Taiwan Mandarin Daodi Questions in Despair
A Study in Formal and Experimental Pragmatics

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To Mu-Cun Chang, Cheng-Chin Chang & Li-Yu Jou

致 阿公、阿爸、阿母

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English Abstract

In this dissertation, I pursue a dynamic approach to analyze the data of Taiwan Mandarin *daodi* in non-canonical questions and predict reactions towards them. The discourse particle *daodi* carries the literal meaning of '*to the bottom*' and, when used in questions, conveys a sense of desperation on the part of the speaker. *Daodi* is employed in three distinct types of non-canonical questions: extreme-ignorance questions (EIQs), cornering questions (CorQs), and unanswerable questions (UnansQs). EIQs involve difficulty in finding answers, CorQs arise when the speaker cannot retrieve the answer from the addressee, and UnansQs are questions that cannot be resolved, possibly seeking emotional agreement or commiseration from the addressee. Examples of *daodi*-EIQs, *daodi*-CorQs, and *daodi*-UnansQs are provided in (1), (2) and (3) respectively:

(1) daodi yaoshi zai nali? [EIQ]
daodi key at where
'Where on earth/the hell is the key?'

(2) ni daodi yao-bu-yao he kafe? [CorQ]
you daodi want-not-want drink coffee
'Do you want to drink coffee or not?'

(3) daodi shi she nazuo-le women-de yusan? [UnansQ]
daodi be who take-ASP we-POS umbrella
'Who on earth/the hell took away our umbrella?'

Across languages, various particles or forms are used to indicate different types of non-canonical questions. In Taiwan Mandarin, the overarching theme underlying EIQs, CorQs, and UnansQs is the speaker's desperation towards the questions. In this dissertation, I introduce the term "Questions in Despair" to describe Taiwan Manda-

rin *daodi*-marked questions and aim to develop a dynamic and unified analysis that captures *daodi*-data and extends the analysis cross-linguistically.

The dissertation consists of four parts. Part I includes a literature review of non-canonical questions (Chapter 2) and expressives (Chapter 3). Moreover, it explores the data and empirical studies on Taiwan Mandarin *daodi* in questions, which serve as the foundation for the proposed analysis (Chapter 4).

Part II presents the main proposal of the dissertation (Chapter 5). I put forth a framework that comprises two essential ingredients: the *Conventional Implicature* (CI) content of daodi and a commitment-based discourse model, also known as the Table model or conversational scoreboards. These ingredients are intertwined, resulting in a novel Table model where the Discourse Commitment of a discourse participant X, DC_X, records the conversational moves of both the at-issue and non-at-issue content of an utterance in a two-dimensional format. The proposed analysis goes beyond existing literature by providing a clear and distinct delineation for UnansQs and by distinguishing the discourse commitment of the at-issue content and the non-at-issue content within the discourse commitments set.

In part III, I extend the proposed analysis to other languages, specifically Japanese and German (Chapter 6) and in part IV, I broaden the scope to focus on the impact of pragmatic contexts (Chapter 7).

Overall, this dissertation not only provides valuable empirical evidence to supplement the theoretical analysis but also presents a dynamic discourse model that captures the semantic contributions of expressives in conversations and their pragmatic impact on shaping the discourse and eliciting reactions.

Zusammenfassung in deutscher Sprache

Diese Dissertation untersucht die Verwendung von *daodi* im Taiwanesischen Mandarin. Dabei soll sowohl die Bedeutung als auch Diskurseffekte erfasst werden. Die Diskurspartikel *daodi* trägt die wörtliche Bedeutung von '*bis zum Ende*' und vermittelt in Fragen, dass der Sprecher bezüglich der Frage das Gefühl der Verzweiflung hegt. *Daodi* wird in drei verschiedenen Arten nicht-kanonischer Fragen verwendet: Extreme-Ignorance Questions (EIQs), Cornering Questions (CorQs) und Unanswerable Questions (UnansQs). Als EIQs werden Fragen bezeichnet, für die sich das Finden von Antworten als schwierig erweist. CorQs treten auf, wenn der Sprecher keine Antwort vom Adressaten erhält, und UnansQs sind Fragen, die nicht beantwortet werden können, sondern möglicherweise stattdessen auf emotionale Zustimmung oder Mitgefühl des Adressaten abzielen. Beispiele für *daodi*-EIQs, *daodi*-CorQs und *daodi*-UnansQs werden in (4), (5) und (6) gegeben.

(4) daodi yaoshi zai nali? [EIQ]
daodi Schlüssel in Wo
'Wo zur Hölle / in aller Welt ist der Schlüssel?'

(5) ni daodi yao-bu-yao he kafe? [CorQ]
du daodi wollen-nicht-wollen trinken Kaffee
'Willst du Kaffee trinken oder nicht?'

(6) daodi shi she nazuo-le women-de yusan? [UnansQ]
daodi sein wer nehmen-PST unser Regenschirm
'Wer zur Hölle / in aller Welt hat unseren Regenschirm genommen?'

Verschiedene Sprachen verfügen über verschiedene Partikeln oder Formen zur Markierung unterschiedlicher Arten von nicht-kanonischen Fragen. Im Taiwanischen Mandarin ist das Motiv, welches EIQs, CorQs und UnansQs zugrunde liegt, die Verzweif-

lung des Sprechers in Bezug auf die Frage. In dieser Dissertation führe ich den Begriff "Questions in dispair" ein, um *daodi*-markierte Fragen im Taiwanischen Mandarin zu beschreiben, und verfolge das Ziel, eine dynamische und einheitliche Analyse zu entwickeln, die *daodi*-Daten erfasst und darüber hinaus sprachübergreifend angewandt werden kann.

Die Dissertation besteht aus vier Teilen. Teil I umfasst einen Überblick über die bestehende Literatur zu nicht-kanonischen Fragen (Kapitel 2) und Expressivität (Kapitel 3). Kapitel 4 gibt einen Überlick über die Daten zur Verwendung von *daodi* in Fragen, und frühere Analysevorschläge. Außerdem stellt es zwei eigene psycholinguistische Studien zur Bedeutung und Verwendung von *daodi*-Fragen vor.

Teil II beinhaltet die zentrale These der Dissertation (Kapitel 5). Ich stelle einen Ansatz vor, der zwei wesentliche Bestandteile umfasst: Die Konventionelle Implikatur (CI) von *daodi* sowie eine Version des Table Model (Farkas & Bruce 2010), in dem expressive Bedeutung verarbeitet werden kann. Die Zusammenführung dieser Bestandteile resultiert in einem neuartigen Table-Modell, bei dem das Discourse Commitment eines Gesprächspartners X, DC_X, sowohl die Diskurszüge des at-issue-Inhalts als auch des non-at-issue-Inhalts einer Äußerung in einem zweidimensionalen Format erfasst. Die vorgeschlagene Analyse geht über bestehende Forschungsliteratur hinaus, indem eine deutliche Abgrenzung für UnansQs erfolgt und zwischen den Discourse Commitments des at-issue-Inhalts und des non-at-issue-Inhalts innerhalb der Menge der Discourse Commitments unterschieden wird.

In Teil III weite ich die vorgeschlagene Analyse auf andere Sprachen, konkret Japanisch und Deutsch, aus (Kapitel 6). Ich zeige, wie im neuen Table Model Japanische Fragen mit *ittai* (EIQ) und Fragen mit *bloß* im Deutschen modeliert werden können. In Teil IV wird der Fokus auf andere pragmatische Kontexte ausgedehnt, speziell auf rhetorische Fragen (Kapitel 7). Insgesamt liefert diese Dissertation nicht nur wertvolle empirische Beweise zur Unterstützung der theoretischen Analyse, sondern präsentiert auch ein dynamisches Diskursmodell, welches die semantischen Beiträge von Expressiva in Gesprächen erfasst und ihre pragmatischen Auswirkungen auf die Gestaltung des Diskurses sowie die hervorgerufenen Reaktionen zeigt.

Contents

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Abbreviations Used in Glosses

Focus marking is marked with the subscripts $_{\text{F}}$. Below is a table containing the abbreviations used in glossing examples from non-English languages, following the Leipzig Glossing Rules:

Abbreviation	**Explanation**
ACC	accusative
ASP	aspect
CLF	classifier
COMP	complementizer
COP	copula
DP	discourse particle
HON	honorification
LOC	locative
MOD	modal
NOM	nominative
NMLZ	nominalizer/nominalization
POSS	possessive
PRS	present
PST	past
Q	question particle/marker
SBJ	subject
TOP	topic

Part I.

SETTING THE SCENE

1. Introduction and Background

1.1. General Introduction and Synopsis of Proposal

For decades, studies in the semantics and pragmatics of expressives and questions have been at the heart of linguistic investigation. In recent years, there has been increasing attention on cross-linguistic variations of non-canonical questions (den Dikkens & Giannakidou 2002; Rawlins 2009; Martin 2020; Caponigro & Sprouse 2007; Truckenbrodt 2006; Zimmermann 2004, 2013; Eckardt 2020; Eckardt & Yu 2020; Hara 2006, 2013, 2018, 2019; Oguro 2017a; Littell et al. 2010, and more).

The present dissertation aims to make progress in understanding the interaction between expressives and various types of non-canonical questions. Additionally, it aims to examine the reactions towards non-canonical questions with emotive markers. The dissertation investigates the data of Taiwan Mandarin *daodi* in questions and seeks to explore how discourse participants react to these non-canonical questions, particularly unanswerable questions (UnansQs) that are not intended to be solved.

The proposal of this dissertation consists of two main components: (i) Taiwan Mandarin *daodi* conveys a Conventional Implicature (CI) that indicates the speaker's desperation about the question, and (ii) commitment-based conversational scoreboards based on Farkas & Bruce (2010) and Farkas (2022). The proposed framework integrates the two-dimensional format of meanings into Table models. As a result, the *discourse commitment* of x, DC_x, separately records the conversational moves of an utterance's at-issue content and non-at-issue content (see Potts 2005, 2007).

Following the work of Murray (2014) and Rett (2019, 2020), the at-issue content of interrogative utterances projects to the Table, while the non-at-issue content of the utterances directly updates the *common ground* (CG). Since UnansQs cannot be answered, only $\{\mathrm{DC}_{\mathrm{ad}} \cup \{\mathrm{info}(\mathtt{I})\}\}$ is included in the *projected set* (ps). Most importantly, even though the addressee is not expected to resolve the question on the Table, she can infer the emotive content from the CG and react to it.

1.2. The Structure of the Dissertation

The structure of this dissertation is shaped like an upside-down Y, as shown in Figure 1.1. In the first part of this dissertation (PART I: SETTING THE SCENE), we will focus on the background of non-canonical questions and discourse particles in Chapters 2 and 3. The second part of the dissertation (PART II: THE MAIN PROPOSAL) will introduce the core proposal, which is developed in Chapter 5. In the third part (PART III: MORE ON COMPARISON), I extend the proposed analysis to other languages, specifically Japanese and German, in Chapter 6. In the last part (PART IV: MORE ON PRAGMATIC CONTEXT), I expand the topic from cross-linguistic variations of non-canonical questions to a focus on pragmatic contexts in Chapter 7. Finally, in Chapter 8, I provide the concluding remarks of this dissertation.

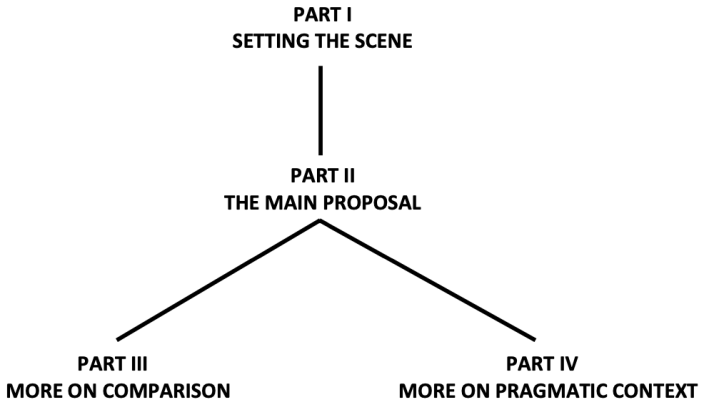


Figure 1.1.: The Structure of this Dissertation

In the remainder of this chapter, I will provide some necessary background, which is divided into two aspects: questions in semantics and questions in pragmatics. First, in section 1.3.1 of this chapter, I will introduce the semantics of questions and briefly demonstrate how to interpret interrogatives from a semantic perspective. Then, moving beyond semantics, I will introduce the pragmatics of questions in section 1.3.2, which explores non-canonical questions that deviate from standard canonical questions. In this section, I will present various types of non-canonical questions cross-linguistically. We will then focus on the core of this dissertation in section 1.4, where I define the meaning of "Questions in Despair." By the end of Chapter 1, we will have

a clear understanding of the goals of this dissertation, the research questions, and the tasks set to address these questions.

Chapter 2 surveys the literature on two different types of non-canonical questions: extreme ignorance questions in section 2.1 and cornering questions in section 2.2. Chapter 3 reviews the literature on expressives and provides an overview of the two existing lines of approaches to expressives. The major representatives discussed are Potts (2005, 2007a, 2007b) in section 3.1 and Gutzmann (2013) in section 3.2. In both Chapter 2 and 3, I reject the analyses that are not fine-grained or adequate enough to capture the data of Taiwan Mandarin *daodi*, emphasizing the need for experimental empirical studies and analyses.

Chapter 4 presents such empirical studies, while Chapters 5 presents the corresponding analyses. In section 4.1, I provide an overview of Taiwan Mandarin canonical questions and introduce Taiwan Mandarin non-canonical *daodi*-questions. Two empirical investigations are presented in section 4.2, and in section 4.3, I present important evidences that support and even go beyond the current existing literature.

Now we come to the main proposal of this dissertation. The analysis proposed in Chapter 5 focuses on intertwining the two-dimensional format of expressive meanings with the commitment-based discourse model. Building upon the main proposal, this dissertation aims to advance in two directions.

The first direction is towards a cross-linguistic perspective in Chapter 6. I outline a typology of questions in despair in section 6.1 and present the views from Japanese and German respectively in sections 6.2 and 6.4. In addition to the cross-linguistic perspective, the second direction involves discussing different types of non-canonical questions: rhetorical questions in section 7.1 and self-addressed questions in section 7.2. These types share similar characteristics of pragmatic contexts with questions in despair. In the section 7.3, I raise the open issues from collected data of empirical studies and further discuss the challenges of empirical pragmatic studies. Finally, we reach the conclusion of this dissertation in Chapter 8.

1.3. Background

1.3.1. Questions in Semantics

Starting from Hamblin (1973), the meaning of a question is to determine what qualifies as a potential answer to that question. Therefore, according to Hamblin Semantics for questions, the extension of a question is the set of its possible answers, which consists of propositions regardless of their truth value. By adopting Hamblin's approach, the denotation of an interrogative is exemplified in (1).

(1) $[\![\text{Who smiles?}]\!]^w$ =
{[λw': **Elon** smiles in w'], [λw': **Stanley** smiles in w'], [λw': **Mario** smiles in w'], [λw': **Luigi** smiles in w'], ... }
= {p: $\exists$x. x $\in D_e$ & x is human & p = λw': x smiles in w'.}

Following Hamblin (1973), Karttunen (1977) further proposes that a question does not denote the set of all its possible answers but rather the set of answers that are true. Therefore, in comparison to Hamblin's account, the denotation of a question like (1) under Karttunen's (1977) analysis is illustrated in (2).

(2) $[\![\text{Who smiles?}]\!]^w$
= {p: $\exists$x. x $\in D_e$ & x is human & p = λw': x smiles in w' & p(w)= 1}

If there is a context where only Elon and Stanley smile, then, according to the analysis in (2), we can derive {[λw': Elon smiles in w'], [λw': Stanley smiles in w']}. Unlike declaratives, questions do not provide information themselves. When a person asks a question, they actually seek to obtain information from the addressee. Hamblin (1973) and Karttunen (1977) offer different perspectives on the meaning of a question compared to that of a declarative. Their proposals provide a semantics for questions in which questions denote sets of propositions. In this dissertation, the proposed analysis adopts Inquisitive Semantics, which aligns with Hamblin (1973). It derives that the denotation of an interrogative is a closed set of propositions.

1.3.2. Questions in Pragmatics: Non-Canonical Questions

Starting from Searle (1969), questions in pragmatic research are classified into two types: canonical questions and non-canonical questions. Canonical questions, also referred to as information-seeking questions (ISQs), are described in (3).

(3) a. Questions uttered by speaker A, addressing the hearer B,
b. Questions where A does not know the answer and wants to know it,
c. Questions where A believes that B might know the answer,
d. Questions where A requests B to react to the question, with the expectation that B will provide an answer.

In a similar vein, Farkas (2022) defines four default contextual assumptions based on the characteristic properties of canonical question acts, as shown in (4).

(4) **Default assumptions accompanying question acts** (Farkas 2022:297)
a. *Speaker ignorance*: The speaker's epistemic state is neutral relative to the possible resolutions of the issue she raises.
b. *Addressee competence*: The speaker assumes that the addressee knows the information that settles the issue she raises.
c. *Addressee compliance*: The speaker assumes that the addressee will provide this information in the immediate future of the conversation as a result of the speaker's speech act.
d. *Issue resolution goal*: It is assumed that the main aim the speaker pursues when raising an issue is to have it resolved in the immediate future of the conversation.

Questions are classified as non-canonical questions when they deviate in one or more ways from the scheme like (3) or the default assumptions as (4). For instance, extreme ignorance questions (EIQs) are asked where the speaker finds it difficult to solve the question; rhetorical questions (RhQs) are asked where the speaker already knows the answer and assumes the hearer also knows the answer; quiz questions are asked where the speaker knows the answer and requests the hearer to answer; self-addressed questions (SAQs) are asked where the speaker does not know the answer and does not assume that the hearer knows the answer.

Non-canonical questions are classified as such when they deviate in one or more ways from the scheme described in (3) or the default assumptions outlined in (4). For instance:

- Extreme ignorance questions (EIQs) are asked when the speaker finds it difficult to solve the question.
- Rhetorical questions (RhQs) are asked when the speaker already knows the answer and assumes the hearer also knows it.
- Quiz questions are asked when the speaker knows the answer and requests the hearer to answer.
- Self-addressed questions (SAQs) are asked when the speaker does not know the answer and does not assume that the hearer knows it.

Many languages employ specific lexical particles, phrases, or structures to indicate that a question is non-canonical. In the literature, we have come across examples such as: In English, the use of *wh-the-hell* marks extreme ignorance questions (EIQs) (den Dikkens & Giannakidou 2002; Rawlins 2009; Martin 2020), as shown in (5). Additionally, *after all* is used to convey rhetorical questions (RhQs) (Caponigro & Sprouse 2007), as shown in (6).

(5) Where **the hell** is the key? (English EIQ)

(6) **After all**, who gave birth to you? (English RhQ)

In German, the discourse particle *bloß* is used in questions to express extreme ignorance questions (EIQs) (Eckardt & Yu 2020), as shown in (7). Furthermore, verb-final structures and the discourse particle *wohl* are used to form self-addressed questions (SAQs) (Truckenbrodt 2006; Zimmermann 2004, 2013; Eckardt 2020), as shown in (8).

(7) Wo ist **bloß** der Schlüssel? (German EIQ)
where is *bloß* the key

'Where the hell is the key?'

(8) Wo **wohl** der Schlüssel ist? (German SAQ)
where *wohl* the key is
'Where might the key be, I wonder.'

In Japanese, the modal *daroo* is used to mark self-addressed questions (SAQs) (Hara 2006, 2013, 2018, 2019), as shown in (9). Additionally, the phrase *mono-ka* is used to signal that the question is rhetorical (Oguro 2018), as shown in (10).

(9) Kagi-wa doko-ni aru **daroo** ka? (Japanese SAQ)
key-TOP where-LOC be MOD Q
'(I wonder) where the key is.'

(10) Dare-ga kur-u **mono ka**? (Japanese RhQ)
who-NOM come-PRS COMP Q
'Who will come?' (= No one will come!)

These are just a few examples, and there are more variations in different languages. Over the past decades, there has been extensive cross-linguistic research on non-canonical questions. The present thesis primarily focuses on three specific types of non-canonical questions in Taiwan Mandarin: extreme ignorance questions (EIQs), cornering questions (CorQs), and unanswerable questions (UnansQs). While the main emphasis is on studying EIQs, CorQs, and UnansQs, the thesis also includes a review of the other two types of non-canonical questions, rhetorical questions (RhQs), and self-addressed questions (SAQs). The objective is to examine the data through the proposed framework in the chapter of analyses and discussions.

1.4. New Generalization: "Questions in Despair"

We have observed how languages utilize various particles or forms to indicate different types of non-canonical questions. However, in Taiwan Mandarin, a discourse particle - *daodi* - is used in questions to convey different meanings of non-canonical

questions.

The discourse particle *daodi* in Taiwan Mandarin carries the literal meaning of "to the bottom". When employed in questions, *daodi* conveys a sense of desperation on the part of the speaker. This desperation can manifest in two ways: (i) an urgent need for an answer or (ii) a desire for emotional agreement from the addressee. Broadly speaking, *daodi* is utilized in three main categories of non-canonical questions: extreme ignorance questions (EIQs), cornering questions (CorQs), and unanswerable questions (UnansQs).

Extreme ignorance questions (EIQs) are posed when the speaker encounters difficulty in finding answers. Cornering questions (CorQs) are asked when the speaker poses a question, but the addressee does not respond to it. Unanswerable questions (UnansQs) are asked when the speaker is emotionally affected by a situation and possibly seeks commiseration from the addressee.

In the case of extreme ignorance questions (EIQs) and cornering questions (CorQs), the usage of *daodi* indicates the speaker's desperate need for an answer. However, when it comes to unanswerable questions (UnansQs), *daodi* serves as a signal for the speaker's longing for emotional commiseration or support from the addressee. Considering the overarching theme of the speaker's desperate emotion in these types of non-canonical questions, I propose the general term "Questions in Despair" to describe Taiwan Mandarin *daodi*-marked questions.

When comparing Taiwan Mandarin with other languages such as English, German, and Japanese, we can identify certain similarities and differences among them, as depicted in Figure 1.2. It is crucial to note that the comparison of unanswerable questions (UnansQs) is excluded in Figure 1.2, as UnansQs represent a novel type of non-canonical question that will be extensively presented and discussed in Chapter 4.

	Taiwan Mandarin	English	German	Japanese
EIQs	Where ***daodi*** is the key?	Where ***the-hell*** is the key?	Wo ist der Schlüssel ***bloß****?*	Where ***ittai*** is the key?
CorQs	Do you ***daodi*** want to have dinner?	Do you want to have dinner ***or not***?	Möchtest du Abendessen haben ***oder nicht*****?**	Do you ***ittai*** want to have dinner?

Figure 1.2.: Cross-linguistic Variations (Taiwan Mandarin, English, German and Japanese) of EIQs and CorQs

Figure 1.2 illustrates that English and German employ distinct lexical items to express the readings of EIQs and CorQs, whereas Taiwan Mandarin *daodi* is comparable to the Japanese discourse particle *ittai* which can also be used in both EIQs and CorQs (Chang, 2022). The figure highlights the diverse paths taken by languages in constructing questions in despair. One path involves utilizing different lexical particles (e.g., English and German EIQs) or specific syntactic structures for interrogatives (e.g., English and German *or-not* in CorQs). The other path involves the use of a unified discourse particle (e.g., Taiwan Mandarin *daodi* and Japanese *ittai*) for both EIQs and CorQs. This cross-linguistic phenomenon warrants further investigation, and I aim to develop a unified and cross-linguistically valid approach to capture questions in despair through this dissertation.

1.5. Goals, Research Questions & Tasks

As outlined earlier, this dissertation has clear objectives, which include developing a comprehensive understanding of Taiwan Mandarin *daodi* non-canonical questions (EIQs, CorQs, and UnansQs) and establishing a unified analysis that bridges the gap between these different types of non-canonical questions. To achieve these objectives, it is essential to first organize the research questions and determine the tasks to be undertaken in this dissertation.

