 'someone knows the answer and it's not me,' the implicature of which is 'please tell me the answer'. With optimism I leave this for future research.

4.6 Discussion

4.6.1 About *-yo*

I have argued for an analysis of *-yo* as an illocutionary modifier that adds to the CCP of a sentence a requirement that p be added to the set of propositions the addressee has sensory evidence for. Thus *-yo* is a kind of evidential construction, one that makes reference to the recipient end of the evidentiality. Formally, I have appealed to Déchaine et al. (2016)'s notion of the View within the Table framework to analyze this. One of the main points of Déchaine et al. (2016) was that there are illocutionary acts that manipulate just the "Table-side" of things (i.e., the Table, DC, PS, and the CG), others that make reference to just the "View-side" (i.e., the View, OC, OP, and the OG), and some discourse moves that utilize both sides. *-yo* falls in this third category, and helps legitimize the need for parts like the View in the formal theory of discourse.

There are further issues related to *-yo* that I have yet to discuss. One welcome observation is that *-yo* also appears in imperatives (Davis 2011). This is predicted given the semantic type of *-yo* as a general force modifier. I refer readers to Davis (2011) for more detailed descriptive facts, but the core property of *-yo* imperatives is that they have an extra layer of insistence to them. Here is an example to illustrate this intuition.

(419) (A is on his way to work, driving. He is behind another car at red light. It turns green. The car in front of him does not move.)

A: ik-e -yo⇓
go-IMP YO
'Fucking go already.'

Like *-ka-yo* questions, the imperative is a tad aggressive in tone. I think the present analysis of *-yo* as addressee-oriented evidentiality is a good candidate for analyzing *-yo* imperatives as well. An informal paraphrase of its illocution may be 'Go! You hereby have evidence that you should!', which has an interesting effect of the act of uttering itself serving

as a notification for action. If this line of analysis if correct, then it captures the fact that imperatives with *-yo* are "strong" imperatives very nicely. This is worthy of a more formal analysis.

Another phenomenon that may or may not be related to the *-yo* I have analyzed is the vocative-like *-yo* that appears with noun phrases. Here are some examples from Twitter.

(420) kami -yo!
god YO
'Dear god!'

(421) ippootekini foroo shiteita kata -kara foroba-ga atta toki-no
onesidedly follow did person from follow.back-NOM there.was time-GEN
ureshisa -yo
happiness -YO
'Oh, the happiness when the person you were following follows you back (on Twitter)!'

-yo in these cases are used as exclamatory interjections of sorts, evocative of nominal exclamatives (cf., Portner & Zanuttini 2005). One immediate problem concerns semantic types: *-yo* ($\langle\langle st, cct\rangle, \langle st, cct\rangle\rangle$) should not be combining with nominals (type $\langle e, st\rangle$). This is not predicted. However it is possible that there is an "NP-*yo*" that derives from, but is not identical to, the discourse *-yo*. If there is a connection between *-yo*'s evidentiality and its exclamatory use, this is not the first. There are independent cross-linguistic reports that evidentials and miratives (i.e., grammatical marking of surprise) are homophonous in many languages (Rett & Murray 2013). Given this, the case of nominal *-yo* is not an unwelcome observation.

4.6.2 About *-ka-yo*

The λ-Table in particular allows for us to have a compositional analysis of how illocutionary modifiers interact with different illocutionary force. When *-yo* co-occurs with *-ka*, a polar question marker, it gives rise to an interpretation that the speaker is shocked by what the

proposition is suggesting. Importantly, the pitch on *-yo* must be falling. Provided that the argument that *-yo* is self-directed is valid, self-directed notification with an ignorance component translates nicely into shock: 'I had no idea this was true, but I have hereby been notified that it is'.

One reasonable question is why *-ka-yo* does not have a variant with rising pitch on *-yo*. Semantically this should be fine. I have suggested in Taniguchi (2016a) that it actually *is* possible, as long as the *-yo* is reduced to its allomorph *-i*. (422) shows that *-ka-yo* can be pronounced as *-ka-i*, and (423) exemplifies a *-ka-i*⇑ question.

(422) a. jishin -ka -yo⇓
earthquake KA YO
'What, an earthquake???'

b. jishin -ka -i⇓
earthquake KA YO
'What, an earthquake???'

(423) daijoobu -ka -i⇑?
ok Q YO
'Hey you, are you OK?'

What gives (423) special status pragmatically is that it really sounds as though the speaker is talking to someone. This can be shown by the fact that *-ka-i* questions are generally infelicitous in a monologue.

(424) (A is in his car, driving to work. He is alone. He sees some traffic cones ahead. He mutters to himself:)

a.

b. ?? koojichuu -ka ?
under.construction KA
'Is it under construction?'

c. ?? koojichuu -ka -i⇑?
under.construction KA YO
'Hey you, is it underconstruction?'

The *-ka-i* question really sounds as if the speaker is addressing someone in particular. One way to make (424c) felicitous is to change the context so that A is talking to, e.g., a construction worker.

I think that this intuition of addressee involvement is highly suggestive that *-i* is *-yo* indeed, but Davis (p.c.) thinks that they might be unrelated morphemes. A careful inspection of this type of question may offer an answer to this issue. I leave this for future work.

4.7 Conclusion

In this chapter, I have made a case for an analysis of notification via the particle *-yo* in Japanese as a kind of evidential/presentational move in discourse, one in which the speaker imposes evidence on the addressee. The formal analysis is that *-yo* imposes an update on the hearer's *origo commitment set*, which is a set of propositions that they have experiential basis for. This means that in relation to truth, this is a non-commitment set; they do not necessarily believe the proposition that they have been presented with.

This is *oomph* construction number 3 in this dissertation, a slightly different one compared to number 1 (polarity emphasis) and number 2 (exclamatives). This time the discourse intensity comes from the fact that notification makes it clear that the sentence articulated by the speaker is to be used by the addressee as evidence that it is true. This is therefore an indirect way for the speaker to get the addressee to commit to the proposition, sometimes and then some: depending on the intonation there could also be an implicature that the addressee needs to abandon a previously held belief is created.

In the next and final chapter, I wrap up the dissertation with a discussion of what we have come to understand about meaning from these three phenomena.

CHAPTER 5

CONCLUSION

5.1 Introduction

In this chapter I evaluate how far we have come in terms of answering the research questions of this dissertation, namely (from Chapter 1):

1. What is the nature of the intensity that polarity emphasis, exclamatives, and notification/surprise have?

2. What kinds of non-at-issue meanings are there, and what parts of the discourse structure does each meaning manipulate?

3. How can discourse pragmatics be modeled compositionally?

5.2 Findings

This dissertation examined polarity emphasis (*verum* focus), exclamatives, and notification as case studies of speech acts that are perceptively emphatic or intensificative in some way. The different ways in which these constructions add *oomph* to discourse have revealed what salient and ontological parts the discourse context can be argued to possess.

I have taken existing intuitions that *verum* focus is a strong desire to mutualize the commitment to a proposition by playing on the idea that by default speech acts encode the grand objective of adding propositions to the CG. This is the idea of the PROJECTED SET in the Table framework. The appeal of the λ-Table approach I have assumed in this dissertation is that this language allows for us to talk about hypothetical future contexts, for example, by quantifying over contexts. One way of saying 'I really, really want p to be in the CG' is by requiring all future contexts, if the issue on the Table has been resolved,

to have p as a member of the CG. This effectively bans all other discourse participants from disagreeing with the speaker, giving the speaker control over how the context should look.

The idea in exclamatives is similar. Exclamatives derive from the illocutionary meaning of questions — e.g., raising $\{p, \neg p\}$ as an issue — but an exclamative operator reflexivizes this inquiry in a way to exclude other discourse participants from participation in the issue-settling process. This is way for the speaker to not have to consult the opinion of others in making a speech act, which makes that exclamatives are a class of sentence that express an opinion for the sake of expressing them. This line of analysis is supported by empirical findings that exclamatives truly seem to be reactions, rather than inquiries, in discourse. The Table framework again is a useful tool for modeling this kind of discourse behavior, since it runs under the assumption that canonical speech acts like assertions and questions are inquiries, a proposal to update the CG. This line of thinking allows for a fairly clear picture of why exclamatives seem so marked: it flouts the default trust in discourse that the conversation is collaborative between the speaker and the hearer.

Notification is yet another type of illocutionary relation, or at least, I propose that it is a subclass of an illocutionary relation. My proposal in short is that the act of notifying can be tied to the notion of evidentiality, or the marking of information source in language. The paraphrase of notification under this view is 'you here by have hearsay evidence that p'; it is an act of the speaker placing the proposition on the addressee's laps for acknowledgement. Appealing to evidentiality in analyzing notification allows for an analysis of a novel class of illocution without positing any discourse parts specific to this class. The reason that notification is also coercive in discourse is because it generates the implicature that the addressee must do something with this newly acquired information.