The research questions in this dissertation can be categorized into several key areas, reflecting the main objectives and goals of the study. These categories include:

- Felicity conditions: What are the circumstances in which it is appropriate or felicitous to use *daodi* in a question? Are there any prerequisites for its use?
- Marking non-canonicality: How does *daodi* signal that a question is non-canonical? Is it unnatural to use *daodi* in canonical question situations?
- Utterance meaning: What is the specific meaning contributed by *daodi* in a question? Which layer of meaning does *daodi* primarily impact? Understanding the semantic contribution of *daodi* is crucial for analyzing its role in non-canonical questions.
- Native speakers' reactions: How do native speakers react to *daodi* non-canonical questions, particularly in the case of UnansQs (unanswerable questions)? What are the speaker's intentions when uttering UnansQs? Does the speaker prioritize seeking commiseration over receiving a standard answer?
- Formal account: Can a formal account be developed to capture the data of all types of *daodi* questions, based on the pragmatic properties of *daodi*? Can the analysis be extended to Japanese data, given the similarity between Taiwan Mandarin *daodi* and Japanese *ittai*?

By addressing these challenging research questions, the dissertation aims to provide a comprehensive understanding of *daodi* non-canonical questions and potentially offer a formal analysis that encompasses the various aspects of these questions. To summarize, the dissertation aims to address the following research questions, see (11).

(11) **Research Questions of this Dissertation:**

a. What are the felicity conditions for the use of the Taiwan Mandarin discourse particle *daodi*?
b. How does *daodi* mark a question as non-canonical?
c. What is the contribution of *daodi* to the meaning of a question?
d. How do native speakers react to *daodi*-questions, particularly in the case of UnansQs?
e. Is it possible to develop a unified analysis that captures the complete range of *daodi*-data, including EIQs, CorQs, and UnansQs, and potentially extend the analysis cross-linguistically?

These research questions seek to explore the usage conditions, pragmatic and semantic properties, native speaker reactions, and the feasibility of a unified analysis for *daodi*-questions. The ultimate goal is to enhance our understanding of *daodi* and provide insights into the nature of non-canonical questions in Taiwan Mandarin, as well as potentially extending the analysis to other languages.

To address the research questions and achieve the objectives of this dissertation, the following tasks have been identified:

(12) **Tasks of this Dissertation:**

a. Task 1: Conducting empirical studies to investigate the pragmatic competition for the use of daodi in specific contexts. This task aims to examine the conditions under which daodi is felicitously employed and identify any potential constraints or prerequisites.

b. Task 2: Conducting empirical studies to explore native speakers' reactions and responses to *daodi*-questions, with a particular focus on UnansQs. This task aims to gain insights into the speaker's intentions when using UnansQs.

c. Task 3: Developing an analysis of daodi based on the findings from the empirical studies. This task involves proposing a theoretical framework or model that accounts for the pragmatic and semantic properties of *daodi* and its role in marking non-canonical questions in Taiwan Mandarin.

d. Task 4: Extending the analysis of *daodi* to other languages. This task explores the possibility of applying the proposed analysis to languages other than Taiwan Mandarin, such as Japanese or potentially other languages that exhibit similar discourse particles or markers.

e. Task 5: Extending the analysis of *daodi* to other contexts. This task aims to investigate the applicability of the analysis to different pragmatic contexts or domains, beyond the specific types of non-canonical questions studied in the dissertation, such as EIQs, CorQs, and UnansQs.

In the first part of the dissertation, Task 1, (12-a), aims to conduct empirical studies to investigate the pragmatic competition between the use of *daodi* in questions

and plain information-seeking questions (ISQs) without *daodi*. This study seeks to examine whether there is a preference or competition for using *daodi* in specific contexts. The results of this task are expected to shed light on the felicity conditions for the use of *daodi* (11-a), how *daodi* marks a question as non-canonical (11-b), and how *daodi* contributes to the meaning of a question (11-c).

Following Task 1, Task 2, (12-b), focuses on empirical studies to explore native speakers' reactions and responses to *daodi*-questions, particularly in the case of UnansQs. This task aims to investigate how native speakers react to *daodi*-questions in real-life communication and understand how discourse participants manage conversations under the specific circumstances of UnansQs. By studying the actual reactions of native speakers, this task aims to address research question (11-d) and provide a deeper understanding of the pragmatic aspects of *daodi*-questions

Both tasks contribute to the empirical investigation of *daodi*-questions and provide valuable data to analyze and understand the pragmatic and communicative aspects of these non-canonical questions in Taiwan Mandarin. They aim to bridge the gap between theoretical considerations and empirical observations, contributing to a deeper understanding of *daodi* and its use in communication.

Task 3, (12-c), is dedicated to developing an analysis of *daodi* based on the empirical studies conducted in Task 1 and Task 2. The aim is to propose a comprehensive and unified account that captures the specific characteristics of *daodi*-questions (EIQs, CorQs, and UnansQs) in Taiwan Mandarin. The analysis should provide insights into how *daodi* marks non-canonical questions and contributes to their meaning.

Task 4, (12-d), focuses on extending the proposed analysis to other languages, particularly Japanese, considering the similarities observed between Taiwan Mandarin *daodi* and Japanese *ittai* in expressing questions in despair. By examining the data in Japanese and applying the insights from the analysis of *daodi*-questions, this task aims to explore whether a similar framework can be developed to account for non-canonical questions in Japanese.

Task 5, (12-e), aims to extend the analysis to different pragmatic contexts. It addresses the role of pragmatic contexts in determining the felicity and interpretation of non-canonical questions. By investigating the properties of various pragmatic contexts, such as UnansQs and RhQs, the task seeks to uncover commonalities and

connections between different types of non-canonical questions. The objective is to develop a unified analysis that can explain the behavior of non-canonical questions across different pragmatic contexts.

Ultimately, these tasks contribute to answering research question (11-e) by providing a comprehensive and unified analysis of *daodi*-questions, exploring their extension to other languages, and unraveling the properties of pragmatic contexts in relation to non-canonical questions.

Before embarking on the tasks outlined in the dissertation, it is crucial to conduct a thorough literature survey to gain a comprehensive understanding of the semantics and pragmatics of Taiwan Mandarin *daodi*. This survey consists of two main steps, each focusing on different aspects of the research.

The first step involves investigating non-canonical questions, with a particular emphasis on EIQs and CorQs. Non-canonical questions have been extensively studied in the past decades, and fortunately, EIQs and CorQs in English have received significant attention. Den Dikken and Giannakidou's (2002) work is considered a fundamental contribution to the study of English EIQs, while Rawlins's (2009) investigation of CorQs highlights a distinct cornering effect that sets them apart from plain alternative questions. Reviewing and understanding these previous studies is essential to establish a foundation for examining EIQs and CorQs in Taiwan Mandarin.

The second and final step of the literature survey focuses on expressive meanings and discourse particles. The study of expressives has played a significant role in the field of semantics and pragmatics. Potts's (2005, 2007a, 2007b) influential work on expressives and conventional implicature is often regarded as foundational in understanding non-at-issue meaning. Gutzmann (2013), building on Potts's work, introduces the concept of use-conditional meanings, which aims to account for the semantics and pragmatics of discourse particles. Considering that Taiwan Mandarin *daodi*-questions in despair involve both non-canonical questions and discourse particles, it is important to review the existing literature in these areas and assess the feasibility of adopting previous approaches for the proposed analysis.

By exploring the landscape of existing literature on non-canonical questions and discourse particles, this literature survey will provide a solid foundation for the sub-

sequent tasks of the dissertation, enabling a thorough investigation and analysis of Taiwan Mandarin *daodi*-questions. Up next is an exploration of the landscape of existing literature of non-canonical questions and discourse particles.

2. Landscape of EIQs & CorQs

This chapter provides a comprehensive review of the existing literature pertaining to two specific types of non-canonical questions, namely extreme ignorance questions (EIQs) and cornering questions (CorQs). As the central focus of this dissertation revolves around the discourse particle *daodi*, which is utilized in both EIQs and CorQs, it is crucial to examine and evaluate previous analyses of these question types. By doing so, we can assess the applicability of previous accounts in capturing the semantic contributions of Taiwan Mandarin *daodi* and identify potential limitations that necessitate a fresh approach.

2.1. Extreme Ignorance Questions

This section provides an overview of the previous research conducted on English extreme ignorance questions (EIQs) over the past few decades. The section is structured into three subsections, each focusing on a different account proposed by den Dikken & Giannakidou (2002), Rawlins (2009), and Martin (2020) respectively. By examining these accounts, we aim to gain insights into the various perspectives and theoretical frameworks that have been proposed to explain the nature and usage of EIQs in English.

2.1.1. Extensional Domain Widening (den Dikken & Giannakidou 2002)

While Pesetsky (1987) was the first to describe *wh-the-hell* phrases as "aggressively non-discourse-linked", den Dikken & Giannakidou (2002) made significant advancements by analyzing *wh-the-hell* questions in terms of domain widening. Their analysis has since become a foundational framework and is widely referenced in subsequent studies.

In their analysis, den Dikken & Giannakidou (2002), referred to as D&G hereafter,

treat *wh-the-hell* phrases as dependent polarity items and distinguish them from ordinary wh-phrases based on four distinct perspectives, as outlined in (1).

(1) ***Wh-the-hell* Distinction:** (D&G 2002:32)

a. The possibility of negative answers with modal verbs.
b. The occurrence as complements of positive veridical verbs
c. The unavailablity of pair-list readings in multiple *wh*-structures
d. The interaction with other quantifiers

The observation of (1-a) can be exemplified by (2).

(2) a. Who would buy that story?
b. Who the hell would buy that story?

While (2-a) can be interpreted as a genuine information-seeking question, (2-b) does not have the same interpretation. Instead, (2-b) is considered a rhetorical question that implies a negative rhetorical answer, such as "Nobody would buy that story." Therefore, *wh-the-hell* phrases exhibit similarities to negative polarity items in terms of allowing for negative answers.

Another distinction between *wh-the-hell* questions and ordinary wh-questions is observed in their complements when used with positive veridical predicates, as shown in (3).

(3) a. I know who would buy that book. (D&G 2002:33)
b. #I know who the hell would buy that book.
c. I don't know who the hell would buy that book.

While (3-a) is grammatically acceptable, (3-b) is ungrammatical. However, when the matrix clause is negated, as in (3-c), the sentence becomes grammatical. This evidence further supports the similarity between *wh-the-hell* phrases and polarity items.

In addition, D&G (2002) illustrates that *wh-the-hell* phrases do not license pair-list readings in multiple *wh*-questions, presented in (4).

(4) a. Who is in love with who? [single-pair echo *or* pair-list] (D&G 2002:35)

b. #Who the hell is in the with who? [single-pair echo *only*]

In contrast to (4-a), (4-b) can only be interpreted as a single-pair echo question, indicating that there is no alternative pairing for the relation of being in love from a set of individuals in the given discourse (e.g., *Walt is in love with Skyler, Hank is in love with Marie*).

Lastly, D&G highlight an observation, which can be traced back to Lee (1994), that *wh-the-hell* phrases, in contrast to ordinary wh-questions, exhibit fixed scope when interacting with other quantifiers, as demonstrated in (5).

(5) a. What did everyone buy for Max? (Lee 1994:10)
b. What the hell did everyone buy for Max?

Two readings are available for (5-a): either the universal quantifier can take the scope over *wh*-phrases or take the narrow scope under *wh*-phrases; however, for (5-b), *wh-the-hell* only takes the wide scope over the universal quantifier.

Based on the data presented in (2) to (5), it is evident that *wh-the-hell* phrases exhibit differences from ordinary wh-constituents. D&G establish a connection between the property of presuppositionality and Heim's (1994) concept of familiarity. They propose that "*regular wh-determiners and quantifiers are interpreted only against nonempty domains like presuppositional determiners and quantifiers*" (D&G 2002:41). Consequently, ordinary wh-constituents are always associated with values that are discourse-familiar, whereas *wh-the-hell* phrases extend the scope of quantification from a presupposed discourse-familiar subset to the entire domain, including both familiar and novel values. This accounts for why *wh-the-hell* phrases are incompatible with discourse-linked phrases, as exemplified in (6).

(6) a. #Which the hell of books did you buy?
b. #Which one of the customers the hell steals your product?

Moreover, *wh-the-hell* phrases convey a presupposition that the speaker holds a negative attitude towards the value of *wh-the-hell* and the proposition of the wh-question (D&G 2002). By applying D&G's (2002) analysis to a*wh-the-hell* question

such as (7), we can derive two parts of interpretation, as shown in (7-a) and (7-b).

(7) Who the hell is Jesse talking to?

a. ⟦*the-hell*⟧ presupposes that the speaker has a negative attitude toward the value of *wh-the-hell* and the propositional content of (7) s.t. "if there is a person x in w, and Jesse talked to x in w: Jesse should not have talked to x in w."

b. ⟦who-the-hell⟧= $\{p|$ p is a person and p could answer the who-question possibly in an unexpected way$\}$, domain widening: ⟦who⟧ $\subset$ ⟦who-the-hell⟧

Based on D&G's analysis, *wh-the-hell* phrases expand the domain of the context, resulting in the inclusion of unfamiliar or novel alternative propositions in addition to the denoted set of propositions. This analysis serves as the foundation for the works of Rawlins (2009) and Martin (2020).

2.1.2. Intensional Domain Widening (Rawlins 2009)

Rawlins (2009) criticizes D&G's analysis of domain extension and claims that it is also felicitous to use *wh-the-hell* questions in contexts where extensional domain is fixed. A fixed domain example that Rawlins offers is shown in (8).

Rawlins (2009) offers a critique of D&G's analysis of domain extension in the context of *wh-the-hell* questions. Rawlins argues that *wh-the-hell* questions can be felicitously used even when the extensional domain is fixed. To support this claim, Rawlins presents (8) as an example.

(8) A are B are watching a reality show. Five candidates are left, and the judges are selecting the one out of five candidates to send home as losing the competition. Since all of the competitors do very well on the tasks, it is very difficult to tell whom the judges will pick. A utters to B: *'Who on earth will they pick?'* (Rawlins 2009:7)

Rawlins argues that in this situation, it is implausible for the judges to choose a candidate who is not among the five remaining contestants. Therefore, A does not expect an unknown candidate to appear and be chosen by the judges. Rawlins proposes

an alternative analysis based on intensional domain widening, specifically focusing on the speaker's doxastic alternatives. According to Rawlins, the speaker takes into account possible worlds that were previously considered unlikely. While an answer from the denoted answer set (i.e., the five candidates) is still expected, it may come with unpredictable or surprising reasons. Rawlins presents his account of intensional domain widening in (9) that the speaker is considering possibilities that she previously took to be unlikely.

(9) **Intensional Domain Widening of *On-Earth*** (Rawlins 2009:4)

a. Let c be the context set, f_c be a speaker - oriented epistemic modal base and g_c be a circumstantial ordering source.

b. c+[wh-on-earth[α]]=c+[what[α]] defined only if
Dom(c)$\supseteq${w—$\exists p \in [\![$[what[α]]$]\!]$: p is a slight possibility in w relative to f_c and g_c}
Paraphrase: the domain of the context includes worlds where alternative propositions are a slight possibility.

By incorporating the notion of intensional domain widening, Rawlins aims to provide an alternative explanation for the felicitous use of *wh-the-hell* questions in contexts with fixed domains.

Rawlins' account challenges D&G's analysis, which primarily focuses on domain extension and the inclusion of unfamiliar or novel values. By considering examples with fixed domains, such as the one provided in (8), Rawlins argues that his concept of intensional domain widening provides a more convincing analysis of English extreme ignorance questions (EIQs) compared to D&G's extensional domain widening.

2.1.3. Domain of Alternatives (Martin 2020)

Martin (2020) presents a counterargument to D&G's analysis of the presupposition of negative attitudes associated with *wh-the-hell* phrases. By providing an example like (10), where a positive attitude is expressed, Martin challenges the notion that *wh-the-hell* questions always imply a negative attitude.

(10) A and B are big fans of football. They decide to go watching the World Cup in person. Though A failed to get the tickets to a sold-out game, B

miraculously found and bought the tickets at the last minute. A utters to B: *'How the hell did you get the ticket?'*

In the given scenario of (10), A, despite failing to obtain tickets to a sold-out game, expresses surprise and curiosity about how B managed to acquire the tickets. Rather than having a negative attitude, A is likely to be in a positive mood, appreciating B's ability to secure the tickets. According to Martin (2020), this example demonstrates that D&G's analysis of presupposition as exclusively negative is too stringent.

By highlighting instances where *wh-the-hell* questions are used to express positive attitudes or genuine curiosity, Martin argues that the presupposition associated with *wh-the-hell* phrases is not solely limited to negativity. This challenges D&G's account and suggests that the use of *wh-the-hell* questions does not always imply a negative attitude in context.

Martin (2020) also challenges Rawlins' concept of fixed domain examples, such as the one presented in (8). Martin argues that it is not the case that the speaker expects an answer from the fixed list of possible answers with unexpected reasons, as proposed by Rawlins. Instead, Martin suggests that in situations like (8), the speaker has reasons to reject every answer.

According to Martin's logical reasoning, the utterance in (8) is acceptable only if the speaker does not believe any of the contestants should be sent home. In other words, the speaker in that context has reasoned why each of the five contestants should not be judged as defeated in the competition, considering their strong performances. If the speaker believed that any of the contestants could be chosen, it would be infelicitous to utter "*How on earth will they pick?*" out of the blue.

By challenging Rawlins' interpretation, Martin argues that the acceptance of *wh-on-earth/wh-the-hell* questions in fixed domain contexts is not due to the expectation of unexpected reasons, but rather because the speaker has reasons to reject every answer within the fixed domain. This highlights the importance of considering the speaker's reasoning and the context in understanding the use and interpretation of *wh-the-hell* questions.

By adopting Kotek's (2018) account, which analyzes question semantics in terms of alternatives in the focus-semantic domain[1], Martin (2020) puts forth the proposal

[1]In Hamblin's (1973) question semantics, the meaning of a question is a set of its possible answers. With respect to focus-semantic domain, the focus-semantic meaning of a question is a set of alter-

that *the-hell* functions as an additional filter on the set of alternatives. This filter serves to exclude the possible answers that the speaker is already familiar with, as demonstrated in (11).

(11) **Martin's (2020) analysis of *the-hell***
$[\![\text{the hell}]\!]^f = \overline{\mathbb{C}}$

According to Martin (2020), $\mathbb{C}$ represents the set of contextually available alternatives, while $\overline{\mathbb{C}}$ represents the set of contextually unavailable alternatives. In the framework proposed by Martin, wh-words generate the set of alternatives, and the-hell functions as a filter on this set. As a result, the composition of *wh-the-hell* can be viewed as the intersection between the set generated by the wh-word and the set filtered by the-hell, as depicted in (12).

(12) a. $[\![\text{what the hell}]\!]^f = [\![\text{what}]\!]^f \cap [\![\text{the hell}]\!]^f = \{x_e\text{: } x \notin \text{human}\} \cap \overline{\mathbb{C}}$
b. $[\![\text{who the hell}]\!]^f = [\![\text{who}]\!]^f \cap [\![\text{the hell}]\!]^f = \{x_e\text{: } x \in \text{human}\} \cap \overline{\mathbb{C}}$

This composition captures the idea that *wh-the-hell* questions involve both the set of alternatives generated by the wh-word and the restriction imposed by the-hell. By intersecting these two sets, the resulting set of alternatives is limited to those that are both generated by the wh-word and filtered by the-hell. This intersectional composition allows for a more precise understanding of the semantics of *wh-the-hell* questions, according to Martin's analysis.

(11) provides an appropriate account for fixed domain examples like (8) and even for the scenarios like (13-a) and (13-b).

(13) **Scenarios of "*inconceivable answers*"**

a. Jesse overheard that his neighbor's basil pots were continuously stolen in the past two months. Jesse talked to his teacher Walter about this latest ludicrous news in his neighborhood: *"Who on earth keeps stealing basil pots?"*
b. Jesse has a camper van and a dog. Today, when he came back home

natives which consists of possible answers.

from grocery shopping, he found that his camper van was stolen. Jesse utters: *"Who the hell stole my van?"*

In scenarios like (13), where Jesse is uttering *on-earth/the-hell* questions, it is not necessary to interpret that Jesse considers all his neighbors or his dog as possible answers. Martin's (2020) analysis, which allows for the filtering of contextually unavailable alternatives, can provide a more appropriate account for English extreme ignorance questions (EIQs) compared to Rawlins (2009) and D&G (2002). However, when considering the use of the Taiwan Mandarin discourse particle *daodi* in cornering questions, such as the example given in (14), Martin's analysis (11) cannot be directly applied.

(14) ***on-earth/the-hell* in the context of cornering questions**
Marie wants to know what Hank wants for dinner. Marie offers two options: pasta or pizza. Marie asks Hank what he wants for many times, but Hank keeps not responding. Marie is now impatient and utters to Hank: *"What on earth/the-hell do you want for dinner, pizza or dinner?"*

In this scenario, the set of alternatives is fixed (pizza or dinner), and *on-earth/the-hell* in (14) does not eliminate the possible answers that the speaker is familiar with. It would be contradictory and absurd to utter an *on-earth/the-hell* question while simultaneously offering the possible answers (pasta or pizza). Therefore, employing Martin's analysis to cornering questions with *on-earth/the-hell* would be infelicitous, as it contradicts the nature of alternative questions.

2.2. Cornering Questions

In this section, we will explore the literature on cornering questions (CorQs) and their connection to the Taiwan Mandarin discourse particle *daodi*. *Daodi*, when used in questions, can be seen as conveying a cornering effect, where the speaker expects the addressee to immediately provide an answer to the question in the given context. This section is divided into two parts: first, we will introduce the work by Biezma (2009) on cornering questions, and then we will discuss the decomposition of cornering effects as presented by Beltrama et al. (2018).

2.2.1. Cornering Effects: (Biezma 2009)

In addressing the distinction between polar questions (PolQs) and alternative questions with negation (AltQvN)[2], Biezma (2009) examines scenarios where there appears to be a difference in acceptability between the two question types. The examples in (15) illustrate the difference:

(15) a. Are you making pasta? (PolQ) (Biezma 2009: 37)
b. Are you making pasta or not? (AltQvN)

According to Question Semantics, both questions in (15) can be answered with either "yes" (p) or "no" ($\neg p$), resulting in the set of possible answers $\{p, \neg p\}$. However, Bolinger (1978) observes that in certain contexts[3], it is more acceptable to use PolQs while using AltQvN may sound odd or unacceptable. An example of such a context is given in (16):

(16) **Invitations:** Your friends just arrived at your house. (Biezma 2009: 38)
a. Do you want something to drink?
b. Do you want something to drink or not?

In this scenario, it is more natural to use (16-a) (i.e. the PolQ form), while using (16-b) (i.e. the AltQvN form) may sound odd or inappropriate. Biezma's analysis aims to capture this difference in acceptability and provide an account for the distinct pragmatic effects of PolQs and AltQvN in specific contexts.

Moreover, Biezma (2009) identifies an additional characteristic of alternative questions with negation (AltQvN) known as the "cornering effect." The cornering effect refers to the speaker's intention to corner or push the addressee to provide an answer within the discourse. An example illustrating the cornering effect, as mentioned in Biezma (2009: 38), is given in (17):

(17) **Scenario:** You are in charge of coordinating the cooks for the colloquium dinner. John is one of the cooks. You talked to John yesterday and he said

[2]In (Beltrama et. al. 2018), they abbreviate alternative questions with "or not" to NAQ. Since an AltQvN (= a NAQ) conveys a *cornering effect*, I decide to call this type of non-canonical questions *cornering questions (CorQs)* in my thesis.

[3]For the scope of this thesis, I do not present all the unacceptable scenarios for AltQvN here. Please see (Bolinger 1978) and (Biezma 2009).

he would make stew but did not confirm whether he would also make pasta. Dinner is tomorrow and you need to know what is happening with the pasta.

a. You: Are you making pasta?
John: (Silence and dubitative faces)
You: Are you making pasta or not?

b. You: Are you making pasta?
John: (Silence and dubitative faces)
You: (C'mon) Are you making pasta?

The cornering effect is only observed in (17-a), not in (17-b). This observation suggests that the speaker wants to settle the issue and seeks an answer to the question, while the addressee is somehow reluctant or unwilling to provide a response. In other words, the use of alternative questions with negation (AltQvN) is preferred when the speaker encounters difficulties in receiving answers from the addressee. It serves as a way for the speaker to press for a clear response or resolution to the question at hand.