5.3 Discourse intensity as anti-collaboration

The recurring theme in all three of the phenomena I have examined is that they all give the speaker a metaphorical microphone in the conversation. If the point of a conversation is

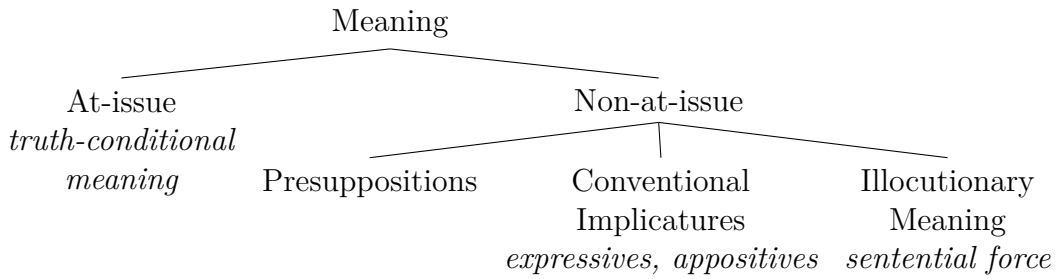
for the participants involved to figure out which propositions are in the CG and which ones are not, thereby narrowing down among a set of possible worlds which world they are in, these conversational moves allow for the speaker to skip some of the associated steps and get straight to the point. For example, an exclamative ignores other discourse participants, meaning that the speaker's opinion alone enters the CG. Equally coercive is *verum* focus, which puts a new rule in the discourse that adding p to the CG is the only way to resolve the issue on the Table. Notification is a softer form of coercion, since the CG update is merely a suggestion, but it has other ways of being manipulative by imposing information on the addressee.

The upshot of the intensity associated with the illocutionary acts in question is their *anti-collaborativeness*. It is a way for the speaker to exclusively dictate what the state of the world is.

5.4 A sketch of types of meanings

This dissertation has as one of its objectives identifying what different types of meanings are sensitive to in discourse. First, here is a sketch of these different types of meanings.

Figure 5.1: Types of meaning



Using novel diagnostics (e.g., the peripherality test), I was able to argue for the distinction in how different levels of meanings can be "not at-issue". Another advantage of the Table framework is that it allows for us to identify what discourse parts each type of meaning is making reference to. At-issue meaning is something that addresses issues on the

Table. Presuppositions are what needs to be in the CG prior to the utterance. Conventional implicatures are direct updates to the CG. Illocutionary meaning manipulates other non-CG parts of the context structure that shapes the ways in which the discourse proceeds.

Notification/evidentiality, at least in Japanese, seems to fall in the illocutionary meaning category. What makes exclamatives and *verum* interesting is that they hover somewhere between illocutionary meaning and conventional implicatures in the above tree. Fundamentally, they do manipulate illocutionary meaning (since they make reference to discourse participanthood and the projected set respectively), and if I had to drop them in one bin I would sort them with sentential force. However, the nature of their illocutionary meaning is that it *leads* to a CG update as manipulated by the speaker. This echoes heavily of what conventional implicatures do, and especially with respect to expressives like attributive adjectives, they have much in common with something like exclamatives in that they both are "not-up-for-negotiation" expressions of the speaker's subjective stance. This dissertation therefore highlights the complexities and the gray areas in the project of meaning classification.

5.5 Concluding remarks

Now we have a concrete set of answers to the set of questions I asked in this dissertation:

1. Certain illocutionary acts are perceived to be intensificative or emphatic because they allow for the speaker to exclusively manipulate the future of the discourse. This contrasts with more canonical speech acts like assertions and questions, where hearer collaboration is taken to be the norm.

2. Meanings that are not at-issue can be divided into conventional implicatures and illocutionary meaning. Although the observation itself is not novel, I have provided new diagnostics in this dissertation that can tease the two levels of meaning apart. In short, conventional implicatures are updates to the CG while illocutionary meaning manipulates all other parts of the discourse structure. However, certain illocutionary

acts like exclamatives have as their illocutionary meaning a combination of CCP' that entail a CG update, although not by direct means. Therefore, some classes of sentences occupy a gray area in terms of the dichotomy of non-at-issue-ness.

3. Illocutionary meaning modeled as a relation of input and output contexts provides a compositional means of analyzing speech acts. This is particularly useful when several sentence classes (e.g., assertions and question) can be modified. This dissertation examined cases in which assertions and questions seem "intensified" in some way, descriptively using a single mechanism (e.g., *verum* focus). A formal approach to pragmatics allows for us to derive what the contribution of such operators are, and predict what kinds of enriched discourse meanings are possible in natural language.

There are still many questions to be asked about non-at-issue-ness, but my humble hope is to have contributed to both the empirical and theoretical understanding of linguistic meaning beyond the truth condition, and that this dissertation will serve in some capacity to further the study of discourse as a formal object. And boy, what a journey this has been.

APPENDIX

APPENDIX

DEGREE INTENSIFICATION DIAGNOSTICS

"Overdramatic" contexts:

(425) OVERDRAMATIC SOY SAUCE. *You ordered sushi delivery for dinner. They usually give you a packet of soy sauce. You receive your delivery, and sit down on the living room couch, ready to have your dinner. However, upon inspection you notice that they've forgotten to give you the soy sauce this time. Mind you, you have your own soy sauce in the kitchen pantry. But you've already sat down. You mutter to yourself:*

a. This is inconvenient. (felicitous)

b. ?? This is very/super/so/hella inconvenient. (overdramatic)

(426) OVERDRAMATIC MILK. *You're pouring yourself a glass of milk in the morning — except you run out of the milk mid-pour. You mutter to yourself:*

a. This is inconvenient. (felicitous)

b. ?? This is very/super/so/hella inconvenient. (overdramatic)

BIBLIOGRAPHY

BIBLIOGRAPHY

Abels, Klaus. 2010. Factivity in exclamatives is a presupposition. *Studia Linguistica* 64(1). 141–157.

Aikhenvald, Alexandra Y. 2004. *Evidentiality*. Oxford: Oxford University Press.

AnderBois, Scott. 2016. Negation, alternatives, and negative polar questions in American English. *Questions in Discourse. CRISPI* .

AnderBois, Scott, Adrian Brasoveanu & Robert Henderson. 2010. Crossing the appositive/at-issue meaning boundary. In *Semantics and linguistic theory*, vol. 20, 328–346.

AnderBois, Scott, Adrian Brasoveanu & Robert Henderson. 2013. At-issue proposals and appositive impositions in discourse. *Journal of Semantics* 32(1). 93–138.

Anderson, Curt & Marcin Morzycki. 2015. Degrees as kinds. *Natural Language & Linguistic Theory* 33(3). 791–828.

Austin, John Langshaw. 1975. *How to do things with words*. Oxford University Press.

Bartels, Christine. 1997. *Towards a compositional interpretation of English statement and question intonation*: University of Massachusetts Amherst dissertation.

Beltrama, Andrea. 2014. From totally dark to totally old: The formal semantics of subjectification (talk presented at Sinn und Bedeutung 19: Göttingen, Germany).

Beltrama, Andrea. 2016. *Bridging the gap: Intensifiers between semantic and social meaning*: University of Chicago dissertation.

Biber, Douglas, Stig Johansson, Geoffrey Leech, Susan Conrad, Edward Finegan & Randolph Quirk. 1999. *Longman grammar of spoken and written english*, vol. 2. MIT Press Cambridge, MA.

Bolinger, Dwight L. 1957. *Interrogative structures of American English: The direct question*, vol. 28. Birmingham: University of Alabama Press.

Buring, Daniel & Christine Gunlogson. 2000. Aren't positive and negative polar questions the same? UCSC.

Bylinina, Lisa. 2017. Judge-dependence in degree constructions. *Journal of Semantics* 34(2). 291–331.

Carlson, Gregory Norman. 1977. *Reference to kinds in English*: University of Massachusetts Amherst dissertation.

Castroviejo Miró, Elena. 2006. *"WH"-exclamatives in Catalan*. Universitat de Barcelona.

Castroviejo Miró, Elena. 2008a. Deconstructing exclamations. *Catalan Journal of Linguistics* 7. 041–90.

Castroviejo Miró, Elena. 2008b. An expressive answer: Some considerations on the semantics and pragmatics of WH-exclamatives. In *Proceedings from the annual meeting of the chicago linguistic society*, vol. 44 2, 3–17. Chicago Linguistic Society.

Cheng, Changhao. 1987. shuujoshi: hanashite to kikite no ninnshiki gyappu o umerutameno bunnsetsuji [sentence final particles: for closing the cognitive gap between the speaker and thehearer]. *Nihongogaku* 6(10). 98–109.

Chernilovskaya, Anna. 2010. WH-exclamatives and other non-interrogative questions. Proceedings of the Israel Association for Theoretical Linguistics 26.

Chernilovskaya, Anna & Rick Nouwen. 2012. On WH-exclamatives and noteworthiness. In *Logic, language and meaning*, 271–280. Springer.

Chierchia, Gennaro. 2013. *Logic in grammar: Polarity, free choice, and intervention*. OUP Oxford.

Ciardelli, Ivano, Jeroen Groenendijk & Floris Roelofsen. 2013. Inquisitive semantics: a new notion of meaning. *Language and Linguistics Compass* 7(9). 459–476.