In order to differentiate the semantic difference between PolQ and AltQvN, Biezma (2009) proposes the closure operator, as shown in (18).

(18) $\Gamma = \lambda G_{<<s,t>,t>}:(\forall q)[\textit{EpistemicallyAvaiable}(q) \leftrightarrow q \in G].G]$ (Biezma 2009: 45)

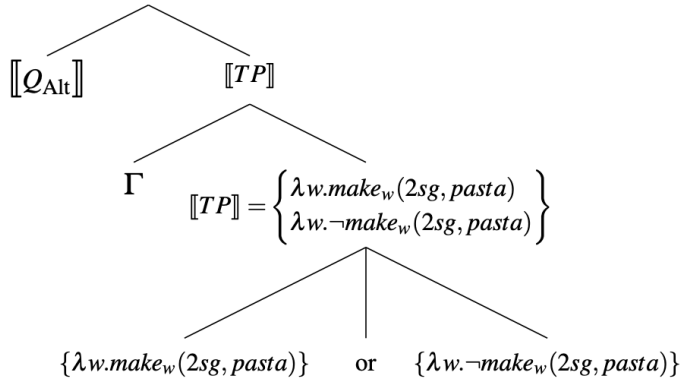
This closure operator is used to trigger the exhaustivity presupposition in alternative questions with negation (AltQvN) when accompanied by a final falling intonation. It states that for every proposition q, q is epistemically available if and only if q belongs to the set G.

By incorporating this closure operator, Biezma (2009) aims to capture the semantic difference between polar questions (PolQs) and alternative questions with negation (AltQvN) and explain the effects of final intonations in conveying exhaustivity presuppositions in AltQvN constructions.

This operator, when treated as a presupposition, functions to ensure that the set of propositions derived from it represents the only propositions that are considered epistemically possible. In simpler terms, it means that only the explicitly mentioned alternatives are the acceptable answers that the speaker expects to receive. Therefore, when we apply (18) to (15-b), we get (19) and the syntactic structure as Figure 2.1.

(19) a. Are you making pasta$_{L^*H\text{-}}$ or not$_{H*L\text{-}L\%}$? (Biezma 2009: 46)
b. $\{\{\lambda$w.make$_w$(2sg,pasta)$\}$,$\{\lambda$w.$\neg$make$_w$(2sg,pasta)$\}\}$, which is a closed-list alternatives that provided by the closure operator.
c. Presupposition: the only epistemic alternatives are "making pasta" and "not making pasta".

Figure 2.1.: Biezma's (2009) analysis on (15-b)



Though Biezma's (2009) account effectively explains the crucial semantic differences between polar questions (PolQ) and alternative questions with negation (AltQvN), her analysis, unfortunately, cannot be directly applied to Taiwan Mandarin cornering questions (CorQs) for two main reasons. Firstly, the A-not-A construction of questions in Taiwan Mandarin is treated as polar questions rather than or-not-alternative questions. Consequently, there is no cornering effect observed in A-not-A interrogatives in Taiwan Mandarin. Secondly, the effect of final intonation, which plays a role in conveying exhaustivity presuppositions in AltQvN constructions, does not exist in Taiwan Mandarin interrogatives. Consequently, there is no closure op-

erator that signifies the semantic distinction between PolQs and CorQs in Taiwan Mandarin. Instead, the discourse particle *daodi* is employed in questions to express the reading of CorQs. Given that Biezma's (2009) account is inapplicable to the analysis of *daodi*, I propose a new approach to address the data concerning *daodi*-CorQs in Chapter 5.

2.2.2. Decomposing of Cornering Effects (Beltrama, Meertens & Romero 2018)

Beltrama et al. (2018) provide a decomposition of the cornering effect, highlighting its underlying semantic and pragmatic principles. The cornering effect can be divided into two main components: (i) the information structure and focus, and (ii) the penalty associated with unsuccessful information-seeking strategies in discourse.

Beltrama et al. (2018) explain the first part of the cornering effect by examining the role of information structure and focus. They observe that the focus within the information structure plays a crucial role in determining the felicity of discourse-initial position. This can be illustrated by the example (20).

(20) **Explaining Part 1:** (Beltrama et al. 2018: 187)

a. **Speaker A:** Jane had a baby!
Speaker B: # IS_F it a boy? (Focus on the polarity)
Speaker B: Is it a boy (yes_F) or not_F? (Focus on the polarity)

b. **Speaker A:** Jane had a baby!
Speaker B: Is it a BOY_F? (Focus on the property)
Speaker B: Is it a boy_F or a $girl_F$? (Focus on the property)

Based on the example (20), it is evident that the restriction on using questions discourse-initially is not exclusive to CorQs. This restriction is also applicable to questions that have a focus on polarity, as shown in (20-a). However, when the focus of the question is on a specific property, there is no restriction on the discourse-initial position, as demonstrated in (20-b). Therefore, it is not only CorQs that face felicity

issues when used discourse-initially, but also other types of questions depending on the focus.

For explaining the part 2 cornering effect, Beltrama et al. (2018) propose a principle called ∗*Repeat*see (21)), which is based on the assumption that individuals typically employ various strategies to guide the conversation towards a resolution. This principle suggests that people would attempt different approaches to elicit a response and resolve the issue at hand, as illustrated in (22).

(21) *Repeat: When pursuing an issue, avoid re-using a strategy that previously didn't help solve the issue. (Beltrama et al. 2018: 189)

(22) A: Stop playing! (Beltrama et al. 2018: 189)
B: [Keeps playing]
A: Hey, can you stop playing?
B: [Keeps playing]
a. A: #Stop playing!
b. A: I told you to stop playing!

To summarize Beltrama et al.'s (2018) findings, they provide evidence that the cornering effect is not solely determined by the properties of cornering questions (CorQs), but rather by the focus of the information structure and the application of pragmatic principles. In order to examine the cornering effect in relation to the Taiwan Mandarin discourse particle *daodi*, I agree with their assertion that individuals would employ different utterances to emphasize the speaker's goal of resolving the issue in the conversation. This can be observed in examples (23), (24), and (25), which follow the same pattern as presented in (22).

(23) A: Wancan ni yao chi shenme? (plain ISQ (wh-Q))
A: dinner you want eat what
A: 'What do you want for dinner?'
B: (remains silence)

(24) A: Hey, wancan ni **daodi** yao chi shenme? (CorQ (wh-Q))
A: hey, dinner you daodi want eat what

A: 'What *daodi* do you want for dinner?'
B: (remains silence)

(25) A: Ni **daodi** you-mei-you yao chi wancan? (CorQ (A-not-A-question))
A: you daodi exist-not-exist want eat dinner
A: 'Do you want to have dinner or not?'

In Taiwan Mandarin, example (23) represents a straightforward information-seeking question (ISQ) that can be used freely in a discourse-initial position. Unlike in English, Taiwan Mandarin CorQs do not impose restrictions on the question type, as demonstrated in (24). In cases where the addressee, B, continues to refuse to provide an answer, the speaker, A, would typically employ a different question type, such as *daodi*-questions, as shown in (25), to emphasize the importance of settling the issue. It is important to note that examples (24) and (25) are interchangeable and can be used alternately, as long as they are not immediately repeated.

However, in Taiwan Mandarin, there is no distinction in focus between polarity and property as observed in example (20) in English. Therefore, it is not plausible to attribute the infelicity of uttering *daodi*-questions in a discourse-initial position to a focus distinction in the information structure, as shown in example (26).

(26) A: Jane had a baby!
B: SHI_{F} nanshen ma? ('IS it a boy?')
B: shi $\text{NANSHEN}_{\text{F}}$ ma? ('Is it a BOY?')
B: #Daodi shi-bu-shi nanshen? ('Is it a boy or not?')

To account for the part 1 cornering effect of *daodi*-CorQs, I propose a more general pragmatic principle stating that *daodi*-questions are marked questions compared to *non-daodi*-questions. In other words, marked questions are typically used in specific situations, while unmarked questions can be used more freely. Consequently, *daodi*-questions should not be used in a discourse-initial position unless a specific context is suitable for their utterance.

2.3. Chapter Summary

The present chapter explores two types of non-canonical questions: extreme-ignorance questions (EIQs) and cornering questions (CorQs). The table below summarizes the responses provided by three previous accounts of EIQs (den Dikken & Giannakidou 2002, Rawlins 2009, Martin 2020) as well as the approach proposed by Biezma (2009) for CorQs, in relation to the initial question addressed in the chapter.

Figure 2.2.: The Landscape of Analyses of EIQs and CorQs

	daodi-EIQ (form of wh-Q)	daodi-EIQ (form of alt-Q)	daodi-CorQ (form of wh-Q)	daodi-CorQ (form of alt-Q)
D&G (2002)	✓	x	x	x
Rawlins (2009)	✓	x	x	x
Martin (2020)	✓	x	x	x
Biezma (2009)	x	x	x	x

(To what extent the analyses of the reviewed papers can predict the *daodi*-data. ✓= is able to predict; x= is unable to predict.)

However, as observed in the table, the existing approaches do not fully capture the nuances of *daodi*-data. Consequently, there is a need for a comprehensive account that encompasses both the semantic and pragmatic contributions of *daodi* in non-canonical questions. Such an account would provide a unified understanding of *daodi* and its role in question formation.

3. Landscape of Discourse Particles

This chapter provides a comprehensive review of the literature on discourse particles. Within this literature, discourse particles have been approached from two main perspectives: as expressives, as proposed by Potts (2005), and as use-conditional items, as discussed by Gutzmann (2013). We will now delve into these two lines of approach to discourse particles in more depth.

3.1. Expressives (Potts 2005, 2007a, 2007b)

In Potts' (2005) analysis, expressives encompass various linguistic elements such as pejorative epithets, attributive adjectives, honorific markers, and discourse particles. He considers expressives to be a subclass of conventional implicatures (CIs). According to Potts, when an expressive is uttered, it carries two distinct layers of meaning: one that involves entailment, assertion, or at-issue content, and another that involves conventional implicature or non-at-issue content. To illustrate this, the examples of pejorative epithets, attributive adjectives, honorific markers, and discourse particles are provided in (1), (2), (3) and (4) respectively.

- **Epithets**

  (1) That **bastard** Kresge is famous. (Potts 2007a: 168)
  - a. Entailment (at-issue): Kresge is famous.
  - b. CI (non-at-issue): Kresge is a bastard/bad in the speaker's opinion.

- **Expressive attributive adjectives**

  (2) I hate your **damn** dog. (Potts 2005: 18)
  - a. Entailment (at-issue): I hate your dog.

b. CI (non-at-issue): The speaker has a negative attitude toward the addressee's dog.

- **Honorific markers**

(3) Sam-ga **o**-warai-**ninat**-ta. (Potts & Kawahara 2004)
Sam-NOM **SBJ.HON**-laugh-**SBJ.HON**-PST

a. Entailment (at-issue): 'Sam laughed.'

b. CI (non-at-issue): The speaker honors Sam.

- **Discourse particles**

(4) Du hast **ja**'n Loch im Ärmel. (Kratzer 1999)
you have JA'a hole in sleeve

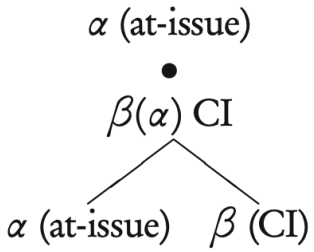
a. Entailment (at-issue):'You have a hole in your sleeve.'

b. CI (non-at-issue): The speaker knows, that the addressee has a hole of his sleeve might already be known to the addressee.

In all of these examples, the utterances convey both an explicit meaning (entailment, assertion, or at-issue content) and an implicit meaning (conventional implicature or non-at-issue content). Potts categorizes discourse particles as expressives and analyzes them within this framework.

In his work, Potts (2005) builds on Karttunen and Peters' (1979) multidimensional semantic theory to develop a combinatorial system that incorporates conventional implicature (CI) meanings into a semantic compositional framework, which primarily deals with truth-conditional meanings. This integration allows for a more comprehensive analysis of linguistic expressions that involve both at-issue content and non-at-issue content. The scheme of Potts' analysis, is depicted in Figure 3.1.

Figure 3.1.: The Scheme of Potts' (2005) Framework



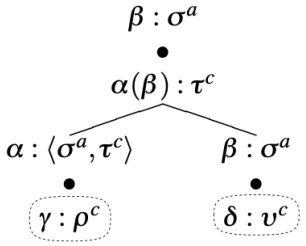
Potts (2005, 2007a) introduces the notion of a meaning tuple, which combines the entailed reading and the conventional implicature (CI) reading, in order to capture the different layers of meaning in linguistic expressions. He applies a type-theoretic approach to distinguish between at-issue meaning and CI meaning, as outlined in (5).

(5) The semantic types of at-issue and CI content (Potts 2007a: 16):

a. e^a, t^a, and s^a are basic at-issue types.
b. e^c, t^c, and s^c are basic CI types.
c. If τ and σ are at-issue types, then τ,σ is an at-issue type.
d. If τ is an at-issue type and σ is a CI type, then τ,σ is a CI type.
e. The full set of types is the union of the at-issue and CI types.

In addition, Potts (2007a) introduces the semantic rules for composing the CI meanings; he introduces: CI application as (6) and parsetree interpretation as (7).

(6) **CI application (Potts 2007a: 19):**



(7) **Parsetree Interpretation (Potts 2007a: 20):**

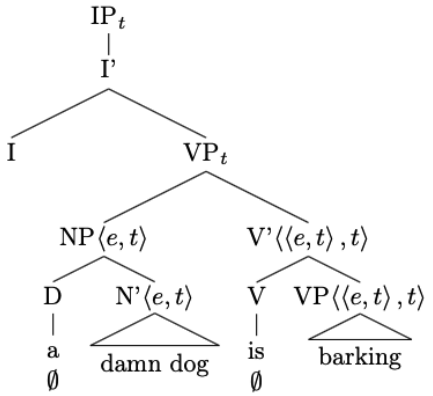
Let $\mathscr{T}$ be a semantic parsetree with the at-issue term α on its root node, and distinct t^{c} CI terms ι_1,...,ι_n on nodes in it. Then the interpretation of $\mathscr{T}$ is a tuple: $< [\![\alpha]\!]^{\mathscr{M}}, \{[\![\iota_1]\!]^{\mathscr{M}}, ..., [\![\iota_n]\!]^{\mathscr{M}}\} >$,
where $[\![\bullet]\!]^{\mathscr{M}}$ is the interpretation function, taking formulae of the meaning language to the interpreted structure $\mathscr{M}$.

The rule (6) in Potts (2007a) allows us to apply the CI term to its sister node, which is the at-issue term, in order to derive part of the meanings of the sentence. Importantly, the value of the at-issue term remains unmodified and is passed to their mother node. This means that the at-issue content is not affected by its adjoined CI terms. Consequently, when interpreting a single sentence that contains either a single CI or multiple CIs, Potts (2007a) employs a straightforward method, as depicted in (7), to gather the desired meanings. This involves constructing a tuple that includes both the at-issue content and the CI content(s). To illustrate this, let's consider the example (8) within Potts (2007a)'s framework:

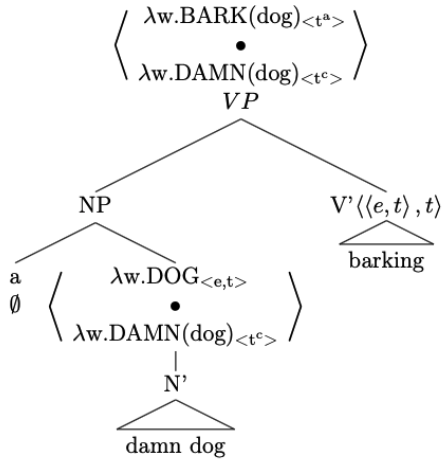
(8) A damn dog is barking.

(9) a. [dog]=λw.λx.x is a dog in w.
b. [damn](dog)= $<$ λw.λx. x is a dog in w., λw. the speaker has a negative attitude towards x in w. $>$
c. [barking](damn dog)=$<$ λw.λx. x is a dog and x is barking in w., λw. the speaker has a negative attitude towards x in w. $>$

(10) **Logical Form of (8)**



(11) **Potts' scheme of (8)**



According to Potts (2007a), the CI item *damn* combines with the at-issue content *dog*. The result of this combination, represented as *damn(dog)*, can be analyzed in terms of its contributions to two dimensions: the at-issue dimension (t^a) and the CI dimension (t^c). In the at-issue dimension, the meaning of *dog* remains unmodified and contributes an entailment. Thus, "*damn(dog)*" contributes the proposition that the entity referred to as *dog* exists. In the CI dimension, the meaning of "*damn(dog)*" is treated as a separate entailment on a distinct dimension. This entails that the speaker has a negative attitude towards the entity referred to as *dog*. When composing the higher-level logical form, as shown in (10), the meaning of "*damn dog*" remains separate from the compositional semantics of the rest of the sentence. Only the component *barking* combines with *dog* to contribute to the at-issue content. Therefore, the meaning of the sentence (8) can be represented as a tuple, as depicted in (9-c) . The at-issue content is represented as λw.λx. x is a dog and x is barking in w, while the CI content is represented as λw. the speaker has a negative attitude towards x in w. Overall, applying Potts' analysis, the scheme of his framework on (8) is shown in (11).

Potts (2007b) identifies six characteristics of expressive content, which are as follows:

(12) **Characteristics of Expressives (Potts 2007b: 166):**

a. ***Independence*:** Expressive content contributes a dimension of meaning that is separate from the regular descriptive content.
b. ***Nondisplaceability*:** Expressives predicate something of the utterance situation.
c. ***Perspective dependence*:** Expressive content is evaluated from a particular perspective. In general, the perspective is the speaker's, but there can be deviations if conditions are right.
d. ***Descriptive ineffability*:** Speakers are never fully satisfied when they paraphrase expressive content using descriptive, i.e., nonexpressive, terms.
e. ***Immediacy*:** Like performatives, expressives achieve their intended act simply by being uttered; they do not offer content so much as inflict it.
f. ***Repeatability*:** If a speaker repeatedly uses an expressive item, the effect is generally one of strengthening the emotive content, rather than one of redundancy.

In addition to the properties of expressives, Potts (2007b) introduces a new type ϵ to represent expressive content. The semantic types for expressive and descriptive content are defined as follows:

(13) The semantic types of expressive and descriptive content (Potts 2007b: 183):

a. *e* and *t* are descriptive types.
b. ϵ is an expressive type.
c. If σ and τ are descriptive types, then $< \tau,\sigma >$ is a descriptive type.
d. If σ is a descriptive type, then $< \sigma,\epsilon >$ is an expressive type.
e. The set of types is the union of the descriptive and expressive types.

These type definitions, (13), allow for the representation of both descriptive and expressive meanings within a compositional framework.

Potts (2007b) also introduces the concept of expressive indices, which serve as "the foundation for expressive domains (Potts 2007b: 184)", see (14).

(14) **Expressive Index (Potts 2007b: 184)**
An *expressive index* is a triple $<a\mathbf{I}b>$, where a, $b \in D_e$, and $\mathbf{I} \sqsubseteq$[-1,1].

If $\mathbf{I}$ = [-1,1], then the individual a has no feelings towards b. If one narrows the subinterval close to -1, it indicates the that negative feelings arise, and if conversely one narrows the subinterval close to 1, the positive emotions emerges. Under Potts (2007b)'s account, the meaning of expressives is no longer propositional; instead, the contribution of expressives is part of the *context*, shown in (15), and the expressive index encodes the speaker's emotive attitude.

(15) **The Definition of Contexts (Potts 2007b: 184)**
A context is a tuple $c = <c_A, c_T, c_W, c_J, c_\epsilon>$, where c_A is the agent (speaker) of c, c_T is the time of c, c_W is the world of c, c_J is the judge of c, and c_ϵ is a set of expressive indices.

If we use Potts (2007b)'s account to analyze (8), we can derive the contribution of *damn*, which is of type $<e,\epsilon>$, as $<c_A, c_T, c_W, c_J, \{_{c_J}[\text{-1,0}][\![\text{dog}]\!]\}>$[1] in the context, c.

Irrespective of Potts' earlier works (2005, 2007a) or subsequent work (2007b), his contributions substantiate the notion that semantic meanings pertaining to entailment/at-issue/descriptive and non-at-issue/expressive content ought to be situated within distinct dimensions. Furthermore, his later work, which posits that expressive content is an integral part of *the context*, serves as a source of inspiration for me to directly address the role of emotions within the discourse framework to be presented in Chapter 5.

3.2. Use-Conditional Meanings (Gutzmann 2013)

A second line of approach to discourse particles deviates from the accounts put forth by Potts (2005, 2007a, 2007b). Gutzmann (2013) proposes a more neutral term, *use-conditional*, to describe the meaning of expressions that are not directly concerned with truth-conditional content. Similarly, the expressions that contribute to use-conditional content are referred to as *use-conditional items* (UCIs).

[1]Please see (Potts 2007b) for the detailed denotations.

Gutzmann (2013) introduces three distinct criteria for categorizing use-conditional items (UCIs) into different classes. These criteria are outlined in (16).

(16) **The criteria for classifying UCIs (Gutzmann 2013: 4):**

a. ***Dimensionality:*** whether a UCI only contributes to the use-conditional meaning, or it also simultaneously contributes to the meaning that is relevant to the truth-conditional content. If a UCI only expresses its use-conditional meaning, it is called *one-dimensional* UCI, while if a UCI carries both use-conditional and truth-conditional meanings, it is considered as a *two-dimensional* UCI.

b. ***Functionality:*** whether a UCI is already able to convey its meaning without applying to a truth-conditional argument. A UCI that requires an argument, regardless it is a propositional argument or nominal argument, is called *functional* UCI; if it does not need an argument, the UCI is labelled as *isolated*.

c. ***Resource-sensitivity:*** whether the argument for a UCI is reused at the truth-conditional level. If a UCI does not reuse the argument, it is seen as *shunting* UCI; otherwise, it is an *expletive* UCI.

According to the criteria presented in (16), Gutzmann (2013) identifies five distinct types of use-conditional items (UCIs): isolated expletive UCIs, isolated mixed UCIs, functional expletive UCIs, functional shunting UCIs, and functional mixed UCIs. Examples of each type are provided in (17), (18), (19), (20) and (21) respectively.

- **Isolated Expletive UCIs**

(17) a. That **bastard** Kresge is famous. (Potts 2007a: 168)
b. **Ouch**, I've hit my thumb! (Kaplan 1999)

- **Isolated Mixed UCIs**

(18) a. Lessing was a **Kraut**. (Saka 2007: 39)
b. This **cur** howled the whole night. (Gutzmann 2013: 7)

- **Functional Expletive UCIs**

(19) Webster schläft **ja**. (Kratzer 1999: 4)
Webster sleeps modal.particle
'(As you may know) Webster sleeps.'

- **Functional shunting UCIs**

(20) *Exclamative or unexpectedness intonation* (Gutzmann 2013: 17)

a. How **TALL** Michael is!
b. Wie **GROß** Michael ist!

- **Functional Mixed UCIs**

(21) It's hot, **man**. (McCready 2009b: 673)

a. On the truth-conditional dimension, *man* contributes to intensify the predicate in the proposition.
b. On the use-conditional dimension, *man* conveys that the speaker is affected by the unbearable heat.

Gutzmann (2013) presents a schematic representation to analyze the five distinct types of use-conditional items (UCIs), as illustrated by the examples mentioned above. The notations employed by Gutzmann are shown in (22).

(22) **Notations for the schematic representation** (Gutzmann 2013: 29)

a. The variable S ranges over the sentences.
b. The variable ε represents a UCI.
c. The variable α represents an argument.
d. $S[...\varepsilon...]$ denotes a sentence that includes a UCI in an unspecified position.

Adopting notations in (22), the schema for each types of UCIs are shown in (23), (24), (25), (26) and (27) respectively (Gutzmann, 2013). Note that I take Gutzmann's examples, presented in (17), (18), (19), (20) and (21), and use the schema

to demonstrate these examples.

By adopting the notations provided in (22), the schema for each type of use-conditional item (UCI) is presented as follows: (23) for isolated expletive UCIs, (24) for isolated mixed UCIs, (25) for functional expletive UCIs, (26) for functional shunting UCIs, and (27) for functional mixed UCIs (Gutzmann, 2013). It should be noted that the examples originally presented by Gutzmann in (17), (18), (19), (20) and (21) have been used to illustrate these schemas.