Clark, Billy & Geoff Lindsey. 1990. Intonation, grammar and utterance interpretation: Evidence from english exclamatory/inversions. *Harris* 1990. 32–51.

Clark, Herbert H. 1992. *Arenas of language use*. University of Chicago Press.

Clark, Herbert H & Edward F Schaefer. 1989. Contributing to discourse. *Cognitive science* 13(2). 259–294.

Collins, Peter. 2005. Exclamative clauses in english. *Word* 56(1). 1–17.

Constantinescu, Camelia et al. 2011. *Gradability in the nominal domain*: Rijksuniversiteit Leiden dissertation.

Davis, Christopher. 2009. Decisions, dynamics and the Japanese particle yo. *Journal of Semantics* 26(4). 329–366.

Davis, Christopher M. 2011. *Constraining interpretation: Sentence final particles in Japanese*: University of Massachusetts, Amherst dissertation.

Déchaine, Rose-Marie, Clare Cook, Jeffrey Muehlbauer & Ryan Waldie. 2016. (de-) constructing evidentiality. *Lingua* 186. 21–54.

Del Gobbo, Francesca. 2014. Appositives in mandarin chinese and cross-linguistically. *Chinese Syntax in a Cross-Linguistic Perspective* .

Delfitto, Denis & Gaetano Fiorin. 2014. Exclamatives: Issues of syntax logical form and interpretation. *Lingua* 152. 1–20.

Faller, Martina. 2002. *Semantics and pragmatics of evidentials in Cuzco Quechua*: Stanford University dissertation.

Faller, Martina. 2006. Evidentiality above and below speech acts. ms., University of Manchester.

Farkas, Donka F & Kim B Bruce. 2010. On reacting to assertions and polar questions. *Journal of Semantics* 27(1). 81 –118.

Geach, Peter Thomas. 1962. *Reference and generality*. Ithaca, NY: Cornell University Press.

Giannakidou, Anastasia. 2002. Licensing and sensitivity in polarity items: from downward entailment to nonveridicality. *CLS* 38. 29–53.

Ginzburg, Jonathan. 1996. Dynamics and the semantics of dialogue. *Seligman, Jerry, & Westerst ahl, Dag (eds), Logic, language and computation* 1.

Ginzburg, Jonathan. 2012. *The interactive stance: Meaning for conversation*. Oxford University Press.

Grice, H Paul. 1975. Logic and conversation. *Syntax and Semantics* 3. 41–58.

Grimshaw, Jane. 1979. Complement selection and the lexicon. *Linguistic inquiry* 10(2). 279–326.

Groenendijk, Jeroen & Floris Roelofsen. 2009. Inquisitive semantics and pragmatics. In *Proceedings of the international workshop on semantics, pragmatics and rhetorics*, vol. 9, 41–72.

Groenendijk, Jeroen & Martin Stokhof. 1991. Dynamic predicate logic. *Linguistics and philosophy* 14(1). 39–100.

Gunlogson, Christine. 2004. *True to form: Rising and falling declaratives as questions in English*. Routledge.

Gutiérrez-Rexach, Javier. 1996. The semantics of exclamatives. In E. Garret & F. Lee (eds.), *Syntax at sunset.*, 146–162.

Gutiérrez-Rexach, Javier. 2008. Spanish root exclamatives at the syntax/semantics interface. *Catalan Journal of Linguistics* 7. 117–133.

Gutzmann, Daniel & Elena Castroviejo Miró. 2011. The dimensions of verum. *Empirical issues in syntax and semantics* 8. 143–165.

Hamblin, Charles L. 1971. Mathematical models of dialogue. *Theoria* 37(2). 130–155.

Hamblin, Charles L. 1973. Questions in montague english. *Foundations of language* 10(1). 41–53.

Han, Chung-hye. 1998. Deriving the interpretation of rhetorical questions. In *Proceedings of West Coast Conference in Formal Linguistics*, vol. 16, 237–253. Citeseer.

Hasunuma, Shoko. 1996. Shuujoshi "yo" no danwa kinoo [the discourse function of the final particle "yo"]. In *Gengo kenkyuu no yooiki: Koizumi Tamotsu hakase koki kinen ronnbunnshuu*, Daigakushorin.

Heim, Irene. 1982. *The semantics of definite and indefinite noun phrases*: University of Massachusetts, Amherst dissertation.

Heim, Irene. 1983. File change semantics and the familiarity theory of definiteness. In Rainer Bäuerle, Christoph Schwarze & Arnim von Stechow (eds.), *Meaning, use, and interpretation of language*, 164–189. Berlin: Walter de Gruyter.

Höhle, Tilman N. 1992. Ueber verum-fokus im deutschen. In *Informationsstruktur und grammatik*, 112–141. Springer.

Horn, Laurence. 1989. *A natural history of negation*. University of Chicago Press.

Huddleston, Rodney. 1984. *Introduction to the grammar of english*. Cambridge University Press.

Huddleston, Rodney. 1993. On exclamatory-inversion sentences in English. *Lingua* 90(3). 259–269.

Huddleston, Rodney. 1994. The contrast between interrogatives and questions. *J. Linguistics* 30. 411–439.

Kamio, Akio. 1994. The theory of territory of information: the case of japanese. *Journal of Pragmatics* 21. 67–100.

Kamp, Hans. 1981. A theory of truth and semantic representation. *Truth, Interpretation and Information* 1–41.

Kamp, Hans, Josef Van Genabith & Uwe Reyle. 2011. Discourse representation theory. In *Handbook of philosophical logic*, 125–394. Springer.

Kaplan, David. 1999. The meaning of ouch and oops. In *Cornell conference on context dependency*, .

Karttunen, Lauri. 1968a. *What do referential indices refer to?*, vol. 3854. Rand Corporation.

Karttunen, Lauri. 1968b. *What makes definite noun phrases definite*. Rand Corporation.

Karttunen, Lauri. 1976. Discourse referents. In J McCawley (ed.), *Syntax and semantics 7*, 363–385. Academic Press.

Kennedy, Christopher. 2016. Two kinds of subjectivity. In *Subjective meaning: Alternatives to relativism*, Walter de Gruyter.

Kinsui, Satoshi & Yukinori Takubo. 1998. *Danwa kanri riron ni motozuku 'yo' 'ne' 'yone' no kenkyuu [A study of yo, ne, and yone in discourse management theory]*. Tokyo: Ohmsha.

Korotkova, Natalia. 2016. Disagreement with evidentials: A call for subjectivity. In *Jersem: The 20th workshop on the semantics and pragmatics of dialogue*, 65–75.

Kratzer, Angelika. 1991. Modality. semantics: An international handbook of contemporary research, ed. by arnim von stechow and dieter wunderlich, 639–50.

Krifka, Manfred. 2001. Quantifying into question acts. *Natural Language Semantics* 9(1). 1–40.

Ladd, D Robert. 1981. A first look at the semantics and pragmatics of negative questions and tag questions. In *Papers from the Regional Meeting of the Chicago Linguistic Society.* 17, 164–171.

Landman, Meredith. 2006. *Variables in natural language*: University of Massachusetts Amherst dissertation.

Landman, Meredith & Marcin Morzycki. 2003. Event-kinds and the representation of manner. In *Proceedings of West Coast Conference in Formal Linguistics*, vol. 11, 1–12.

Lasersohn, Peter. 2005. Context dependence, disagreement, and predicates of personal taste. *Linguistics and philosophy* 28(6). 643–686.

Lassiter, Daniel. 2011. *Measurement and modality: The scalar basis of modal semantics*: New York University dissertation.

Lee, Duck-Y. 2007. Involvement and the Japanese inveractive particles *ne* and *yo*. *Journal of Pragmatics* 39(2). 363–388.

Masuoka, Takashi. 1991. *modaritii no bunpoo [the grammar of modality]*. Tokyo: Kuroshio Shuppan.

Matsui, Tomoko. 2000. Linguistic encoding of the guarantee of relevance: Japanese sentence-final particle yo. *Pragmatic Markers and Propositional Attitude* 145–172.

Matthewson, Lisa. 2011. On apparently non-modal evidentials. *Empirical issues in syntax and semantics* 8. 333–357.

Matthewson, Lisa, Henry Davis & Hotze Rullmann. 2007. Evidentials as epistemic modals: Evidence from st'át'imcets. *Linguistic variation yearbook* 7(1). 201–254.

McCawley, Noriko. 1973. Boy! is syntax easy. In *ninth regional meeting of the Chicago Linguistic Society*, 366–77.

McCready, Eric. 2008. What man does. *Linguistics and Philosophy* 31(6). 671–724.

McCready, Eric. 2009. Particles: Dynamics vs. utility. *Japanese/Korean Linguistics* 16. 466–480.

McCready, Eric & Norry Ogata. 2007. Evidentiality, modality and probability. *Linguistics and Philosophy* 30(2). 147.

McCready, Eric Scott. 2010. Varieties of conventional implicature. *Semantics and Pragmatics* 3. 8–1.