- **Isolated Expletive UCIs**

  (23) That **bastard** Kresge is famous. (Potts 2007a: 168, Gutzmann 2013: 30)

$$S[...\varepsilon...] = \frac{\varepsilon}{S} = \frac{\text{Kresge is bad in the speaker's opinion}}{\text{That Kresge is famous}}$$

- **Isolated Mixed UCIs**

  (24) Lessing was a **Kraut**. (Saka 2007: 39, Gutzmann 2013: 8, 31)

$$S[...\varepsilon(\alpha)...] = \frac{\varepsilon_{\mathrm{u}}}{S[...\varepsilon_{\mathrm{t}}(\alpha)...]} = \frac{\text{The speaker does not like Germans}}{\text{Lessing was a German}}$$

- **Functional Expletive UCIs**

  (25) I hear your **damn** dog barking. (Gutzmann 2013: 5, 30)

$$S[...\varepsilon(\alpha)...] = \frac{\varepsilon(\alpha)}{S[...\alpha...]} = \frac{\text{The speaker has bad attitude towards the dog}}{\text{I hear your dog barking}}$$

- **Functional shunting UCIs**

  (26) How **TALL** Michael is! (Gutzmann 2013: 18, 30)

$$S[...\varepsilon(\alpha)...] = \frac{\varepsilon(\alpha)}{S} = \frac{\text{It is unexpected that Michael is this tall}}{\emptyset}$$

- **Functional Mixed UCIs**

(27) It's hot, **man**. (McCready 2009b: 673, Gutzmann 2013: 31)

$$S[...\varepsilon(\alpha)...] = \frac{\varepsilon_{\mathrm{u}}(\alpha)}{S[...\varepsilon_{\mathrm{t}}(\alpha)...]} = \frac{\text{The speaker is affected by the heat}}{\text{The heat is much more scorching}}$$

Note that Gutzmann (2013) has provided additional examples of use-conditional items (UCIs) in his paper, including pronouns, use-conditional intonation, use-conditional syntax, and use-conditional morphology. However, due to the scope of this thesis, not all the details are presented in this section. Gutzmann's work expands the topic of non-truth-conditional meaning, which he refers to as use-conditional meaning. He also delves into the distinctions between different types of UCIs and offers schematic representations that can be applied to analyze UCIs in various languages.

3.3. Chapter Summary

This chapter discusses two main approaches to analyzing expressive items or use-conditional items found in the current literature. These approaches are closely aligned with each other. Potts (2005, 2007a, 2007b) argues that expressives, as a class of conventional implicatures (CIs), convey non-at-issue meanings. He proposes a combinatorial scheme that integrates CI content and truth-conditional content to analyze expressive items. This scheme, known as two-dimensional meanings, is presented by Potts (2005, 2007a). Additionally, Potts (2007b) provides a detailed characterization of expressives, which enhances our understanding of their meanings and how they differ from the truth-conditional layer of meanings.

Since the works of Potts (2005, 2007a, 2007b), there has been an increased interest in studying non-truth-conditional meanings. Gutzmann (2013) extends this line of research by introducing the concept of use-conditional items (UCIs). UCIs are not limited to expressive items discussed in Potts (2005, 2007a, 2007b) but encompass a broader range of linguistic elements that convey use-conditional meanings distinct from the truth-conditional dimension. Similar to Potts (2005, 2007a), Gutzmann (2013) proposes a set of schemas to analyze different types of UCIs. The main difference between Potts' and Gutzmann's approaches is that Gutzmann highlights the role of isolated or functional mixed UCIs (i.e., examples (24) and (27)) in deriving

truth-conditional meanings.

Since the primary focus of this thesis is on the Taiwan Mandarin discourse particle *daodi*, it can be asserted, regardless of adopting Potts or Gutzmann's accounts, that *daodi* is an expressive item (also classified as a UCI) that conveys a non-at-issue meaning (i.e., use-conditional meaning) indicating the speaker's desperation due to the difficulty in finding an answer to the question. Specifically, *daodi* can be classified as a functional expletive UCI when it is used in a question to comment on the question itself. Therefore, if we consider a *daodi*-question as exemplified in (28), the corresponding schema based on Gutzmann's account would be represented as (29).

(28) Daodi yaoshi zai nali?
daodi key at where
'Where on earth/the hell is the key?'

(29)

$$\frac{\varepsilon(\alpha)}{S[...\alpha...]} = \frac{\text{The speaker is desperate, for it is difficult to find answers}}{\text{Where is the key?}}$$

The purpose of the present chapter is to provide an overview of the literature related to discourse particles. In the upcoming chapter, a comprehensive understanding of the discourse particle *daodi* will be presented and discussed, along with an analysis of the data involving *daodi*.

4. Data

In the previous chapters, different types of non-canonical questions, such as extreme-ignorance questions (EIQs) and cornering questions (CorQs), were reviewed in English. The literature on expressives and use-conditional items was also examined. In the current chapter, the focus shifts to Taiwan Mandarin discourse particle *daodi*. The chapter begins by providing an overview of standard Taiwan Mandarin canonical questions and discussing the felicity conditions for the use of the discourse particle *daodi*. It then delves into the existing literature on *daodi*, exploring its syntactic aspects and serving as a starting point for further investigation. Additionally, the chapter introduces Taiwan Mandarin non-canonical questions, including EIQs, CorQs, and a novel type called unanswerable questions (UnansQs)[1]. It proposes that the data of these Taiwan Mandarin non-canonical questions can be interpreted as questions expressing despair. Furthermore, the chapter presents the data collected from two empirical studies conducted with native speakers. The first study, called the Emo-Daodi Study, examines the correlation between *daodi* and pragmatic contexts, particularly emotion-loaded contexts. The second study, known as the Emo-React Study, investigates the reactions elicited by UnansQs, where there is no possible answer. The chapter summarizes the results of the two empirical studies and discusses how pragmatic contexts and linguistic cues influence reactions to the utterances. Finally, a conclusion is drawn for this chapter, which sets the foundation for the proposal presented in Chapter 5. This proposal offers an alternative perspective orthogonal to the current approaches discussed in the preceding chapters.

4.1. Taiwan Mandarin Questions in Despair

This section begins by offering a concise overview of standard questions in Taiwan Mandarin. Subsequently, it proceeds to examine the discourse particle *daodi* in the

[1]Note that the purpose of asking a question is about solving its issue, mentioned in (3) and (4) in Section 1.3.2.

context of extreme ignorance questions and cornering questions. In addition to reviewing the existing data, the section introduces a novel category of non-canonical questions known as unanswerable questions. Drawing upon the data involving the use of *daodi* in these non-canonical questions, a novel perspective on questions in despair is proposed.

4.1.1. Taiwan Mandarin Standard Questions

In this section, an overview of standard questions in Taiwan Mandarin is provided. Four types of standard questions[2] are identified: polar questions, wh-questions, A-not-A questions, and alternative questions. Polar questions in Taiwan Mandarin are constructed by incorporating the standard question particle *ma*[3] in the sentence-final position, as demonstrated in (1).

(1) Ni yao qu kan dianying ma?
you want go watch movie Q
'Do you want to go watching movie?'

Taiwan Mandarin is considered a wh-in-situ language, which means that there is no movement involved in forming interrogatives from declaratives. This can be seen in examples (2) and (3).

(2) she lai-le?
who come-ASP
'Who has come?'

(3) Ni yao qu na?
you want go where
'Where do you want to go?'

[2]Li & Thompson (1989) organized Chinese questions into four types; they are: question-word questions, disjunctive questions, tag questions and particle questions. In order to parallel the Taiwan Mandarin standard questions to English ones, I do not follow their categorical delineations.

[3]Note that there are other question particles (e.g. *ne*, *ba*, etc.) in Taiwan Mandarin, but they also carry other non-at-issue meanings. Only question particle *ma*.

In Taiwan Mandarin, standard questions can also be formed using A-not-A constructions, which I refer to as A-not-A questions. The interpretation of an A-not-A question is equivalent to that of a polar question with the question particle *ma*. A-not-A questions are typically used in neutral and plain contexts, similar to polar questions (i.e. plain information-seeking questions). An example of a Taiwan Mandarin A-not-A question is shown in (4)[4].

(4) Ni yao-bu-yao qu kan dianying?
you want-not-want go watch movie
'Do you want to go watching movie?'

Alternative questions in Taiwan Mandarin are formed by using the disjunctive particle *haishi* between the two constituents that represent the options for the addressee to choose from. An example of a Taiwan Mandarin alternative question is shown in (5).

(5) Ni yao he kafe haishi cha?
you want drink coffee or tea
'What do you want to drink, coffee or tea?'

There is another disjunctive particle in Taiwan Mandarin called *huo*. Similar to *haishi*, the disjunctive particle *huo* should also be added between the two constituents. However, the use of *huo* in combination with the question particle *ma* is required for grammaticality. Without using *ma*, the question would be considered ungrammatical. The interpretation of (6) is actually a polar question reading, where the expected answer from the addressee is either yes or no, rather than an alternative question reading.

[4]Li & Thompson (1989) translate the example (4) to 'Do you want to go watching movie or not?'; however, I found that translation is misleading, so I disagree with that translation for two reasons. The first reason is that uttering an A-not-A question like (4) can be in a neutral and discourse-initial context; for instance, a friend A wanted to go watching movie; she saw her friend B and she suddenly wanted to invite B to join her. The second reason is that English *or-not*-alternative questions have cornering effects that I discuss in section 2.2, but there is no cornering effects from Taiwan Mandarin A-not-A questions. Hence, I suggest the readings of A-not-A questions should be equivalent to those of polar questions.

(6) Ni yao he kafe huo cha ma?
you want drink coffee or tea Q
'Do you want to drink coffee or tea?'

Having provided an overview of standard questions in Taiwan Mandarin, the next section will focus on introducing the discourse particle *daodi* and examining how its usage in questions conveys the meanings of non-canonical questions.

4.1.2. Use-Conditions of *Daodi*

Daodi, which literally translates to '*to the bottom*' is a discourse particle in Taiwan Mandarin that serves the function of expressing urgency, frustration, and desperation on the part of the speaker when used in questions. It indicates that the speaker is in dire need of an answer or is in a state of despair towards the question regarding the current situation. In this section, the aim is to provide a comprehensive understanding of the conditions under which *daodi* is used, including both felicitous and infelicitous scenarios of *daodi*-questions. Furthermore, the syntax of *daodi* will be examined to distinguish between the polysemous readings associated with its usage in Taiwan Mandarin.

Felicitous Scenarios

This section highlights three distinct types of scenarios in which *daodi* can be used felicitously. Type 1 focuses on the answers within the discourse, type 2 pertains to the questions being asked in the conversation, and type 3 revolves around the emotional state of the discourse participant. Each of these types sheds light on specific contexts in which *daodi* is appropriately employed to convey its intended meaning.

Type 1: Answers were dismissed or inconceivable

The first type of felicitous scenarios for *daodi*-questions arises when the reasonable answers have been dismissed, as illustrated in (7), or when the answers are inconceivable, as shown in (8). In these situations, *daodi* serves as a marker of the speaker's desperation or frustration due to the unavailability or unattainability of satisfactory answers.

Scenario for (7):
Domingo is searching his office key. He usually puts it on the desk right at the door, or leaves it in his pocket. Now he cannot find his key in either of these two places. He utters:

(7) Daodi yaoshi zai nali?
daodi key at where
'Where on earth is the key?'

Scenario for (8):
Cathy and Amanda are sisters. They receive a package which does not show whom the recipient is. Neither of them orders anything online recently, or is informed that she will receive a package. Cathy utters to Amanda:

(8) Daodi zhe baoguo shi she-de?
daodi this package be who-POSS
'Who on earth owns this package?'

Type 2: Questions have been asked

The second type of felicitous scenarios for *daodi*-questions occurs when the discourse participant has previously asked the same question in the ongoing conversation, as exemplified in (9). In this case, *daodi* is used to express the speaker's impatience or frustration with the lack of a satisfactory answer or resolution to the question, despite its repetition.

Scenario for (9):
Amy's son just received the result of his math exam. Amy asks him whether he passes the exam or not. Her son refuses to answer, so Amy asks him again:

(9) Ni daodi you-mei-you tongguo kaoshi?
you doadi have-not-have pass exam
'Do you pass the exam or not?'

Type 3: Desperate emotions are provoked

The third type of felicitous scenarios for *daodi*-questions arises when the discourse participant's emotions of desperation, urgency, annoyance, or frustration are provoked, as illustrated in (10). In such situations, *daodi* is used to convey the speaker's heightened emotional state and the urgent need for an answer or resolution.

Scenario for (10):
Rosa is responsible for the waffle stall at the Christmas market. The Christmas market will be open tomorrow, but there is still so much work that has not been done yet. Rosa tries to call her friends for help, yet none of them responds. Rosa utters:

(10) Daodi haiyou she neng bang wo?
daodi still who MOD help me
'Who-on-earth still can help me?'

Infelicitous Scenarios

There is only one scenario in which uttering a *daodi*-question would result in the infelicity of the discourse, and that is asking a *daodi*-question "out of the blue" at the beginning of a conversation. This means that initiating a conversation with a *daodi*-question without any prior context or basis would be considered inappropriate. An example of such an infelicitous scenario for *daodi*-questions is presented in (11).

Scenario:
A waiter comes to the guests to take the order. He utters:

(11) #qing wen, nin jinwan daodi xiang dian shenme?
please ask, you tonight daodi want order what
'May I kindly ask you, what-on-earth do you want to order tonight?'

Without using *daodi* in (11), the question would be a plain, neutral information-seeking question (ISQ) that is felicitous in the scenario. It is important to note that using *daodi* in questions is often seen as impolite and rude. Therefore, *daodi* is mostly

used in close relationships, such as with family and friends. It may also be used when the speaker holds a higher social rank than the addressee, such as in the case of an employer asking an employee, "When *daodi* can you finish this task?"Additionally, *daodi* may be used in special situations that are not solely based on social rank, but rather on customer orientation. An example of customer orientation is shown in (12), which is an extended scenario from (11). It is important to highlight that (12) represents a type 3 felicitous scenario for customers to utter *daodi*-questions because customers may feel desperate in that particular situation.

Scenario:
The guests have placed the orders. After waiting for so long, they still do not get their dishes. They ask the waiter when they can get their meals. The waiter responds that their food will be served soon, but it seems that their food is taking forever. The guests are hungry and annoyed. They utter to the waiter:

(12) women-de candian daodi shenmeshihuo hui song-lai?
we-POSS meal daodi when will deliver-here
'When the hell will our meals to be delivered to us?'

Even if the guests occupy a table for an extended period of time without placing their orders, it is highly unlikely for a waiter to utter (11) or any *daodi*-questions to the customers. Such questions would be considered highly inappropriate and unprofessional in a waiter-customer interaction.

In summary, the discourse particle *daodi*, when used in questions, conveys an expressive meaning indicating the speaker's desperation. This desperation can arise due to three main reasons: (i) the dismissal or inconceivability of the most reasonable answers, (ii) the repetition of the question in the ongoing conversation, or (iii) the speaker's emotional state being affected by a specific issue or event in the context. It is important to note that using *daodi* in questions is typically considered impolite and rude, and it is more commonly used within close relationships or when there is a higher social rank involved. However, the infelicity of asking a *daodi*-question at the beginning of a conversation can be overridden if one of the three desperate reasons mentioned earlier is applicable, as illustrated in (13).

Scenario for (13):

Chidi is a tidy and well-organized professor of philosophy. He always makes sure that his office is clean and orderly when he leaves the office. Today, Chidi walks into his office for the first time with his tutor. He opens the door and sees that his office is totally in a mess. Empty wine bottles are on the floor and the whole office smells. He yells:

(13) Daodi shi she dui wo-de bangongshi zuo-le shenme?
daodi be who to I-POSS office do-ASP what
'Who-the-hell did this office to my office?'

In examining the scenario depicted in (13), Chidi's reaction to discovering his office in a chaotic and dirty state, contrary to his usual expectation of cleanliness, highlights the potential for the felicitous conditions of type 1 and type 3 to supersede the infelicitous condition. Specifically, when Chidi perceives the answer to the question as inconceivable (i.e., he cannot ascertain who is responsible for the disarray, given his consistent practice of maintaining a tidy office), or when Chidi experiences a sense of desperation regarding the disorder in his office, he may choose to initiate the discourse by uttering (13). Thus, it is essential to acknowledge that the infelicitous condition for employing *daodi* is not a rigid constraint, as contextual factors and the speaker's personal beliefs and emotions can influence its applicability.

To summarize a full picture of the use-conditions of *daodi*, Figure 4.1 is presented.

Figure 4.1.: An Overview for Use-Conditions of *Daodi*

Felicitous Scenarios:			**Infelicitous Scenario:**
Type 1: Answers were dismissed or inconceivable.	Type 2: Ouestions have been asked.	Type 3: Desperate emotions are provoked.	Not at the beginning of the conversation.
Whom to Use:			
1. Family 2. Friends 3. Higher social rank to lower social rank 4. Customers first (The reverse situation of 3 and 4 may happen, but it rarely happens.)			

Differentiation of Polysemous *Daodi*

In Taiwan Mandarin, the discourse particle *daodi* has two interpretations: a literal/non-expressive meaning of "to the bottom" and an expressive meaning of "the speaker is in despair".

When *daodi* is used in declarative sentences, it conveys its literal/non-expressive meaning. Examples of *daodi* used in declaratives can be seen in (14) and (15).

(14) Ni jiu chi zou daodi.
you just straight walk to.bottom
'You just walk straight to the end (of this road/street/path).'

(15) shuo daodi, shijie heping haishi qujue yu mei-ge guojia-de
say to.bottom world peace still depend on every-CLF nation-POSS
lingdaoren.
leader
'Ultimately, the world-peace is still in the hands of every country's leader.'

The interpretation of *daodi* in (14) is based on its literal sense, and that of *daodi* in (15) is based on the metaphorical sense (e.g. *fully, ultimately*). Regardless of its literal or metaphorical senses, we can generalize that *daodi* in declaratives conveys an adverbial reading. However, this adverbial reading of *daodi* is incompatible with

certain verbs, shown in (16).

The interpretation of *daodi* in (14) is based on its literal sense, while the interpretation in (15) is based on its metaphorical sense (e.g., "fully", "ultimately"). Whether in its literal or metaphorical senses, we can generalize that *daodi* in declarative sentences conveys an adverbial reading. However, this adverbial reading of *daodi* is incompatible with certain verbs, as shown in (16).

(16) #ta daodi zou-le.
he daodi leave-ASP
'He left to the bottom.'

When *daodi* is used in interrogative sentences, it conveys a non-literal/expressive meaning. Unlike its use in declarative sentences, *daodi* in interrogative sentences does not have the issue of incompatibility with verb choices, as shown in (17), which is the interrogative form of (16).

(17) ta daodi zou-le mei?
he daodi leave-ASP yet
'Has he left yet? (at-issue meaning)'; '*Speaker* is in despair (the expressive meaning from *daodi*)'

Although *daodi* conveys an expressive meaning, we can only obtain this expressive interpretation when it is used in interrogative forms, not in declaratives (as seen in (14) and (15) or imperatives, as demonstrated in (18). Even if the speaker feels suffocated in a warm and humid room and is desperate to get fresh air, it would still be considered ungrammatical to utter (18).

(18) #da kai chuanghu daodi!
pull open window daodi
'Open window (#to the bottom, completely)/(#*Speaker* is desperate)!'

As observed in (18), *daodi* is not compatible with imperatives, and we cannot derive either the literal or the expressive reading from it. These data indicate that *daodi*

is a special expressive item. Unlike English expressives like *damn* for instance, where we can always obtain its expressive meaning regardless of the type of structures it is used in, as shown in (19).

(19) a. I hate that damn dog.
b. Where is that damn dog?
c. Get that damn dog out!

Furthermore, based on the discussed *daodi* data, one may question the need for a unified analysis of the polysemous nature of *daodi*. To address this question, we need to examine the final piece of *daodi* data in this section, as shown in (20).

(20) Ni **daodi** yao-bu-yao hao-ren zuo **daodi**?
you daodi want-not-want good-person to.be to.bottom
'Do you want to be an **ultimate** good person **or not**?'

The example (20) provides evidence that the polysemous nature of *daodi* (i.e., the declarative use conveying a literal meaning and the interrogative use conveying an expressive reading) are independent of each other. To summarize the polysemous uses of *daodi* in different structures, Figure 4.2 is presented below.

Figure 4.2.: An Overview of Polysemous *Daodi*

	Daodi conveys the literal meaning: 'to the bottom'	*Daodi conveys the expressive meaning: 'Speaker is desperate'*
Daodi used in Declaratives	Yes	No
Daodi used in Interrogatives	No	Yes
Daodi used in Imperatives	#	#

The present dissertation specifically focuses on the use of *daodi* in interrogatives. The issues related to the incompatibilities of *daodi* with certain verbs or its use in imperatives are left for further research and investigation.

4.1.3. *Daodi* in Literature

In this section, we will review the literature on the Taiwan Mandarin discourse particle *daodi*. Two studies, namely Huang and Ochi (2004) and Chou (2012), have specifically investigated *daodi* in questions from a syntactic perspective. Both studies compare *daodi* to the English expression *the-hell*. We will begin by surveying the findings of Huang and Ochi (2004), followed by a review of Chou (2012).

Huang & Ochi (2004) focus on the syntactic positions of *daodi* in Taiwan Mandarin questions. They argue that there are three key elements required to form a *daodi*-question: a specifier (Spec) of the complementizer phrase (CP) containing the question operator, *daodi*, and the wh-associate (i.e., the embedded wh-phrase). According to their analysis, *daodi* must occur within the scope of the interrogative CP, as shown in (21). If *daodi* appears outside of the relevant embedded CP, the *daodi*-question is considered ungrammatical, as illustrated in (22). However, there is an exception for *daodi* occurring outside of the relevant embedded CP, which is when the question is a direct question, as shown in (23).

(21) Ta xiang-zhidao ni **daodi** chi-le **shenme**.
he want-know you daodi eat-ASP what
'He wonders what the hell you ate.' (indirect question)

(22) #Ta **daodi** xiang-zhidaoi ni chi-le **shenme**.
he daodi want-know you eat-ASP what
'He wonders what the hell you ate.' (indirect question)

(23) Ta **daodi** xiwang ni zuo **shenme**?
he daodi hope you do what
'What the hell does he hope that you do what?' (direct question)

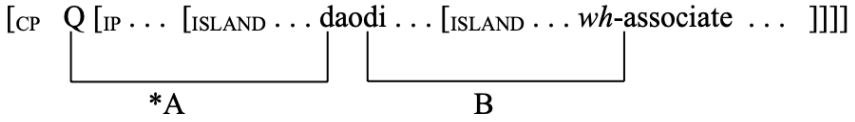
In addition to the requirement that *daodi* must be positioned within the Spec-CP domain, the wh-associate (e.g. "who" (*she*) in the example) must be c-commanded by *daodi*. This is evident in the contrast between (24) and (25).

(24) Ta xiang-zhidao **daodi she** ying-le bisai.
he want-know daodi who win-ASP competition
'He wants to know who the hell won the game.'

(25) #Ta xiang-zhidao **she daodi** ying-le bisai.
he want-know who daodi win-ASP competition
'He wants to know who the hell won the game.'

To address the positional relationship of **daodi** in questions, Huang & Ochi (2004) propose the existence of two dependencies in **daodi**-questions: one between the question operator Q at Spec-CP and **daodi** (Dependency A), and another between **daodi** and the wh-associate (Dependency B). These dependencies are depicted in Figure 4.3.

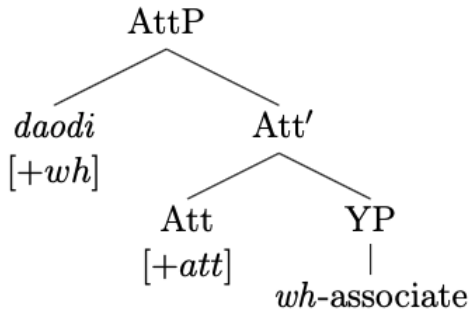
Figure 4.3.: The Pattern: Two Dependencies (Huang & Ochi 2004:6)



The proposed dependencies reveal a successive c-command relationship among the question operator, *daodi*, and the wh-associate. Furthermore, these dependencies account for the island sensitivity observed in the distribution of *daodi*. Importantly, this pattern of dependencies provides an explanation for the grammaticality of (21) and (24), as well as the ungrammaticality of (22) and (25).

Building on Cinque's (1999) framework, Huang & Ochi (2004) propose that *daodi* occupies the specifier position of an Attitude Phrase (AttP). This Attitude Phrase represents the attitude of either the external speaker of the utterance or the internal speaker, who is the subject of the matrix clause. By incorporating the Attitude Phrase into the syntactic structure, *daodi* conveys a "question with an attitude (Huang & Ochi 2004:7)" as indicated by the external or internal speaker. Figure 4.4 illustrates this proposal.

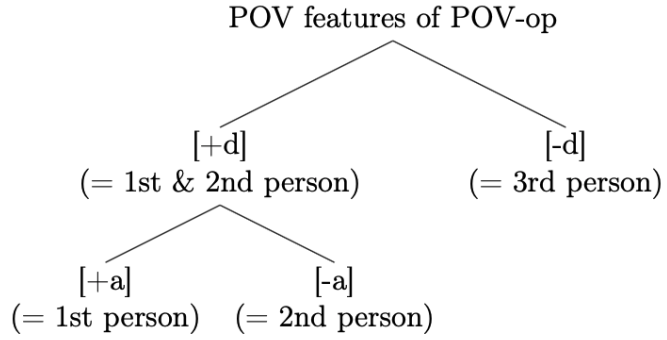
Figure 4.4.: The Attitude Phrase (Huang & Ochi 2004:7)



In Figure 4.4, Dependency B is represented by the head of the Attitude Phrase (Att), which carries the logophoric feature of attitude from *daodi*. *Daodi* itself contains the [+wh] feature, which necessitates checking through wh-phrases within its c-domain. This checking is achieved by covertly moving the adjacent wh-associate to *daodi*. Although Figure 4.4 does not provide a complete representation of the syntactic structure as shown in Figure 4.3, it is important to note that the interrogative CP possesses a [+Q] feature that also necessitates checking through covert movement (Dependency A), specifically the adjoining of the Attitude Phrase to the interrogative specifier position (Spec-CP).

Chou (2012) builds upon Huang & Ochi's (2004) proposal and extends the analysis by incorporating the representation of negative attitude carried by *daodi* within the syntactic computation. According to Chou's (2012) account, *daodi* contains an unvalued Point-of-View (POV) feature, which must be valued by the Point-of-View operator (POV-op) in the left periphery of CP. By establishing a probe-goal relationship with the closest c-commanding element, the valued POV feature is able to check the identity, referred to as "logophoric orientation" by Chou (2012:12), of the attitude-bearers in *daodi*-questions. This process enables the full interpretation of attitude-bearing questions. The POV features associated with the POV-op are [discourse participant] and [addresser], denoted as [d] and [a], respectively, as depicted in Figure 4.5.

Figure 4.5.: Point-of-View Operator: Two POV features (Chou 2012:12)



The POV feature [+d] represents the first and second person, corresponding to the addresser and the addressee in the discourse, while the feature [-d] represents the third person. If the POV feature of [d] is [+d], the other POV feature [a] distinguishes whether it represents the first person [+a] or the second person [-a]. Chou (2012) maintains that the POV-op in the matrix clause and the POV-op in embedded clauses have different characteristics. The matrix POV-op is consistently [+d, +a], indicating the point of view of the external speaker of the utterance. On the other hand, the embedded POV-op may have various feature combinations such as[5] [+d, +a], [+d, -a], and [-d, -a], with the specific combination determined by the closest c-commanding subject.

Based on Chou's (2012) proposal regarding the POV-op, we can derive the interpretation of a direct *daodi*-question like (26) as shown in (27).

(26) ni daodi mai-le shenme?
you daodi buy-ASP what
'What the hell have you bought?'

(27) **Direct Question and Matrix POV-op Only**
[**daodi**$_{1,\,[+d]}$-**POV-op**$_{[+d,\,+a]}$[you t_1 bought what]]?

In (27), the unvalued feature of *daodi*, represented by *daodi*, is valued as [+d]

[5] Chou (2012) states that [-d, +a] is not a possible combination due to the fact that an addresser must be a discourse participant

through a probe-goal relation with the matrix POV-op, which is consistently [+d, +a]. As mentioned earlier, the matrix POV-op also identifies the attitude-bearer of (26) as the addresser among the discourse participants. In other words, the attitude-bearer represents the external speaker of the entire question.

This valuation of the POV-op can also be applied to an indirect question like (28) as shown in (29).

(28) Georgia xiang-zhidao Ginny daodi mai-le shenme.
Georgia want-know Ginny daodi buy-ASP what
'Georgia wonders what the hell Ginny has bought.'

(29) **Indirect Question and Embedded POV-op Only**

a. [**daodi**$_{1,\ [u\text{d}]}$-**POV-op**$_{[u\text{d},\ u\text{a}]}$[Ginny t_1 bought what]]

b. Georgia wonders [daodi$_{[\text{-d}]}$-POV-op$_{[\text{-d},\ \text{-a}]}$ Ginny ...]

In (29-a), the features of *daodi* and the embedded POV-op are initially unvalued and are later determined by the minimal c-commanding subject, as shown in (29-b). Since the matrix subject referent is Georgia, who is the third person and a non-discourse participant in the utterance, the features of *daodi* become [-d], and the POV-op features become [-d, -a] to align with their logophoric orientation. Consequently, the embedded POV-op accurately identifies Georgia as the negative attitude-bearer of (28).

Chou (2012) further employs the mechanism of POV valuation to elucidate the constraint related to the person-feature in the matrix clause of *daodi*-questions, exemplified by sentence (30) in which *daodi* appears within the embedded clause. The syntactic computation for sentence (30) is presented in (31).

(30) Ni renwei Ginny **daodi** mai-le shenme?
you think Ginny daodi buy-ASP what
'What the hell do you think Ginny has bought?'

(31) **Direct Question, Matrix POV-op and Embedded POV-op (Matrix Subject**

is 2nd Person)

a. [**daodi**$_{1,\ [u\text{d}]}$-**POV-op**$_{[u\text{d},\ u\text{a}]}$[Ginny t_1 bought what]]
b. you think [daodi$_{1,\ [+\text{d}]}$-POV-op$_{[+\text{d},\ -\text{a}]}$ Ginny t_1...]?
c. [daodi$_{[+\text{d}]}$-POV-op$_{[+\text{d},\ +\text{a}]}$ you think [t_1-POV-op$_{[+\text{d},\ -\text{a}]}$...$t_1$...]]

The process of assigning values in (31) follows a similar pattern to that in (29). The distinction lies in the person-feature and the choice of verb in the matrix clause. Given that the matrix subject refers to the second person, the POV features of *daodi* and the embedded POV-op are assigned as [+d] and [+d, -a] respectively, based on the minimal c-commanding subject as depicted in (31-b). As (30) is a direct question, daodi must adjoin to the matrix POV-op in order to encompass the entire utterance, in line with Dependency A proposed by Huang & Ochi (2004). Furthermore, since the feature of the matrix POV-op is [+d, +a], there is no clash of person-features between *daodi* and the matrix POV-op. Consequently, we can correctly attribute *daodi*'s negative attitude to the external speaker of sentence (30).

However, if we modify the reference of the matrix clause in sentence (30) to a third person, such as *Georgia*, as illustrated in sentence (32), the question becomes ungrammatical. This lack of grammaticality arises due to a conflict between the POV features of *daodi* and the matrix POV-op, as depicted in (33).

(32) #Georgia renwei Ginny **daodi** mai-le shenme?
Georgia think Ginny daodi buy-ASP what
'What the hell does Georgia think that Ginny has bought?'

(33) **Direct Question, Matrix POV-op and Embedded POV-op (Matrix Subject is 3rd Person)**

a. [**daodi**$_{1,\ [u\text{d}]}$-**POV-op**$_{[u\text{d},\ u\text{a}]}$[Ginny t_1 bought what]]
b. Georgia think [daodi$_{1,\ [-\text{d}]}$-POV-op$_{[-\text{d},\ -\text{a}]}$ Ginny t_1...]?
c. #[daodi$_{[-\text{d}]}$-POV-op$_{[+\text{d},\ +\text{a}]}$ Georgia think [t_1-POV-op$_{[-\text{d},\ -\text{a}]}$...$t_1$...]]

In the mechanism (33), we observe that the POV features assigned to *daodi* and the matrix POV-op clash with each other. As a result, the sentence is deemed ungrammatical.

In order to resolve the issue presented in question (32), the placement of *daodi* should be shifted from the embedded clause to the matrix clause, as demonstrated in sentence (34). By doing so, the constraint imposed by person-features on the distribution of *daodi* is alleviated, resulting in a grammatical utterance. The mechanism underlying this adjustment is outlined in (35).

(34) Georgia **daodi** renwei Ginny mai-le shenme?
Georgia daodi think Ginny buy-ASP what
'What the hell does Georgia think that Ginny has bought?'

(35) [**daodi**$_{\mathbf{1,\ [+d]}}$-**POV-op**$_{\mathbf{[+d,\ +a]}}$ Georgia t_1 think [Ginny bought what]]?

In sentence (34), we observe that *daodi* is now positioned in the matrix clause. Consequently, the clash of person-features between *daodi* and the matrix POV-op is circumvented, allowing for a grammatical sentence. The mechanism presented in (35) highlights the syntactic configuration and assignment of POV features, illustrating how the revised placement of *daodi* in the matrix clause resolves the grammaticality issue. Hence, the negative attitude of *daodi* is identified to the external speaker of the entire question.

In terms of the syntactic aspect, I agree with Chou's (2012) analysis of POV-op, which explains the distribution constraint of *daodi* through the agreement of POV features. However, I have come across a situation described in (36) where it is acceptable to utter sentence (37), even though *daodi* occurs in the embedded clause and the matrix subject is in the third person (similar to the problematic (32)).

(36) **Felicitous Scenario for (37)**
Georgia and Ginny are mother and daughter. Your friend tells you that Georgia is now a worried mom. Georgia likes Ginny's boyfriend, but she also thinks that guy is not good enough for Ginny. Georgia makes a list of pros and cons for Ginny's boyfriend. (...) After listening this long story, you are somehow lost whether Ginny should get married in Georgia's opinion. You utters to your friend (37).

(37) suoyi shuo, Georgia renwei Ginny daodi gai-bu-gai jiagei ta?
so say, Georgia think Ginny daodi should-not-shoud marry him
'So to say, Georgia think whether Ginny should fucking marry him or not?'

I find (37) acceptable because the focus in (36) is on the question of whether Ginny should marry her boyfriend. As the external speaker, I also put myself in Georgia's perspective. Therefore, my concern is not so much about Georgia's final opinion regarding Ginny's boyfriend but rather about the A-not-A question (in the embedded clause) of whether Ginny should get married. If *daodi* were to occur in the matrix clause as in (34), the focus would shift to the matrix verb "think" ('*renwei*'), resulting in the interpretation: 'I desperately want to know about Georgia's thinking/opinion (after learning that she has put in so much effort)'. Whether the constraint can be lifted by the focus in certain contexts or the A-not-A construction in the embedded clause remains an issue for further research.

In conclusion, based on the evidence presented by Huang & Ochi (2004) and Chou (2012), we can establish that daodi is distinct from the English expression "the hell". *Daodi* does not function as a non-D-linking element and does not form a constituent with wh-associates[6]. Additionally, daodi exhibits island effects[7] and its distribution is determined by person-features in the syntactic aspect. While the proposals of Attitude Phrases and Point-of-View Operator by Huang & Ochi and Chou, respectively, aim to explain the interpretation of negative attitudes conveyed by *daodi*, their analyses do not fully capture the usage conditions and complete meaning of *daodi*.

From Huang & Ochi's Attitude Phrases, we understand that a *daodi*-question is interpreted as a question with an attitude, and later Huang et al. (2009:237, fn. 2) state that *daodi* expresses "an urgent desire, a sense of impatience, or a speaker's eagerness to obtain specific information." Chou's POV-op generalizes the interpretation of a *daodi*-question as conveying negative attitudes. In summary, the meaning of *daodi* can be described as follows: the (external/internal) speaker has a negative attitude, such as urgency or impatience, towards the question.

However, in the subsequent Section 4.1.5, I will present new data on *daodi* in

[6]Please see (Huang & Ochi 2004) and (Chou 2012) for the detailed comparison and explanation on *daodi* and English *the hell*.

[7]The island sensitivity and its restriction on the distribution of *daodi* are not the focus of this dissertation. For the relevant discussions, please see (Kuo 1996) and (Huang & Ochi 2004).

unanswerable questions (UnansQs). It is important to note that the *daodi* data discussed by Huang & Ochi (2004) and Chou (2012) primarily focuses on information-seeking questions. In the case of UnansQs, the negative attitudes conveyed by *daodi* are not directed towards the question itself but towards the situation that affects the speaker. If we apply the analyses of Huang & Ochi (2004) and Chou (2012) to *daodi*-UnansQs, the interpretation of the question would be pragmatically odd and misleading. Therefore, the goal of this dissertation is to analyze *daodi* in terms of semantics and experimental pragmatics in order to provide a comprehensive understanding of its meaning.

4.1.4. *Daodi* as Expressive

Based on the existing literature on *daodi*, it is evident that the interpretation of *daodi* has primarily been derived through syntactic analyses, specifically the frameworks of Attitude Phrase and POV-op. However, to the best of my knowledge, no literature has explored the semantic and pragmatic aspects of *daodi*. In light of this, I propose to analyze *daodi* in terms of semantics and pragmatics, drawing inspiration from Potts' (2005, 2007a, 2007b) concept of CI content and the expressive attributive adjective.

Potts introduces the idea that certain expressions, known as expressives, convey a specific expressive content that reflects the speaker's attitude. For example, in English, the phrase *damn dog* conveys the CI content that the speaker has a negative attitude towards the dog. Since *daodi* , as discussed in the literature, also serves the purpose of expressing negative attitudes, I aim to investigate its semantic interpretation within the framework of expressive content (Potts 2005, 2007a, 2007b). To determine if *daodi* qualifies as an expressive, I examine its semantic contribution by assessing its compatibility with Potts and Kawahara's (2004) four central properties of expressives, as shown in (38).

(38) **Diagnosis: Four Central Properties of Expressives**

a. Nondisplaceability
b. Independence
c. Immediacy
d. Descriptive ineffability

The first property is *nondisplaceability*, which means that expressives always take the primary semantic scope. Based on the POV-valuation analysis presented by Chou (2012), we observe that in a sentence like (39), *daodi* adjoins to the matrix POV-op and assumes the primary scope over the entire utterance, as illustrated in (40).

(39) Ni renwei Emily daodi xi-bu-xihuan Gabriel?
you think Emily daodi like-not-like Gabriel
'Do you think whether Emily likes Gabriel or not?'[8]

(40) a. [**daodi**$_{1,\ [u\text{d}]}$-**POV-op**$_{[u\text{d},\ u\text{a}]}$[Emily t_1 likes Gabriel]]
b. you think [daodi$_{1,\ [+\text{d}]}$-POV-op$_{[+\text{d},\ -\text{a}]}$ Emily t_1...]?
c. [daodi$_{[+\text{d}]}$-POV-op$_{[+\text{d},\ +\text{a}]}$ you think [t_1-POV-op$_{[+\text{d},\ -\text{a}]}$...$t_1$...]]

This syntactic analysis suggests that it is the speaker, rather than the addressee, who conveys the negative attitudes in sentences like (39). This observation aligns with the property of nondisplaceability, indicating that *daodi* consistently takes the primary semantic scope. Importantly, *daodi* does not end up within the semantic scope of any operators when it occurs in the embedded clause.

Next, let us consider the property of *independence* in *daodi*. We can observe this property in the same example (39) discussed earlier. *Daodi* contributes a meaning that is distinct and separate from the overall meaning of the utterance (i.e., the question). Specifically, the at-issue interpretation of (39) would be "Do you think whether Emily likes Gabriel?" However, the semantic interpretation of *daodi* itself is "the speaker is conveying negative attitudes to the addressee." These two interpretations are independent of each other and can be evaluated separately.

Lastly, let us explore whether *daodi* possesses the properties of immediacy and descriptive ineffability. We can examine these properties together. In terms of *immediacy*, when we utter a *daodi*-question like (41), the effect of *daodi* is immediately achieved by its utterance. The effect is that the speaker is expressing their negative

[8] (39) can be interpreted as a cornering question in the scenario where the speaker has asked the addressee whether she thinks Emily likes Gabriel. As the speaker does not receive the answer from the addressee, the speaker further utters (39). Therefore, the translation of (39) is using the construction of English *or-not*-alternative questions, conveying the cornering effects.

attitudes. It would be infelicitous to retract or negate the conveyed negative attitudes of *daodi* by subsequently stating, "But I am not angry and impatient now."

(41) wancan daodi yao chi shenme?
dinner daodi want eat what
'What the hell do we want to eat for dinner?'

For the property of *descriptive ineffability*, speakers are never fully satisfied when they attempt to paraphrase *daodi*. Taking (41) as an example, we can provide some possible paraphrases for (41) that capture its at-issue meaning along with a potential non-at-issue meaning conveyed by *daodi*.

(42) At-issue meaning of (41): 'What do we want to eat for dinner?'

a. 'There are too many options and I cannot decide.'(a sense of frustration)
b. 'The restaurants are about to close. Can you quickly make your decision?' (a sense of urgency)
c. 'Hey! I've already asked you this question. Do you want to give me an answer or not?' (a sense of impatience)

The aforementioned diagnose confirms that *daodi* exhibits the properties of an expressive. In the next section, I will present *daodi* in different question types, which have not been distinguished and extensively discussed in both Huang & Ochi (2004) and Chou (2012).

4.1.5. *Daodi* in EIQs and CorQs

In parallel to English EIQs (extreme ignorance questions) and CorQ (cornering questions), this section presents data on the usage of *daodi* in questions to express the corresponding readings of EIQs and CorQs.

As we have observed, English utilizes phrases such as *wh-on-earth* or *wh-the-hell* in interrogatives to convey EIQ readings. In Taiwan Mandarin, *daodi* is used in questions to express EIQs. When *daodi* is employed in EIQs, it not only conveys the speaker's frustration with disregarded answers but also reflects the speaker's desper-

ate need for an answer. To illustrate the *daodi*-EIQ usage within the same scenario as the English EIQ, an example is provided in (43).

EIQ scenario: A and B are flatmates. A is searching for her key in the apartment. A knows that she always puts her key either on the desk or on the bookshelf. A has searched those places, but the key is not there. She utters to B.

(43) Daodi yaoshi zai nali?
daodi key at where
'Where the hell/on earth is the key?'

In this example, *daodi* is used to emphasize the speaker's frustration and urgency in seeking answers. The inclusion of *daodi* in the question serves as a marker of the EIQ reading, conveying the speaker's strong emotional state and their insistence on obtaining a satisfactory answer.

English employs the phrase '*or not*' in alternative questions to indicate that the question is a CorQ. In Taiwan Mandarin, *daodi* is used in A-not-A constructions to express the CorQ reading. Continuing from the CorQ scenario presented in English, a *daodi*-CorQ example is provided in (44).

CorQ Scenario: A is in charge of coordinating the cooks for a banquet dinner. B is one of the cooks. Dinner is tomorrow and A needs to know what is happening with pumpkin soup.
A: Are you making pumpkin soup? (ISQ)
B: (Silence and dubitative faces)
A utters:

(44) Ni daodi you-mei-you yao zuo nangua nongtan?
you daodi have-not-have want make pumpkin soup
'Are you making pumpkin soup or not?'

As mentioned in the section on Taiwan Mandarin standard questions, the interpretation of an A-not-A question is a polar question. It is *daodi* that adds the flavor of

cornering effects to the A-not-A question and marks it as a CorQ.

To summarize this section, *daodi* can be utilized in questions to convey EIQs or CorQs. The specific context in which *daodi*-questions are used plays a vital role in distinguishing whether the question represents an EIQ or a CorQ. The shared characteristic between a *daodi*-EIQ and a *daodi*-CorQ is that the speaker is in a desperate need of answers.

4.1.6. New Data: Unanswerable Questions

In addition to conveying the speaker's desperation for answers in EIQs and CorQs, *daodi* can also be used in questions where there is no way to resolve the issue or obtain an answer. These types of non-canonical questions are referred to as *Unanswerable Questions* (UnansQs). The term *unanswerable questions* was first mentioned in Caponigro & Sprouse (2007), where they define a question as unanswerable if it does not belong to the set of the speaker's beliefs or the addressee's beliefs (e.g., "Does God exist?"). To the best of my knowledge, the data of *daodi* in UnansQs has not been previously discussed or accounted for, and the reactions towards UnansQs have not been studied.

As the purpose of asking a question is typically to resolve an issue (as discussed in Searle (1969) and Farkas (2022)), it is still unknown how an addressee will react to *daodi*-UnansQs. It is important to note that the purpose of asking an EIQ or a CorQ is to resolve an issue, and uttering a *daodi*-EIQ or a *daodi*-CorQ does not change this purpose. However, the purpose of asking an UnansQ or a *daodi*-UnansQ (to be more specific) is still unclear in the literature. Let's examine an example of a *daodi*-UnansQ in (45).

UnansQ Scenario: Domingo and Sophia are friends. They are waiting in a long queue for getting their lunch. The staff has called customer 25 many times to get their meal. However, that customer still does not show up, which delays service for everyone else. Domingo is very annoyed and utters to Sophia.

(45) Daodi she shi na er-shi-wu hao?
daodi who be that two-ten-five number

'Who the hell is that number 25?'

In this scenario, if Domingo genuinely wants to know the identity of customer number 25, the question (45) would be pragmatically odd. Domingo utters the *daodi*-UnansQ as a complaint and seeks emotional support from Sophia. Felicitous and infelicitous responses from Sophia to Domingo are shown in (46). The emotional support here refers to the speaker aiming to elicit reactions regarding the non-at-issue content of the utterance (i.e., the speaker's desperation), such as co-complaining, commiserating, or emotionally agreeing, without necessarily providing an answer to the question.

(46) a. 'Yea, annoying; why does he not go getting his meal?'
b. 'Yea, it's annoying that we all need to wait for him.'
c. #'Hmm...it's a good question; let me try to find out who that person is.'

Felicitous responses from Sophia to Domingo would be (46-a) and (46-b), while (46-c) is inappropriate. Responses like (46-a) and (46-b) react to the non-at-issue/ emotive content of Domingo's utterance (e.g., his despair about being annoyed by the absent customer). In other words, (46-a) and (46-b) are reactions that commiserate with Domingo's emotions, not responses to Domingo's question itself. If Sophia responds with (46-c), treating (45) as an information-seeking question (ISQ), it would lead to pragmatic oddness and infelicity. Domingo's concern is not about knowing the identity of customer number 25. The infelicitous response of (46-c) to (45) provides evidence that (45) is not an ISQ.

In Taiwan Mandarin, uttering UnansQs can be seen as an indirect way of expressing frustration or venting about a situation or issue one is facing. Indirect speech acts have the advantage of being interpreted as more polite, less face-threatening (Brown & Levinson, 1978), or simply more sophisticated. Uttering a *daodi*-UnansQ can be viewed as a sophisticated indirect speech act in this case. On one hand, the interrogative utterance conveys an indirect speech act indicating the speaker's dissatisfaction with the situation, while on the other hand, the use of *daodi* directly intensifies the negative emotion expressed by the speaker.

Previous literature has primarily focused on the syntactic aspects of *daodi*, particularly in cases where questions are still information-seeking (e.g., *daodi*-EIQs). However, if we apply previous analyses (e.g., Huang & Ochi 2004; Chou 2012) to the new data of *daodi*-UnansQs, the interpretation of (45) would be that the speaker is requesting specific information with negative attitudes. However, as we have seen in (46), this interpretation is not accurate. Specifically, if the interpretation obtained from previous accounts is correct, then (46-c) would no longer be infelicitous. Therefore, a new account is needed to capture the usage of *daodi* in UnansQs, and this dissertation aims to analyze *daodi* in semantics and pragmatics to encompass all uses of *daodi* (EIQs, CorQs, and UnansQs). In the upcoming sections, empirical and experimental studies of *daodi* in pragmatics will be introduced.