Minami, Fujio. 1993. *Gendai nihongo bunpou no rinkaku [an outline of modern japanese grammar]*. Taishukan.

Moore, George Edward. 1993. Moore's paradox. *GE Moore: Selected writings* 207–212.

Murray, Sarah. 2010. *Evidentiality and the structure of speech acts*: Rutgers University dissertation.

Murray, Sarah. 2013. Varieties of update. *Semantics and Pragmatics* 7(2). 1–53.

Nakamura, Junko. 2000. shuujoshiniokeru danseego to joseego [masculine and feminine speech of sentence-final particles]. *Shinshuudaigaku Ryuugakusee Sentaa Kiyoo* 1. 1 –11.

Nakano, Nobuhiko. 2013. gendaigo shuujoshi "tomo" no hataraki (the function of the final particle "tomo" in Japanese). *Bulletin of the Faculty of Education, Yamaguchi University* 62(1). 103–1110.

Noda, Harumi. 2003. Shuujoshi no kinoo [The function of final particles]. In *Shin nihongo bunpoo sennsho*, vol. 4, Kuroshio Shuppan.

Ogi, Naomi. 2017. *Involvement and attitude in Japanese discourse: Interactive markers*. John Benjamins Publishing Company.

Oshima, David Y. 2011. The Japanese particle yo in declaratives: relevance, priority, and blaming. In *New frontiers in artificial intelligence*, 40–53. Springer.

Peterson, Tyler & Uli Sauerland. 2010. Evidence from evidentials. *University of British ColumbiaWorking Papers in Linguistics* .

Pierrehumbert, Janet & Julia Bell Hirschberg. 1990. The meaning of intonational contours in the interpretation of discourse. *Intentions in communication* 271–311.

Pope, Emily Norwood. 1976. *Questions and answers in English*, vol. 226. Mouton, The Hague.

Portner, Paul. 2004. The semantics of imperatives within a theory of clause types. In *Semantics and linguistic theory*, vol. 14, 235–252.

Portner, Paul. 2006. Comments on faller's paper. Paper presented at the Workshop on Philosophy and Linguistics. University of Michigan.

Portner, Paul & Raffaella Zanuttini. 2005. The semantics of nominal exclamatives. In *Ellipsis and nonsentential speech*, 57–67. Springer.

Potts, Christopher. 2005. *The logic of conventional implicatures* 7. Oxford University Press on Demand.

Potts, Christopher. 2007. The expressive dimension. *Theoretical linguistics* 33(2). 165–198.

Prassol, Alexander F. 2000. Some features of the sentence-final particles in Japanese. .

Quirk, Randolph. 2010. *A comprehensive grammar of the English language*. Pearson Education India.

Rett, Jessica. 2011. Exclamatives, degrees and speech acts. *Linguistics and Philosophy* 34(5). 411–442.

Rett, Jessica. 2013. Illocutionary mood and speaker attitude. In *Michigan philosophy and linguistics workshop, http://www. linguistics. ucla. edu/people/rett/rett*, .

Rett, Jessica & Sarah Murray. 2013. A semantic account of mirative evidentials. In *Semantics and linguistic theory*, 453–472.

Roberts, Craige. 1996. Information structure in discourse: Towards an integrated formal theory of pragmatics. *Working Papers in Linguistics-Ohio State University Department of Linguistics* 91–136.

Romero, Maribel & Chung Han. 2004. On negative yes/no questions. *Linguistics and Philosophy* 27(5). 609–658.

Romero, Maribel & Chung-Hye Han. 2002. Verum focus in negative yes/no questions and ladd's p/¬ p ambiguity. In Brendan Jackson (ed.), *Proceedings of semantics and linguistic theory*, vol. 12, 204–224. Ithaca, NY: CLC Publications.

Rooth, Mats. 1985. *Association with focus*: University of Massachusetts, Amherst dissertation.

Rooth, Mats. 1992. A theory of focus interpretation. *Natural language semantics* 1(1). 75–116.

Ross, John R. 1970. On declarative sentences. *Readings in English transformational grammar* 222. 272.

Rousseau, Jean-Jacques. 1781/2013. *Essai sur l'origine des langues*. Presses Électroniques de France.

Sadock, Jerrold M. 1974. *Toward a linguistic theory of speech acts*. New York: Academic Press.

Saebø, Kjell Johan. 2005. Explaining clausal exclamatives. *Paper presented at JSM05, Paris* .

Sæbø, Kjell Johan. 2009. Judgment ascriptions. *Linguistics and philosophy* 32(4). 327–352.