4.2. *Daodi* Empirical Studies in Pragmatics

This section presents two empirical studies. The first empirical study, the Emo-Daodi Study, focuses on investigating the interaction between pragmatic contexts and the use of the discourse particle *daodi*. The purpose of this study is to understand why *daodi* is used in certain situations. While current analyses in the literature mainly examine the expressive meanings of discourse particles, they do not fully explain the motivations behind their usage. By exploring the pragmatic contexts in which *daodi* is employed, this study aims to shed light on the reasons for its use.

The second empirical study, the Emo-React Study, aims to examine the emotive reactions to *daodi*-questions in both emotive and plain neutral contexts. Canonical questions typically expect a valid answer from the addressee, while non-canonical questions, such as conjectural questions, invite the addressee to engage in joint speculation for an answer (Eckardt, 2020). However, the reaction to unanswerable questions has not been thoroughly investigated. Therefore, the Emo-React Study seeks to explore how native speakers react to *daodi*-questions in emotive situations where it is impossible to provide or speculate on an answer.

These two empirical studies aim to contribute to our understanding of *daodi* by examining its usage in specific pragmatic contexts and investigating the reactions it elicits. By doing so, they provide valuable insights into the motivations behind

the use of *daodi* and shed light on the interplay between language, emotion, and pragmatic context.

4.2.1. Emo-Daodi Study

The Emo-Daodi Study aims to investigate the correlation between the use of *daodi* and emotion-loaded contexts. The study has two main goals. Firstly, it examines the acceptability of plain information-seeking questions (ISQs) in emotion-loaded contexts. If *daodi* solely serves to convey an expressive meaning about the speaker's emotional state, plain ISQs should also be acceptable in emotion-loaded contexts, or at least equally preferred as *daodi*-questions. Secondly, the study aims to determine if native Taiwan Mandarin speakers have a preference for using *daodi*-questions in emotion-loaded contexts and examines the contrast between emotion-loaded and plain neutral contexts. The research questions of the Emo-Daodi Study can be summarized as follows:

(47) **Research Questions of Emo-Daodi Study**

a. How well do native speakers accept *daodi*-questions in emotion-loaded contexts, as opposed to neutral contexts (= plain ISQ contexts)?

b. Is there a pragmatic correlation between the use of *daodi* and contexts? (i.e. How does the context play the role in signaling the use of *daodi* is the "correct way" in this specific communication or discourse?)

The hypothesis posits that plain ISQs will not be preferred and will not be felicitous in situations where the emotions of the discourse participants are encoded (i.e., emotion-loaded contexts). Instead, *daodi*-questions should be strongly favored and considered the appropriate questions to utter in such desperate/emotion-loaded contexts. However, in neutral contexts, plain ISQs should be preferred over *daodi*-questions, and the latter would be infelicitous and highly dispreferred. The contrast between emotion-loaded and neutral contexts depends on whether the speaker is emotionally affected, as depicted in (48) and (49).

(48) **Emotion-loaded Context**

(A: girlfriend; B: boyfriend)

A: When can we go out to have dinner this evening? I'm hungry.

B: I'm in games. Maybe 15 min later.
(15 min passed. B is still playing games)
A: Hey! I'm very hungry.
B: Almost done, just another 10 min.
(30 min passed, B's game doesn't seem to be over). So, A asks B: "...?"

(49) **Neutral Context**
(A: girlfriend; B: boyfriend)
A and B decided to have dinner outside this evening, but they didn't decide when to go out. A is using the google map to find restaurants near around their place. After reviewing 10 restaurants, A decides to have dinner in a Vietnamese restaurant. A is happy with her decision and A wants to know when they can go out to have dinner. So, A asks B: "...?"

To summarize, there are two goals of Emo-Daodi Study, shown in (50).

(50) **Goals of Emo-Daodi Study**

a. To examine the acceptability of plain information-seeking questions (ISQs) (i.e., *non-daodi* questions) in emotion-loaded contexts and to compare them with plain ISQs in neutral contexts. The study aims to determine whether there is a contrast in acceptability between emotion-loaded contexts and neutral contexts for plain ISQs.
b. To investigate whether native speakers prefer using *daodi*-questions in emotion-loaded contexts. The study aims to explore whether the linguistic cue *daodi* is more likely to be used by speakers in emotion-loaded contexts, indicating a preference for its usage as a discourse particle.

By addressing these goals, the Emo-Daodi Study seeks to shed light on the acceptability and preferences for daodi-questions and plain ISQs in different pragmatic contexts, particularly focusing on the influence of emotion in contexts on linguistic choices.

Designs and Methods

A forced choice questionnaire has been designed. Overall, there are 16 target items and 8 fillers split into two surveys with a between-subject design. The factor, *Con-*

texts, is crossed in a 2x1 design:

(i) Context-Conditions: emotion-loaded contexts (i.e. non-neutral contexts), neutral contexts

(ii) Expressions: using *daodi* in questions, using non-*daodi* in questions (= plain ISQs). Note that subjects are always offered with these two expressions in each trial.)

The items of the emotion-loaded context and the neutral context that are used in the study are presented below.

(i) **Emotion-loaded context (= non-neutral context)**
(A: girlfriend; B: boyfriend)
A: When can we go out to have dinner this evening? I'm hungry.
B: I'm in games. Maybe 15 min later.
(15 min passed. B is still playing games)
A: Hey! I'm very hungry.
B: Almost done, just another 10 min.
(30 min passed, B's game doesn't seem to be over)
So, A asks B:

a) When *daodi* can we go out having dinner?

b) When can we go out having dinner?

(ii) **Neutral context**
(A: girlfriend; B: boyfriend)
A and B decided to have dinner outside this evening, but they didn't decide when to go out.
A is searching on the internet which restaurant near around their place has good reviews and choosing which restaurant to go.
After reviewing almost 10 restaurants, A decides to have dinner in the Vietnamese restaurant. There is no negative review about that restaurant.
A is happy with her decision and A wants to know when they can go out to have dinner. A asks B:

a) When *daodi* can we go out having dinner?

b) When can we go out having dinner?

Procedure

Each subject saw 12 experimental items (8 target items and 4 fillers). Each subject also had one training trial before answering the main questionnaire. The conditions were crossed in the between-subject design. 40 Taiwanese native speakers (age range: 21–64, average age: 29.5, SD = 8.06, 25 females, 14 males, 1 unknown) were recruited online. At the end of each trial, participants were asked to answer the following question with two options: "Please choose the most natural and most acceptable question that fits to the context?" "(a) a *daodi*-question"; "(b) a non-*daodi* question". All items were presented in written form on the screen.

Predictions

Overall, there are two predictions: (i) In emotion-loaded contexts, *daodi*-questions are highly preferred and non-*daodi* questions (= plain ISQs) are not preferred, (ii) In neutral contexts, non-*daodi* questions are preferred and *daodi*-questions are not preferred.

Results and Statistical Analyses

In this study, separate linear mixed-effect regression models (lmer) were employed to analyze the Forced Choice Judgments. The fixed factor in these models was the Context-Conditions, while random intercepts were included for both subjects and items.

The primary focus of this research lies in investigating the correlation between emotion-loaded contexts and the usage of the discourse particle *daodi* in questions. The underlying theoretical and pragmatic motivations of the study drive the particular interest in exploring how emotion-loaded contexts influence the presence of *daodi* in question structures. To visualize the collected data, the data are plotted in Figure 4.6.

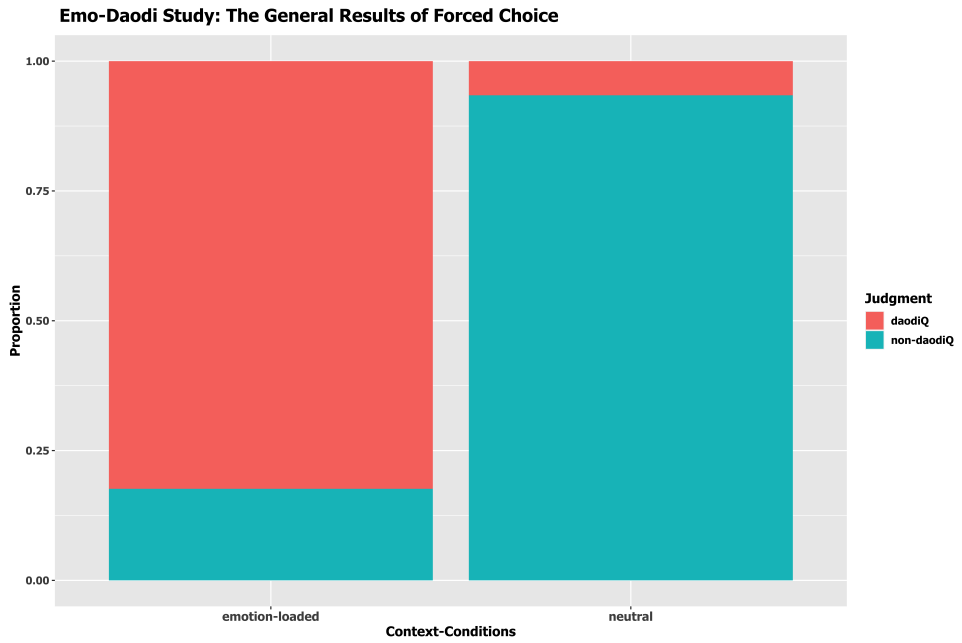


Figure 4.6.: The General Results of Emo-Daodi Study

A linear mixed-effects regression model is fitted to predict Judgments, as the dependent variable, with Context-Conditions, as the independent factor, (formula: Judgments $\sim$ Context-Conditions). The model included Subject and Item as random effects (formula: list($\sim$1 — Subject, $\sim$1 — Item)). The model's total explanatory power is substantial (conditional R^2 = 0.68) and the part related to the fixed effects alone (marginal R^2) is of 0.58. The model's intercept, corresponding to Context-Condition that is emotion-loaded, is at 1.17 (95% CI[1.06, 1.27], t(315)= 21.35, p $<$.001). Within this model:

1. The effect of context-condition [neutral] is statistically significant and positive (β = 0.77, SE=0.07, df=14.12, 95% CI [0.62, 0.91], t(315) = 10.17, p $<$ .001; Std. β = 1.54, 95% CI [1.24, 1.84]).

According to the statistical analysis using the model, there is significant evidence indicating that native speakers have a strong preference for using *daodi* in questions when the speaker's desperate emotion is conveyed in the context. The collected data suggests that *daodi* questions are chosen in emotion-loaded contexts at a rate of at least 83%, while *non-daodi* questions (plain ISQs) are chosen only up to 17%.

Considering that *daodi* can be used in three different question types (EIQs, CorQs, and UnansQs), I further divided the general emotion-loaded contexts into these three specific question types to obtain more detailed results. Hence, in Figure 4.7, emotional-loaded contexts are divided into EIQ context, CorQ context and UnansQ context so that we can compare the results in minimal pairs (i.e. EIQ v.s. neutral, CorQ v.s. neutral, and EmoQ v.s. neutral).

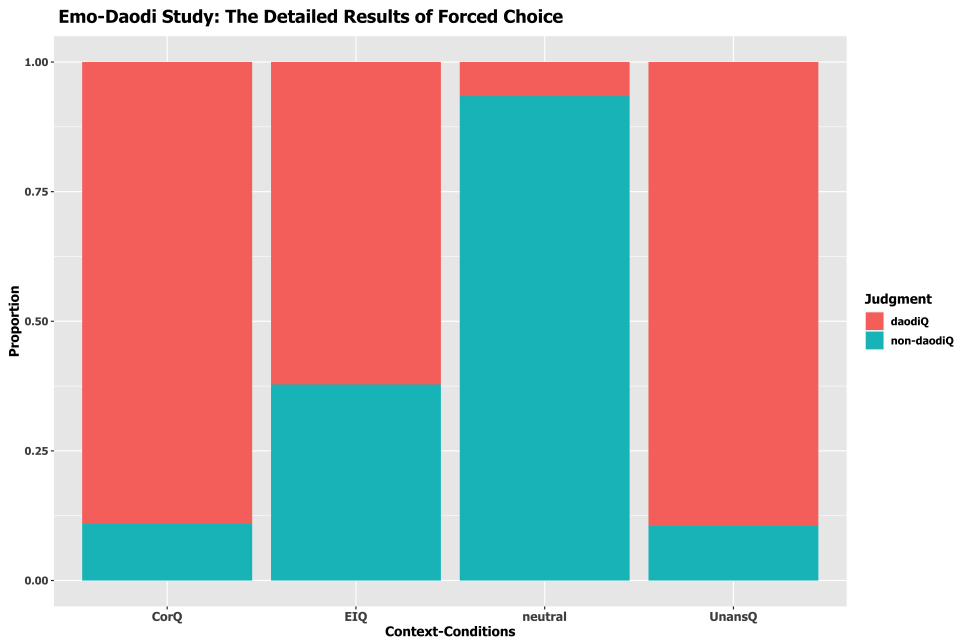


Figure 4.7.: The Detailed Results of Emo-Daodi Study

Let us take a look at these detailed statistical results in the alphabetical order (CorQ, EIQ, neutral, UnansQ), which is shown from the left to right in the Figure 4.7. First, let's zoom into the minimal pair between CorQ context and neutral context. Judgments, as dependent variable, were analyzed with a linear mixed-effects regression model (lmer) with Context-Conditions as the fixed factor. Subject and Item as crossed random factors (random intercepts) are also calculated in the model. The model shows that the effect of Context-Conditions is statistically significant and positive (β = 0.82, SE = 0.04, df = 11.02, 95% CI [0.73, 0.92], t(256) = 17.22, p

$<$ .001; Std. β = 1.69, 95% CI [1.49, 1.88]). In CorQ context, the proportion of the choice of *daodi*-questions is 89% and the proportion of the choice of non-*daodi* questions is only close to 11 %.

Next, turning to the minimal pair between EIQ and neutral contexts. A linear mixed-effects regression model (lmer) with Context-Conditions as the fixed factor and with Subject and Item as crossed random factors (random intercepts). The effect of Context-Conditions is statistically significant and positive (β = 0.59, SE = 0.12, df = 8, 95% CI [0.62, 0.91], t(195) = 4.68, p $<$ .01; Std. β = 1.53, 95% CI [0.89, 2.17]). In EIQ context, the proportion of choosing *daodi*-questions is up to 65% while that of choosing non-*daodi* questions is 35%.

Let's not forget about our neutral context. In this case, the minimal pair lies in between neutral context and emotion-loaded context (in general). Therefore, we will take the same statistical model (lmer) that we have used when analyzing the general results (i.e. before dividing the emotion-loaded contexts). But this time, we focus on the effect of Context-Conditions in neutral, which is statistically significant and positive (β = 0.77, SE=0.07, df=14.12, t(315) = 10.17, p $<$ .001). In neutral context, *daodi*-questions are only chose up to 7% and non-*daodi* questions are chose at least 93%.

Lastly, focusing on the divided data between UnansQ and neutral context, the data were analyzed with a linear mixed-effects regression model (lmer) and within this model, the effect of Context-Conditions is statistically significant and positive (β = 0.83, SE = 0.08, df = 7.4, 95% CI [0.66, 1.00], t(174) = 9.49, p $<$ .001; Std. β = 2.28, 95% CI [1.81, 2.75]). In UnansQ context, the proportion of the choice of *daodi*-questions is 89% and the proportion of the choice of non-*daodi* questions is close to 11%.

In conclusion, the statistical analyses indicate that the fixed factor, Context-Conditions, has a significant impact on the selection of *daodi*-questions or *non-daodi* questions by native Taiwanese speakers. The results suggest that the emotional context strongly influences the linguistic choices made by the participants.

Discussion

Based on the collected data, I unexpectedly found that the judgments towards two of the stimuli in emotional-loaded contexts become less distinct. These two stimuli are shown in (51) and (52).

(51) **Emotional-loaded context (= EIQ context)**
A and B are friends, and they are in a small sightseeing area and it seems that there is only one WC nearby. A is in an urgent need to use the WC, but the WC is occupied. (5 minutes passed. A came back to check the WC, but WC remained occupied.) A decides to check if there is other WC around that she can use. A has tried to find an available WC for 10 minutes, but she cannot fine one. So, A utters to B:

(a) *Daodi* where is the next, closest toilet?

(b) Where is the next, closest toilet?

(52) **Emotional-loaded context (= CorQ context)**
(A is a customer and B is a shop owner. A and B are friends)
A: May I get the AAA battery here?
B: No, I don't sell it here.
A: May I get the AAA battery in the shop over there?
B: No, they also don't sell it.
A asks B:

(a) *Daodi* where can I buy AAA battery?

(b) Where can I buy AAA battery?

Contrasting to the ambiguous judgments towards (51) and (52), native Taiwanese speakers unanimously chose *daodi*-questions in the stimulus item (53).

(53) **Emotional-loaded context (= EIQ context)**
B is A's best friend. B has complained about her job and said to A that she would quit and find a new job for the past 5 years. B always complains that she didn't get along well with her colleagues, and her boss always gives her too much of work that she has to stay in the office almost until 10 pm. A

has felt more and more annoyed at listening to B's complaint about her job for the past 5 years. A always believes that B will quit her job after listening to her complaint. Today A and B have dinner together. B starts complaining her job (the same one) again. So, A utters to B:

(a) Do you *daodi* want to quit the job?

(b) Do you want to quit the job?

Reviewing these stimuli, it is evident that they all convey the despair of the discourse participant. However, the most notable distinction among them is that discourse participant A in (51) and (52) stands to benefit from receiving an answer. This aligns with the situation of a plain ISQ, where the speaker ideally expects to gain some benefit from obtaining the answer. On the other hand, when asking a *daodi*-question, (i) the speaker is expressing the desperation of seeking an answer due to its difficulty to find one, or (ii) the speaker is solely seeking emotional support without necessarily expecting an answer. Consequently, I suspect that whether the discourse participant in the context stands to benefit from receiving answers may influence the use of the discourse particle *daodi*. This finding, although unexpected, raises an important aspect that could impact the judgments in the empirical study, and it warrants further investigation. I consider these unexpected findings as intricate data that I will thoroughly examine in Chapter 7, where a more extensive discussion can be found.

Conclusion

The results of the Emo-Daodi Study align with the predictions for the first research question. Native speakers demonstrated a strong preference for using *daodi*-questions in emotion-loaded contexts and *non-daodi* questions in neutral contexts, confirming the influence of emotive contexts on linguistic choices.

Regarding the second research question, the study provides evidence of a pragmatic correlation between the use of *daodi* and the context. When the context conveys the emotional state of the discourse participant, there is a higher likelihood of *daodi* being used. However, the data also suggest that judgments may be influenced by whether the discourse participant benefits from receiving an answer to their question. This unexpected finding requires further investigation and will be explored in

Chapter 7 for a more in-depth discussion.

4.2.2. Emo-React Study

In the Emo-React Study, the focus shifts to exploring the reactions elicited by unanswerable questions (UnansQs) marked by daodi. This aspect has not been extensively discussed in the existing literature, making it an important area of investigation. The study aims to determine the preferred reactions of native speakers when they are presented with unanswerable questions in which they are not only incapable of providing an answer but also not explicitly requested to do so. The research question of this Emo-React Study is clear, illustrated in (54).

(54) **Research Question of Emo-React Study**
How do native speakers react to unanswerable questions (UnansQs) when they, as *Addressee* in the context, are not only incompetent, but also not requested to provide an answer?

This research question highlights the role of the addressee in the context and their response to such discourse situations.

In the Emo-React Study, several aspects need to be considered before conducting the research. Firstly, it is important to determine whether participants can identify the situation as an UnansQ, where the addressee is unable to provide an answer. Ensuring participants' understanding of this concept is crucial for the study's validity.

Secondly, the role of context conditions should be investigated. Building upon the findings of the Emo-Daodi Study, it is essential to examine whether the emotional-loaded context (i.e., emotive context) versus neutral context has an impact on the reactions to UnansQs. Understanding how different contexts influence participants' responses is key to comprehending the nuances of their reactions.

Lastly, the study aims to explore the potential effect of using different expressions, specifically the presence or absence of *daodi* in questions, on participants' reactions. While da*daodi*odi-UnansQs may elicit emotional support or commiseration, it remains unclear whether *non-daodi* questions in UnansQ contexts also seek emotional support from the addressee. This aspect requires further investigation. To summarize, the Emo-React Study has three primary goals, as outlined in (55):

(55) **Goals of Emo-React Study**

a. Evaluate the naturalness ratings of *daodi*-questions and *non-daodi* questions in emotive and neutral contexts.

b. Empirically investigate how native speakers react to unanswerable questions in emotive and neutral contexts, considering that providing answers is not requested.

c. Examine whether there are differences in reactions between *daodi*-questions and non-*daodi* questions in UnansQ contexts.

In the Emo-React Study, it is important to assess the naturalness rating of *daodi*-questions in emotive and neutral contexts (see (55-a)). While we know that *daodi*-questions are preferred in emotive contexts and dispreferred in neutral contexts based on the Emo-Daodi Study, it is still unclear whether these *daodi*-questions are perceived as natural or unnatural in their respective contexts. This goal aims to provide insights into the naturalness of *daodi*-questions in different pragmatic contexts.

The second goal (55-b) of the study is to explore the reactions elicited by UnansQs in different contexts. Specifically, it aims to examine how native speakers react when they are faced with unanswerable questions in emotive and neutral contexts, where providing answers is not expected. This goal seeks to understand the variations in reactions based on the contextual factors.

Lastly, the study aims to investigate whether the use of *daodi* affects the reactions toward the utterances (see (55-c)). By comparing the reactions to *daodi*-questions and *non-daodi* questions in UnansQ contexts, the goal is to determine whether there are differences in the way native speakers respond to these two types of questions. This analysis will provide insights into the potential impact of using *daodi* on the addressee's reactions in UnansQ contexts.

Before proposing my hypotheses for these goals, I want to make a clear delineation between emotive contexts and neutral contexts in Emo-React Study. The contrast between emotive and neutral contexts depends on whether *Speaker* and *Addressee* suffer from the situation together[9], shown in (56) and (57).

[9]The contrast in Emo-React Study differs from the contrast in Emo-Daodi Study. In Emo-Daodi Study, the contrast between emotion-loaded contexts and neutral contexts is that only the "*speaker*" is emotionally affected in the emotion-loaded contexts.

(56) **UnansQ in Emotive Context**
John and you are working in IT department of a company. Both of you are IT nerds who completely have no idea about other colleagues' leave or stay. But you both hate your colleague Anna, who always ruins the project. This time, she unsurprisingly ruins the project again. John utters to you: "When (daodi) will she quit?"

(57) **UnansQ in Neutral Context**
John and you are shopping in a mall abroad. You both hear an announcement in an unknown language. John utters to you: "What (daodi) is it speaking about?"

In examples (56) and (57), it is evident that they represent instances of unanswerable questions (UnansQs). In (56), both the speaker and John lack knowledge and interest in Anna's leave and stay, and they are emotionally affected by the negative outcome of the project involving Anna and John. Consequently, their emotional state is heightened. In contrast, in (57), the speaker and John are traveling abroad and encounter an announcement in an unfamiliar language. However, their lack of understanding of this unknown language does not cause them actual suffering, distinguishing it from the situation described in (56).

These examples illustrate the distinction between the emotional reactions and contextual factors associated with UnansQs. The Emo-React Study aims to explore these variations to gain a deeper understanding of how native speakers react to unanswerable questions in different emotional and contextual scenarios.

The hypotheses for goal (55-a) suggest that *daodi*-questions are expected to be perceived as natural in emotive contexts, while they are likely to be considered unnatural in neutral contexts. Furthermore, it is hypothesized that *non-daodi* questions will be perceived as less natural in emotive contexts compared to *daodi*-questions.

Regarding goal (55-b), the hypothesis proposes that in emotive contexts, native speakers will tend to offer emotional support rather than providing an invented answer to unanswerable questions. Conversely, in neutral contexts, the majority of native speakers are expected to choose the response "*I don't know*" when faced with UnansQs.

For goal (55-c), the hypothesis suggests that the use of *daodi* in UnansQs will influence the reactions. Specifically, if *daodi* is used in the question, it is anticipated that there will be an increased preference for offering emotional support as a response, regardless of whether the context is emotive or neutral. On the other hand, if the question is expressed without *daodi*, the majority of responses are expected to be "*I don't know*", regardless of the context being emotive or neutral.

Designs and Methods

An online study, investigating naturalness judgment and preference choice, has been designed. Overall, there are 24 items split into two surveys with a between subject design. The factors, *Context-Conditions* and *Expressions*, are crossed in 2x2 design:

(i) **Context-Conditions:** emotive context, (plain) neutral context

(ii) **Expressions:** *daodi*-questions, non-*daodi*-questions (i.e. plain ISQs)

The items of the crossed factors (context-conditions, expressions) that are used in the Emo-React Study are presented below.

1. **Emotive context x *daodi* or non-*daodi***
   Your friend and you are working in IT department of a company. Both of you are IT nerds who completely have no idea about other colleagues' leave or stay. But you both hate your colleague Anna, who always ruins the project. This time, she unsurprisingly ruins the project again. Your friend utters to you: "When daodi will she quit?" or "When will she quit?"[10]

   (i) **Question 1:** How natural do you find to the question that your friend utters to you? (7-point Likert scale).

   (ii) **Question 2:** Which of the following responses is the best response for you to reply to your friend?

   (a) Next month. (= invented answer)

   (b) I don't know. (= idk)

[10]Each subject will only see the question in this context either with *daodi* or without *daodi*.

(c) I don't know. Maybe next month. (= idk + offer a speculative answer)

(d) I don't know. He is such a bummer! (= idk + offer emotional support)

2. **Neutral context x *daodi* or non-*daodi***
   One day, your friend and you are shopping in a mall. Suddenly the broadcast is announcing something in a language that your friend and you never heard before. Your friend utters to you: "What kind of languages *daodi* is this broadcast announcing?" / "What kind of languages is this broadcast announcing?"[11]

   (i) **Question 1:** How natural do you find to the question that your friend utters to you? (7-point Likert scale).

   (ii) **Question 2:** Which of the following responses is the best response for you to reply to your friend?

   (a) It's Icelandic. (= invented answer)

   (b) I don't know. (= idk)

   (c) I don't know. Maybe it's Icelandic. (= idk + a speculative answer)

   (d) I don't know. What a special language!(= idk + emotional support[12])

As stated above, the study is designed to examine the naturalness judgment of *daodi*-questions and non-*daodi* questions. Most important of all, the study aims to know how people react to unanswerable questions in different (i.e. in 2x2 factorial designing) circumstances, as the presented stumuli above. In each trial, there will be four corresponded and suitable options for subjects to choose and subjects will decide which of the four options is the best response.

Procedure

Each subject saw 12 experimental items (4 target items and 8 fillers). Each subject also had two training trials before answering the main questionnaire. The conditions were crossed in the between-subject design. 32 Taiwanese native speakers (age

[11] Each subject will only see the question in this context either with *daodi* or without *daodi*.

[12] As *Addressee* is not emotionally affected or does not know why *Speaker* is emotional (if *Speaker* utters the *daodi*-question) in the neutral context, the emotional support here I mean is stating something emotional with respect to the question, not to providing an invented answer or a speculative answer.

range: 25–64, average age: 38.1, SD = 13.88, 18 females, 14 males) were recruited online. At the end of each trial, participants were asked to answer the following questions: (i) How natural in a 7-point Likert scale (1: most unnatural and 7 most natural) do you find to the question that your friend utters, and (ii) Which of the following responses is the best response for you to reply to your friend? (provided with 4 options: (a) "(an invented answer)", (b) "I don't know.", (c) "I don't know, but (offering a speculated answer)", and (d) "I don't know, and (agreeing emotionally (= offering emotional support)") All items were presented in written form on the screen.

Predictions

The predictions for Emo-React are divided into two parts: Naturalness Rating and Best Responses.

(i) Naturalness Rating:

a) *Daodi* should be more natural in emotive context while *non-daodi* (= plain ISQ) should be less natural in emotive context.

b) *daodi* should be less natural in neutral context, while *non-daodi* should be more natural in neutral context.

(ii) Best Response:

a) If the context is emotive, the reaction to the question should be: "agreeing emotionally with *Speaker*".

b) If the context is neutral, the reaction to the question should be "I don't know" or "speculative answer".

c) If *daodi* is used in the question, *daodi* increases the ratio of choice of agreeing emotionally.

d) If *daodi* is not used in the question, the reaction of stating "I don't know" is the dominated choice.

Results and Statistical Analyses

Before delving into the statistical analyses, it is important to examine the results of the study. Regarding the naturalness rating, the findings indicate that using *non-*

daodi questions (ISQs) in emotive contexts is perceived as less natural, as depicted in Figure 4.8. This aligns with the results of the Emo-Daodi study, which also demonstrated a preference for *daodi*-questions in emotive contexts.

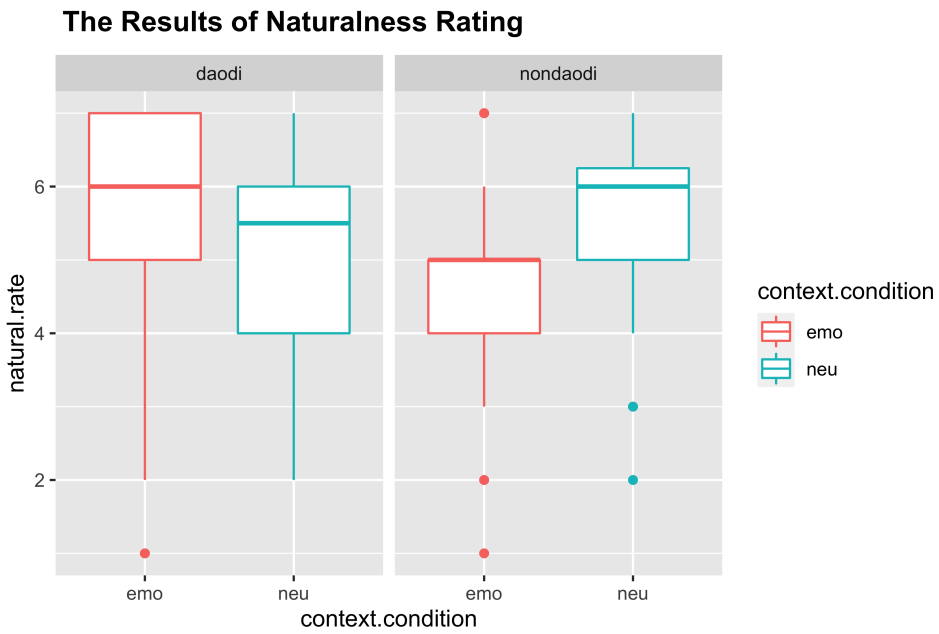


Figure 4.8.: The Results of Naturalness Rating in Emo-React Study

Regarding the question of choosing the best response, the results indicate that emotive contexts elicit a greater tendency to agree emotionally, while *daodi* in neutral contexts also elicits more emotional agreement reactions. This can be observed in Figure 4.9.

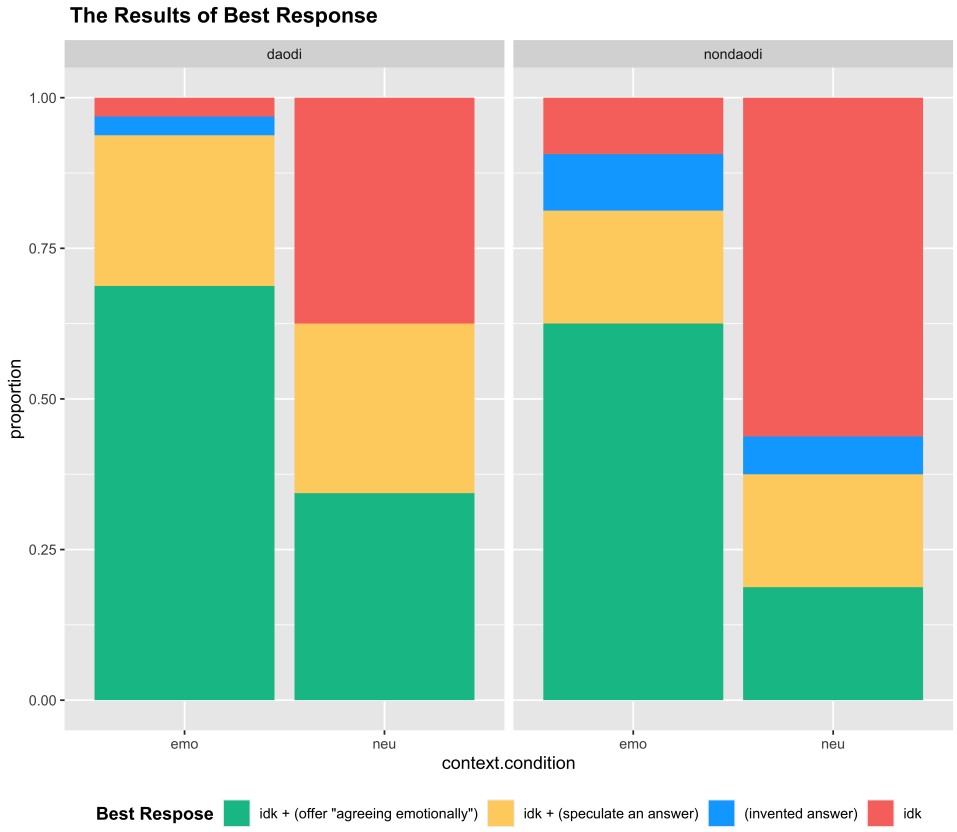


Figure 4.9.: The Results of Best Response in Emo-React Study

In general, the results of the naturalness rating align not only with the predictions of the Emo-React Study but also with the findings of the Emo-Daodi Study. However, the results of the best response reveal an interesting pattern where the context-conditions factor plays a more crucial role in triggering reactions compared to the factor of expressions. This is particularly evident in the results of using *non-daodi* questions in emotive contexts, as depicted in Figure 4.10.

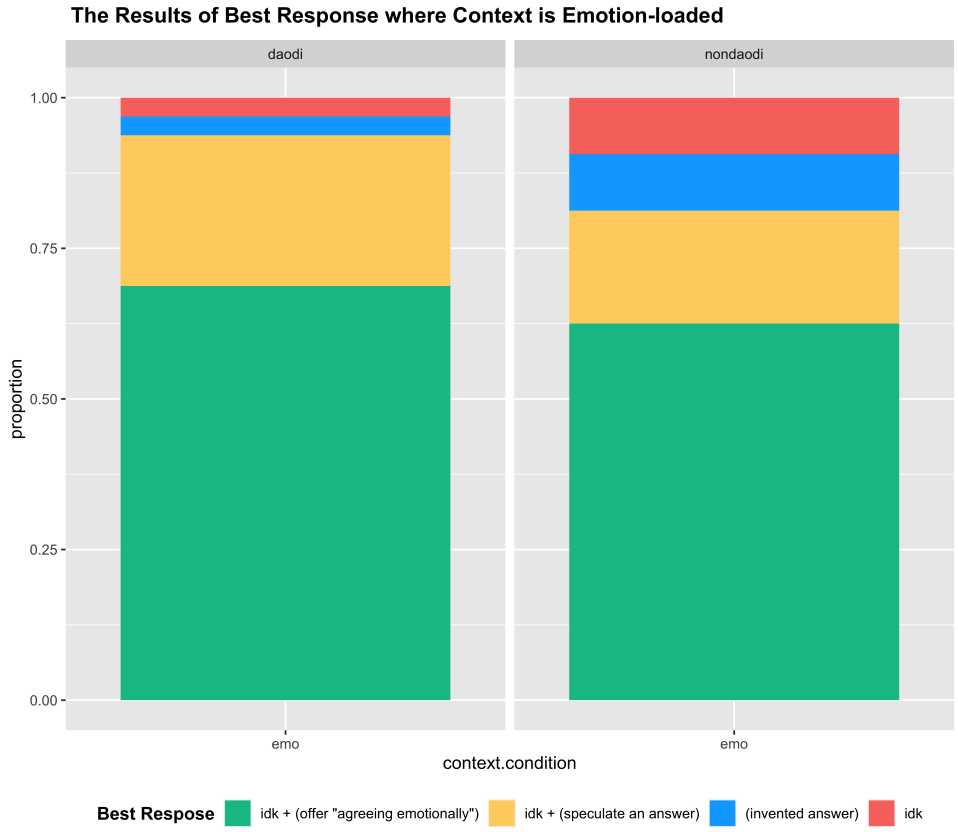


Figure 4.10.: The Results of Best Response in the Context of Emotive and Using Non-*Daodi*

As mentioned earlier, the predictions for the best response in this condition were that emotive context would trigger more "agreeing emotionally" responses, while the use of *non-daodi* questions would trigger more "stating *I don't know*" responses. However, Figure 4.10 indicates that native speakers are primarily influenced by the context-condition rather than the use of the expression. Therefore, as long as the context is emotive, individuals tend to react strongly to UnansQs with "agreeing emotionally", regardless of whether *daodi* is used in the question.

The statistical analyses for naturalness rating were conducted using separate linear mixed-effect regression models (lmer) with Context-Conditions and Expressions as fixed factors, and random intercepts for the subjects and items. The specific details of

the statistical analyses, including the model specifications and results, are presented below (Figure 4.8 is repeated here as Figure 4.11):

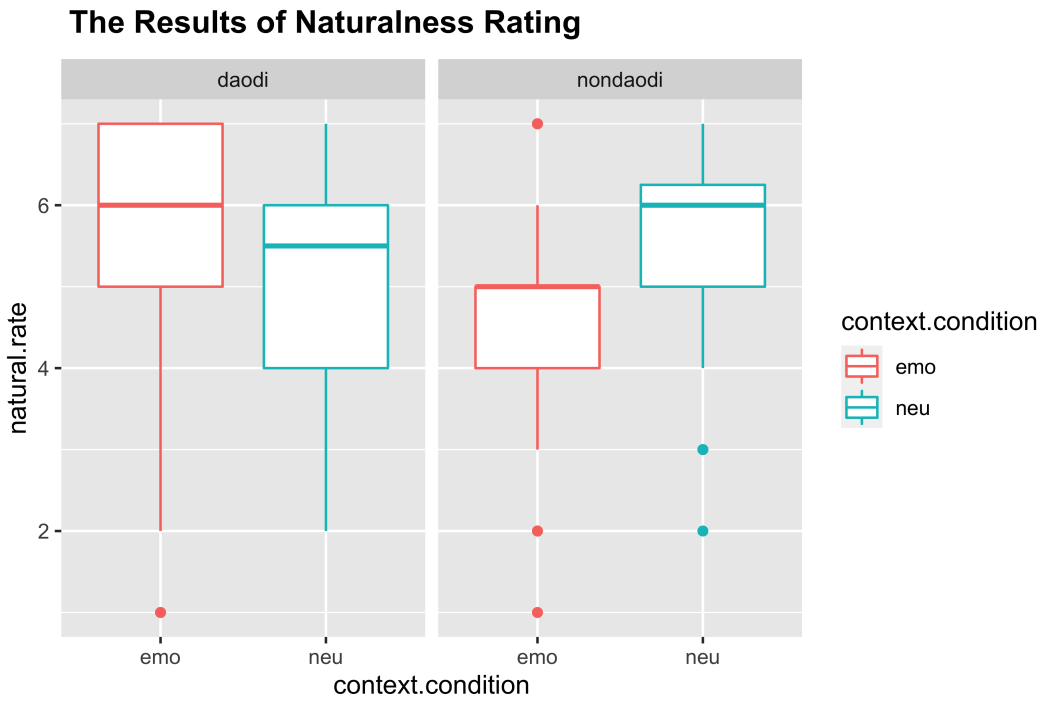


Figure 4.11.: The Results of Naturalness Rating in Emo-React Study

A linear mixed model is fitted to predict natural.rating with context.conditions and expressions (formula: natural.rate ~ context.condition * expression). The model included subject and item as random effects (formula: list(~1 | subject, ~1 | item)). The model's explanatory power related to the fixed effects alone (marginal R2) is 0.08. The model's intercept, corresponding to context.condition = emo and expression = *daodi*, is at 5.59 (95% CI [5.07, 6.12], t(121) = 20.98, p < .001). Within this model:

(i) The effect of context.condition [neutral] is statistically non-significant and negative (β = -0.50, 95% CI [-1.18, 0.18], t(121) = -1.45, p = 0.147; Std. β = -0.32, 95% CI [-0.76, 0.11])

(ii) The effect of expression [non-daodi] is statistically significant and negative (β

= -1.00, 95% CI [-1.68, -0.32], t(121) = -2.90, p $<$ .01; Std. β = -0.65, 95% CI [-1.08, -0.21])

(iii) The interaction effect of expression [non-daodi] on context.condition [neu] is statistically significant and positive (β = 1.47, 95% CI [0.51, 2.42], t(121) = 3.01, p $<$ .01; Std. β = 0.95, 95% CI [0.33, 1.57])

Based on the statistical analyses with lmer, we find that there is a significant interaction between Context-Conditions and Expressions and there is a significant main effect of Expressions. Given that there is an interaction between Context-Conditions and Expressions, a Post Hoc Test is run to see the differences of Expressions and Context-Conditions in pairwise. The results of Post Hoc Test is shown in Figure 4.12.

Figure 4.12.: Post Hoc Test: Pairwise differences of Expressions | Context-Conditions

context.condition = emo					
contrast	estimate	SE	df	t.ratio	p.value
daodi - nondaodi	1.538	0.445	124	3.456	0.0008

context.condition = neu					
contrast	estimate	SE	df	t.ratio	p.value
daodi - nondaodi	-0.546	0.448	124	-1.219	0.2251

Based on the results of Post Hoc Test, we find that the interaction happens in the Context-Condition of emotive where the Expressions changes (contrast from *daodi* to non-*daodi*; β = 1.53, SE = 0.44, df = 124, t-ratio = 3.45, p $<$.001). According to the Post Hoc Test, we can now zoom into the results of naturalness rating in the emotive context, see Figure 4.13.

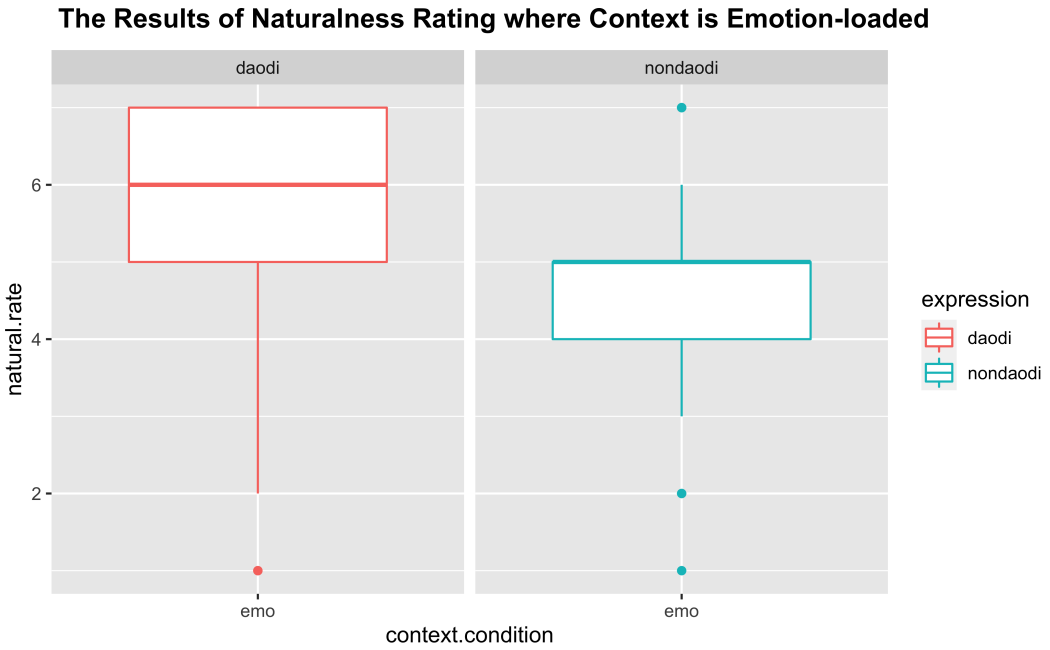


Figure 4.13.: The Results of Naturalness Rating in emotive Contexts

A linear mixed model is fitted to predict natural.rate with expressions (formula: natural.rate $\sim$ expression). The model included subject and item as random effects (formula: list($\sim$1 | subject, $\sim$1 | context.item)). The model's total explanatory power is substantial (conditional R2 = 0.28) and the part related to the fixed effects alone (marginal R2) is of 0.09. The model's intercept, corresponding to expression = *daodi*, is at 5.59 (95% CI [5.05, 6.14], t(59) = 20.11, p $<$ .001). Within this model:

(i) The effect of expression [non-*daodi*] is statistically significant and negative (β = -1.00, 95% CI [-1.69, -0.31], t(59) = -2.85, p $<$ .01; Std. β = -0.61, 95% CI [-1.03, -0.19])

Next, let's analyze the results of choosing the best response with statistical model (lmer); the analyses is presented below (Figure 4.9 is repeated here as Figure 4.14).

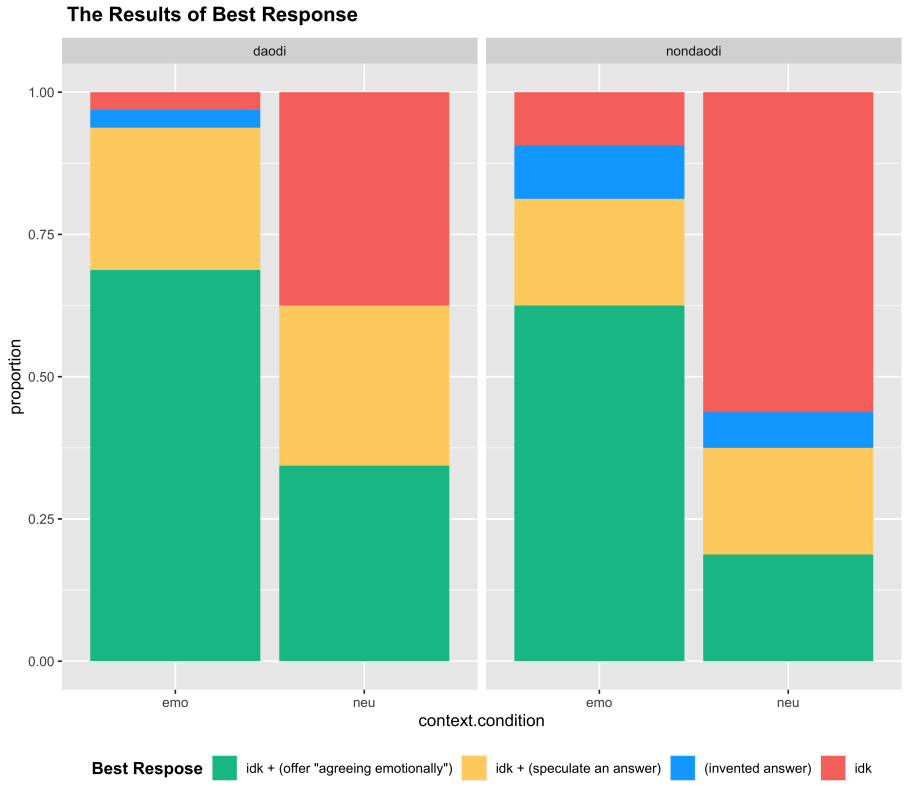


Figure 4.14.: The Results of Best Response in Emo-React Study

A linear mixed model is fitted to predict Best.Response with Context.Conditions and Expressions (formula: best.response $\sim$ context.condition + expression). The model included subject and item as random effects (formula: list($\sim$1 | subject, $\sim$1 | item)). The model's explanatory power related to the fixed effects alone (marginal R2) is 0.28. The model's intercept, corresponding to context.condition = emo and expression = *daodi*, is at 3.68 (95% CI [3.34, 4.02], t(122) = 21.35, p $<$ .001). Within this model:

(i) The effect of context.condition [neutral] is statistically significant and negative (β = -1.17, 95% CI [-1.52, -0.83], t(122) = -6.66, p $<$ .001; Std. β = -0.94, 95% CI [-1.21, -0.66])

(ii) The effect of expression [non-*daodi*] is statistically significant and negative (β = -0.42, 95% CI [-0.77, -0.08], t(122) = -2.40, p $<$ .05; Std. β = -0.34, 95%

CI [-0.61, -0.06])

Based on the statistical analyses, it is found that both the Context-Conditions and Expressions have a significant main effect on the subjects' choice of reactions toward UnansQs. Specifically, in emotive contexts, subjects strongly prefer offering emotional support regardless of the expressions used. However, to examine the specific effect of expressions in neutral contexts, the focus is on comparing the impact of *daodi* and *non-daodi* on triggering "agreeing emotionally", as depicted in Figure 4.15.