Saigo, Hideki. 2001. *The Japanese sentence-final particles in talk-in-interaction*. John Benjamins Publishing Company.

Saigo, Hideki. 2006. *The pragmatic properties and sequential functions of the Japanese sentence-final particle Ne, Yo, and Yone*: University of Durham dissertation.

Sailor, Craig. 2013. Questionable negation. Handout from talk at LSA Annual Meeting.

Searle, John. 1965. What is a speech act? *Philosophy in America* 221–239.

Searle, John R. 1969. *Speech acts: An essay in the philosophy of language*, vol. 626. Cambridge University Press.

Searle, John R. 1975. A taxonomy of illocutionary acts. *Language, Mind and Knowledge. Minnesota Studies in the Philosophy of Science* 7. 344–369.

Searle, John R. 1976. A classification of illocutionary acts. *Language in society* 5(1). 1–23.

Searle, John R. 1979. *Expression and meaning: Studies in the theory of speech acts*. Cambridge University Press.

Shirakawa, Hiroyuki. 1993. "hatarakikake" "toikake" no bun to shuujoshi "yo" [sentences that "appeal" and "ask" and the final particle "yo"]. In *Nihongokyooikugakukiyoo*, vol. 3, Hiroshima University Department of Education.

Stalnaker, Robert. 1978. Assertion. In Peter Cole (ed.), *Syntax and semantics 9*, 315–332. New York: Academic Press.

Stalnaker, Robert. 1998. On the representation of context. *Journal of Logic, Language and Information* 7(1). 3–19.

Stalnaker, Robert. 2002. Common ground. *Linguistics and philosophy* 25(5). 701–721.

Stephenson, Tamina C. 2009. *Towards a theory of subjective meaning*: Massachusetts Institute of Technology dissertation.

Suzuki Kose, Yuriko. 1997. *Japanese sentence-final particles: A pragmatic principle approach*: University of Illinois at Urbana-Champaign dissertation.

Takubo, Yukinori & Satoshi Kinsui. 1997. Discourse management in terms of mental spaces. *Journal of Pragmatics* 28(6). 741–758.

Taniguchi, Ai. 2016a. Demanding an answer: The CCP semantics of anti-rhetorical questions in Japanese. Handout for oral presentation at the Semantics and Syntax Workshop of the American Midwest and Prairies 2016.

Taniguchi, Ai. 2016b. Negative inversion exclamatives and speaker commitment. Proceedings of the 24th Conference of the Student Organisation of Linguistics in Europe (ConSOLE XXIV).

Taniguchi, Ai. 2016c. Positive vs. negative inversion exclamatives. Proceedings of Sinn und Bedeutung 21.

Taniguchi, Ai. 2016d. Sentence-final -ka-yo in Japanese: A compositional account. Proceedings of FAJL8: Formal Approaches to Japanese Linguistics.

Tonhauser, Judith. 2012. Diagnosing (not-) at-issue content. *Proceedings of Semantics of Under-represented Languages of the Americas (SULA)* 6. 239–254.

Umbach, Carla. 2016. Evaluative propositions and subjective judgments. In *Subjective meaning: Alternatives to relativism*, Walter de Gruyter.

Uyeno, Tazuko. 1972. shuujoshi to sono shuuhen [Japanese sentence-final particles and around]. *Nihongo Kyooiku [Journal of Japanese Language Teaching]* 17. 62–77.

Walker, Marilyn A. 1996. Inferring acceptance and rejection in dialog by default rules of inference. *Language and Speech* 39(2-3). 265–304.

van Wijnbergen-Huitink, Janneke. 2016. Subjective meaning: An introduction. In *Subjective meaning: Alternatives to relativism*, Walter de Gruyter.

Wilder, Chris. 2013. English 'emphatic do'. *Lingua* 128. 142–171.

Wood, Jim. 2014. *Affirmative semantics with negative morphosyntax: Negative exclamatives and the New English so AUXn't NP/DP construction*. Oxford, England: Oxford University Press.

Yokoyama, Tomohiro. 2013. Re-evaluating the "question" marker ka in Japanese. Proceedings of the 2013 Annual In Proceedings of the Conference of the Canadian Linguistic Association.

Yoon, Suwon. 2013. Parametric variation in subordinate evaluative negation: Korean/Japanese versus others. *Journal of East Asian Linguistics* 22(2). 133–166.

Yoshimi, Dina R. 1997. A expanded concept of speakerhood in Japanese discourse. In *Japanese/korean linguistics*, vol. 6, 583–605.

Zanuttini, Raffaella & Paul Portner. 2003. Exclamative clauses: At the syntax-semantics interface. *Language* 79(1). 39–81.