The prediction is that *daodi* will have a stronger effect in triggering "agreeing emotionally" compared to *non-daodi* in neutral contexts. This prediction is based on the understanding that *daodi* conveys the speaker's despair, and its presence in the question should ideally elicit a corresponding response from the addressee. Therefore, investigating the comparison between *daodi* and *non-daodi* in neutral contexts will provide insights into the main effect of expressions.

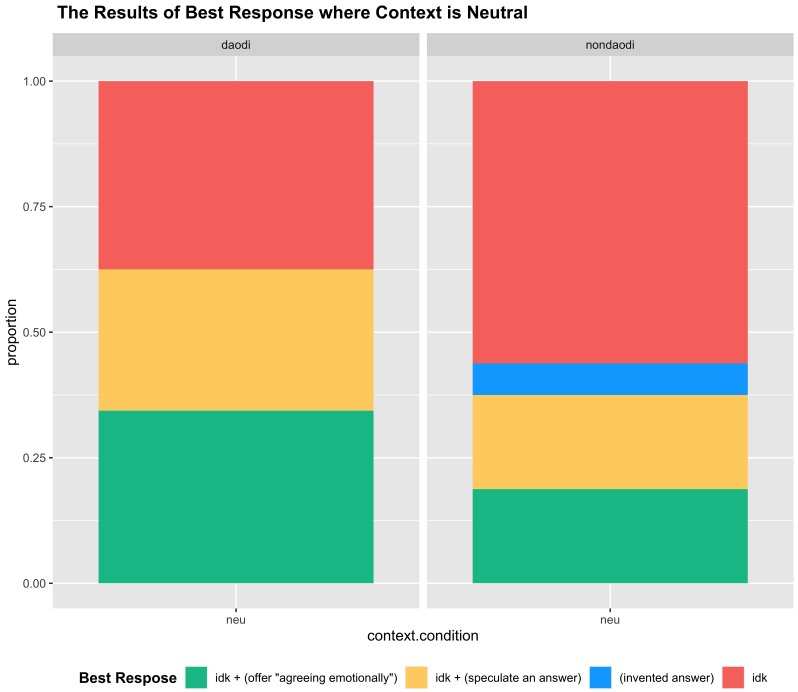


Figure 4.15.: The Results of Best Response in Neutral Contexts

In Figure 4.15, we compare the green proportion triggered by *daodi* with the green proportion triggered by *non-daodi* in neutral contexts. The green proportion represents the proportion of choosing to offer "agreeing emotionally" as a response. To determine whether the proportion of "agreeing emotionally" triggered by *daodi* is significantly higher than the proportion triggered by *non-daodi*, we need to conduct a one-tailed hypothesis test.

Assuming that the observations in the green proportion of *daodi* and the green proportion of *non-daodi* follow a Bernoulli distribution and that the number of observations is sufficiently large, we obtain a test statistic (z-score) of 1.3538. By referring to the z-score table, we find that when the z-score is 1.28, the corresponding p-value is $0.1*$, and when the z-score is 1.65, the p-value is $0.05*$. Since the obtained z-score is 1.35, which is greater than 1.28 (at a 90% significance level), we can reject the null hypothesis that the green proportion of *daodi* is not significantly higher than the green proportion of *non-daodi*. Therefore, it can be concluded that *daodi* has a stronger effect in triggering the response of "agreeing emotionally" compared to *non-daodi* in neutral contexts. Furthermore, an additional statistical model was conducted to verify the effect of expressions, providing further confirmation of the findings. A linear mixed model is fitted to predict best.response with expression (formula: best.response $\sim$ expression). The model included subject and item as random effects (formula: list($\sim$1 | subject, $\sim$1 | item)). The model's explanatory power related to the fixed effects alone (marginal R2) is 0.07. The model's intercept, corresponding to expression = *daodi*, is at 2.59 (95% CI [2.15, 3.04], t(59) = 11.46, p $<$ .001). Within this model:

(i) The effect of expression [*non-daodi*] is statistically significant and negative (β = -0.59, 95% CI [-1.14, -0.05], t(59) = -2.12, p $<$ .05; Std. β = -0.45, 95% CI [-0.88, -0.03])

In other words, based on statistical analyses with lmer, there is a significant main effect of expressions (x^2 = 4.4, df = 1, p = 0.03). on the results of choosing the best response in neutral contexts.

The summary of the statistical results of Emo-React Study is presented below.

(i) Naturalness Rating:

a) A significant main effect of Expressions (*daodi* v.s. non-*daodi*)

b) A significant interaction between Context-Conditions and Expressions, specifically in the contrast between *daodi* and non-*daodi* in emotive contexts.

(ii) Choosing The Best Response:

a) A significant main effect of Context-Conditions

b) A significant main effect of Expressions.

Discussion

The first point of discussion in this empirical study relates to whether the subjects were able to understand the scenarios presented in the stimuli as unanswerable questions (UnansQs). The concern was whether the subjects could differentiate between UnansQs and information-seeking questions (ISQs). The results of choosing the best response indicate that the proportion of responding with an invented answer is very low. This suggests that subjects in the study were able to recognize the nature of UnansQs and understand that providing an invented answer is inappropriate in those scenarios. Therefore, we can conclude that the subjects in the study were able to discern the differences between UnansQs and ISQs, demonstrating their understanding of the task.

The second point of discussion in this empirical study pertains to the subjects' choice of responses and the observation that stating "*I don't know*" is logically the most appropriate response to each stimulus. However, the results indicate that subjects tend to offer more reactions, specifically "agreeing emotionally", rather than simply stating "*I don't know*". Even though the study also provided the option of "idk + offer a speculative answer", the ratio of choosing this option was still lower than that of choosing "idk + agree emotionally."

This observation raises two possibilities. First, it suggests that the non-at-issue meaning conveyed by the use of *daodi* or emotive contexts, indicating the speaker's emotional state, is so strong that subjects are unable to ignore it. This implies that the emotive content overrides the pragmatic reasoning for providing a speculative answer. Second, it indicates that subjects are able to discern the differences between UnansQs and conjectural questions. The literature on conjectural questions discusses

how the speaker invites the addressee to engage in joint speculation for the answer (Eckardt 2020). The finding that subjects predominantly choose "idk + agree emotionally" over "idk + offer a speculative answer"supports the notion that UnansQs are distinct from conjectural questions, as the subjects' responses align more closely with the emotional support rather than engaging in joint speculation.

Overall, these observations highlight the influence of the non-at-issue meaning conveyed by *daodi* and emotive contexts, as well as the subjects' ability to differentiate UnansQs from conjectural questions.

The third and final point of discussion in this empirical study is the potential for modifying the current typology of question types based on the idea of reactions towards the utterance. Previous literature has rarely explored the topic of reactions to questions, but this study demonstrates that the reactions to the utterance can provide valuable insights for distinguishing different question types.

In light of the study's findings, it becomes apparent that considering the reaction to the utterance can contribute to the refinement of question typology. Specifically, the study highlights the distinction between UnansQs and ISQs, as well as the differentiation between UnansQs and conjectural questions. By incorporating the observed reactions as an additional criterion, we can enhance our understanding of question types and their pragmatic implications.

This suggests that the study of reactions to questions can offer a valuable perspective for further developing and refining the typology of question types. It provides a novel avenue for exploring the communicative dynamics and pragmatic functions of different question forms, shedding light on the complexities of question-answer interactions in natural language communication.

Conclusion

The empirical study, Emo-React Study, was designed to address the research question outlined in reference to the study's research question (see (54)). The study yielded two main findings, related to the naturalness rating and the choice of the best response.

Regarding the naturalness rating, the results indicate that the presence of the term *daodi* in questions increased their naturalness rating in emotive contexts, while *non-*

daodi questions were rated as more natural in neutral contexts. This finding aligns with the predictions made by the study and is consistent with the results of the previous Emo-Daodi Study.

In terms of the choice of the best response, participants exhibited different reactions depending on the context. In emotive contexts, individuals tended to respond to UnansQs with ”agreeing emotionally,” offering emotional support rather than providing an invented answer. On the other hand, in neutral contexts, the majority of participants selected the response of “stating *I don't know*.” This suggests that the context-condition plays a critical role in determining the appropriate response to UnansQs.

Furthermore, the study revealed that the use of *daodi* in questions had a stronger effect in triggering “agreeing emotionally” compared to *non-daodi* questions, particularly in neutral contexts. However, the effect of emotive contexts was found to be more influential than the effect of using *non-daodi* in questions. Consequently, even in emotive contexts, participants still tended to react to *non-daodi* UnansQs with “agreeing emotionally.”

Overall, these findings provide comprehensive answers to the research question posed in the Emo-React Study and contribute to a better understanding of the impact of context and linguistic expressions on the naturalness rating and reactions to UnansQs.

4.3. Evidences For and Beyond Literature

This section provides a summary of the significant findings from the two empirical studies, Emo-Daodi Study and Emo-React Study, and their relevance to the existing literature. These findings lay the foundation for the subsequent analysis to be developed in the following chapters. Below is an overview of the crucial evidence obtained from each study:

(I) **Emo-Daodi Study**

a) The study establishes a correlation between the use of the term *daodi* and emotion-loaded contexts. It demonstrates that *daodi*-questions are more likely to occur in situations with heightened emotional significance.

(II) **Emo-React Study**

a) In emotive contexts, *daodi*-questions are perceived as more natural compared to *non-daodi* questions. This aligns with the predictions and expectations of the study.

b) In neutral contexts, *non-daodi* questions are rated as more natural than *daodi*-questions. This indicates that the presence of *daodi* is less expected or preferred in neutral settings.

c) Participants in the study demonstrated an ability to distinguish between UnansQs and ISQs. They rarely chose to respond with invented answers, indicating an understanding of the purpose and nature of UnansQs.

d) Through pragmatic reasoning, participants displayed specific reactions to UnansQs:

   i. In emotive contexts, individuals tended to offer "agreeing emotionally with the speaker" as a response, regardless of whether *daodi* is used in the question or not.

   ii. In neutral contexts, the presence of *daodi* in the question increased the tendency to respond with "agreeing emotionally with the speaker."

   iii. In neutral contexts, the majority of participants provided the logically appropriate response of "*I don't know*" when *daodi* was not used in the question.

e) The findings highlight the importance of pragmatic context. Even without explicit linguistic cues, the context can still signal the emotional state of the discourse participants, influencing their reactions to UnansQs.

Let us now contextualize these significant findings within the existing literature. We begin by examining the results of the Emo-Daodi Study, which provide evidence of a correlation (I-a) that aligns with Gutzmann's (2013) notion of use-condition items. Gutzmann's framework posits that use-condition items, situated at the CI tier, are only deemed felicitous in specific situations or conditions. In this regard, *daodi*, according to Gutzmann (2013), can be classified as a use-condition item (UCI) that is appropriately employed solely in emotion-loaded contexts.

Next, let us delve into the findings of the Emo-React Study. Both (II-a) and (II-b) complement and reinforce the observations made in (I-a) of the Emo-Daodi Study, thereby highlighting the natural and felicitous use of *daodi* in emotive contexts. Furthermore, (II-c) aligns with Dayal's (2016) characterization of non-canonical questions, which emphasizes that their purpose extends beyond the mere solicitation of information. In accordance with (II-c), the subsequent results (II-d) shed light on two crucial factors influencing reactions to utterances: pragmatic contexts (II-d-i) and the presence of linguistic cues (II-d-ii and II-d-iii). Importantly, these findings pave the way for an analysis that can modify the subsequent steps of discourse continuation, based on the observed reactions. Lastly, (II-e) extends beyond Gutzmann's (2013) notion that use-condition meanings, including non-at-issue meanings, can also be conveyed through pragmatic contexts, without necessarily relying solely on UCIs themselves.

In conclusion, the significant findings presented in this section, derived from the empirical studies, provide valuable insights for the development of analysis and the advancement of existing theoretical accounts. The evidence obtained from these studies, along with its connections to relevant literature, serves to illuminate potential areas for further investigation and improvement. By bridging the gap between empirical data and theoretical frameworks, these findings offer a solid foundation for future research and the refinement of current accounts.

4.4. Chapter Summary

This chapter serves as a comprehensive exploration of the key data that this dissertation aims to investigate and analyze. Its structure comprises seven parts, each addressing specific aspects of the research topic.

The first part introduces standard questions in Taiwan Mandarin, highlighting the four main types: polar questions with the question particle *ma*, wh-questions without syntactic wh-movement, A-not-A questions, and alternative questions with the disjunctive particle *haishi*.

The second part focuses on the use-conditions of the discourse particle *daodi*, presenting three felicitous scenarios and one infelicitous scenario, as organized in Figure

4.1.

In the third part, the chapter reviews previous studies on *daodi* and their syntactic analyses, which incorporate the presence of Attitude Phrases and Point-of-View operators. However, these accounts are insufficient in capturing the nuanced use-conditions of *daodi* and deriving the correct interpretation of *daodi*-questions that are not strictly information-seeking, such as UnansQs. Therefore, a new analysis is required to account for these data.

The fourth part demonstrates the occurrence of *daodi* in EIQs and CorQs, drawing parallels to English data discussed in Chapter 2.

The fifth part introduces novel data on the use of *daodi* in UnansQs, which has not been extensively addressed in the existing literature.

The sixth part highlights two empirical and experimental studies conducted specifically for this dissertation: the Emo-Daodi Study, which establishes the correlation between the use of "*daodi* and emotion-loaded contexts, and the Emo-React Study, which investigates the reactions to UnansQs. These studies provide valuable empirical evidence to supplement the theoretical analysis.

Lastly, in the seventh part, the chapter summarizes the critical results of the empirical studies and establishes their connection to the current literature. These findings serve as the foundation for the proposed analysis in the subsequent chapters. Up next is the second part of this dissertation — The Main Proposal.

Part II.

THE MAIN PROPOSAL

5. Analysis

This chapter is dedicated to the proposed analysis, which is grounded in the framework of semantics. The analysis comprises two key components derived from the Emo-Daodi Study and Emo-React Study: (i) Conventional Implicature (CI) and (ii) the Table model, also known as the conversational scoreboard framework. By integrating these building blocks, the proposed analysis incorporates the expressives conveyed by discourse participants as discourse commitments into the Table model. This addition enables the recording of conversational moves, the non-at-issue meaning of an issue (if applicable), and the modeling of reactions towards the issue on the Table.

The chapter begins with an introduction to the emotion conveyed by *daodi* as CI content in Section 5.1, followed by an overview of the discourse-commitment-based model theory in Section 5.2. Subsequently, the analysis is presented in detail in Section 5.3. This analysis, supported by the empirical evidence presented in Chapter 4, satisfies the criteria for an empirically sound analysis. It not only provides accurate interpretations of *daodi* in each question type but also establishes a clear and distinct delineation for unanswerable questions, making an innovative contribution to the current literature. Additionally, the analysis captures and models the reactions of discourse participants within the conversation. Furthermore, it effectively models the impact of contexts, explaining the collected results of the empirical studies in Section 5.4. Finally, the chapter discusses the contributions made by the proposed analysis in Section 5.5, highlighting its ability to provide accurate interpretations, its delineation of unanswerable questions, its modeling of participant reactions, and its ability to account for contextual effects.

5.1. Adding in Emotions

Allow me to elaborate on the concept of "adding in emotions." In light of the Emo-Daodi Study and Emo-React Study, it has been established that *daodi* is utilized in contexts where the speaker experiences emotional impact due to the question. Furthermore, the literature indicates that *daodi* conveys negative attitudes towards the question (refer to section 4.1.3). As previously stated, the objective of this dissertation is to present a comprehensive understanding of *daodi*'s meaning. Taking these findings into consideration, I propose constructing the meaning of *daodi* using two key components: Ingredient (i) the motive behind the use of *daodi* based on empirical studies outlined in section 5.1.1, and Ingredient (ii) suggested interpretations of *daodi* derived from the literature discussed in section 5.1.2. Finally, in section 5.1.3, I put forward the Conventional Implicature (CI) content/non-at-issue meaning of *daodi* within the framework of semantics.

5.1.1. Ingredient (i): Motive of Using *Daodi* from Empirical Studies

As demonstrated by the empirical studies in section 4.2, *daodi* is observed to be highly preferred when the current situation is perceived as emotionally impactful to the speaker. For example, in the case of extreme ignorance questions (EIQs), *daodi* is used when possible answers are dismissed and when the speaker is struggling to find answers. In these situations, the speaker utters *daodi*-EIQs because they are emotionally affected by the circumstances. Similarly, in the case of cornering questions (CorQs), *daodi* is employed when the speaker encounters difficulty in obtaining answers from the addressee. In this scenario, the speaker uses *daodi*-CorQs to express their emotional response to the ongoing discourse with an uncooperative addressee. Additionally, the speaker can also experience emotional distress when confronted with unanswerable questions (UnansQs), where there is no way to resolve the question. As illustrated above, the situations that elicit emotional distress may vary significantly. However, the motive behind using *daodi* remains straightforward and clear: *daodi* is employed to convey the speaker's emotional state when faced with challenging question resolution situations. Therefore, we can ascertain that the use of *daodi* is linked to the progression of the question (e.g., absence of possible answers, unsuccessful process of obtaining answers, etc.) within the context. This serves as the first

ingredient in constructing the meaning of *daodi*.

5.1.2. Ingredient (ii): Suggested Readings of *Daodi* from Literature

Recalling the findings from the literature, specifically Huang & Ochi (2004) and Chou (2012), it is suggested that *daodi* expresses the speaker's negative attitudes, such as annoyance or impatience, towards the question within their syntactic analyses. However, their accounts fail to accurately derive the interpretation of *daodi* in UnansQs, as discussed in section 4.1.5. Consequently, in this section, I undertake a comprehensive examination of the interpretations of *daodi* on a case-by-case basis (i.e., *daodi* in EIQs, *daodi* in CorQs, and *daodi* in UnansQs), aiming to propose a unified interpretation of *daodi* .

In *daodi*-EIQs, the speaker experiences frustration because they are in need of an answer but are unable to find one. In *daodi*-CorQs, the speaker impatiently requests answers from the addressee, who is initially uncooperative in providing an answer. Lastly, in the case of *daodi*-UnansQs, which has not been addressed by Huang & Ochi (2004) and Chou (2012), the speaker feels despair due to the situation where they have no means of resolving the question. For example, as illustrated in example (45) in Chapter 4, the speaker is annoyed by an unknown person causing delays in service for everyone else, and the speaker becomes hopeless about receiving their meal. Instead of enumerating all possible negative readings that *daodi* may convey, it is necessary to establish a unified reading of *daodi* that encompasses all these cases.

After examining these instances, it becomes apparent that the interpretation of *daodi* in UnansQs as "being desperate" is also applicable to the other cases. In *daodi*-EIQs, the speaker is desperate to find an answer, and in *daodi*-CorQs, the speaker is desperate due to the failure to receive an answer from the addressee. Following this line of reasoning, the emotion of "being desperate", which encompasses various negative emotions (e.g., frustration, impatience, and hopelessness) discussed in the literature, serves as the second ingredient required to construct the interpretation of *daodi* .

5.1.3. Proposal: CI Meaning of *Daodi*

In light of ingredient (i), the motive behind uttering *daodi* in questions has been identified. To capture this motive, I adopt Davis & Gutzmann's (2015) analysis,

which captures the use-conditional meaning of *daodi* in (1).

(1) *daodi*: for questions. Taking arguments of type <<s,t>,t>.

a. Truth-conditional content: $[\![daodi]\!]^t = \lambda Q.Q$, given Q is of type <<s,t>,t>.

b. Use-conditional content: *sets of contexts* (where c_s = *Speaker* in the context *c*)

(i) $[\![daodi]\!]^u = \{c: c_s \text{ is in despair about Q in } c_w\}$

(ii) $[\![daodi]\!]^u$ = *felicitous*, if $c_@ \in \{c: c_s \text{ is in despair about Q in } c_w\}$

In Davis & Gutzmann's (2015) framework, the truth-conditional content specifies the worlds in which the sentence is true, while the use-conditional content specifies the contexts in which the sentence can be felicitously uttered. Therefore, the proposed analysis in (1) ensures that *daodi* can only combine with questions and can be felicitously uttered if *Speaker* is afflicted by the question in the context.

Recalling our earlier diagnosis and confirmation of *daodi* as an expressive in section 4.1.4, it is appropriate to analyze *daodi* within the framework proposed by Potts (2005 & 2007) regarding expressives and their *Conventional Implicature* (CI) meanings. Thus, incorporating Potts' framework and the second ingredient discussed earlier, the first crucial component of the proposed analysis is that *daodi* conveys a CI content, as described in (2).

(2) **CI Content of *Daodi* in Questions**:
$[\![daodi\text{-Q}]\!] = \{w: \textit{Speaker is in despair about Q in } w\}$, where *being in despair* is a linguistic sense of despair because:

a. The answer to Q is dismissed and it is difficult to find the answer to Q,

b. The process of getting answer to Q is long and irritating,

c. The situation of Q is agitating and Q cannot be resolved.

Note that the term "*Speaker*" in (2) refers to the discourse participant who utters the *daodi*-question. It is important to highlight that the CI content of *daodi* described in (2) is applicable exclusively to *daodi* used in interrogative sentences. As discussed in chapter 4, *daodi* exhibits polysemy in Taiwan Mandarin, and when used in declarative sentences it solely expresses its literal meaning of "to the bottom". In other

words, *daodi* in declaratives does not function as an expressive item and does not convey CI meaning. Importantly, I would like to emphasize that *daodi* in questions serves a purpose beyond solely expressing the mental state of the speaker, as exemplified by (3)[1].

Neutral Surprise Scenario: Ellen and her husband know that their teenage son, Marcus, never cleans his room. Today, they decide to clean up Marcus' room. When Ellen opens the door, she is surprised to see that Marcus' room is unprecedentedly clean and tidy. She utters to her husband.

(3) women-de erzi daodi fasheng-le shenme shi?!
we-POSS son daodi happen-ASP what thing
'What on earth has happened to our son?!'

In (3), it is important to note that the surprise experienced by the speaker is not necessarily a negative one. Therefore, the speaker is not actually in a state of desperation but rather in a linguistic sense of despair regarding the question, which is extremely difficult to answer (as stated in (2-a)). In other words, based on the speaker's belief, she cannot find any conceivable reason or answer to the question of why her son cleans the room. This example effectively distinguishes the linguistic sense of despair from the actual mental state of desperation. Furthermore, this linguistic sense of despair is triggered by the question itself, which afflicts the speaker, as described in the proposal outlined in (1).

5.2. Introducing the Framework of Table Model

In light of the findings from the Emo-React Study, it is necessary to develop an account that can accurately model the addressee's reactions towards the question. The dynamic discourse framework proposed by Farkas and Bruce (2010) and the discourse effects of declaratives and interrogatives on the discourse contexts presented

[1]Thanks to Satoshi Tomioka's feedback on Japanese *ittai*-questions in this neutral surprise scenario, this neutral surprise scenario is perfect for explaining the desperation in linguistic sense, not the mental state.

by Faller (2002) provide valuable insights into capturing conversational moves made by discourse participants. These analyses offer a potential basis for modeling the emotive reactions towards questions in conversations. Consequently, in this section, I aim to review the existing literature on the Table model framework, which has been previously presented and discussed.

The discourse model developed by Farkas and Bruce (2010), commonly known as the Table model or conversational scoreboard, builds upon the work of Hamblin (1971), Gunlogson (2003), and Ginzburg (2012). This model has been further developed in subsequent studies such as Farkas and Roelofsen (2017), Malamud and Stephenson (2015), and Farkas (2022). Given that my proposal incorporates the foundational framework from Farkas and Bruce (2010) and the refined Table model from Farkas (2022) as a crucial component of the analysis, this section aims to provide a summary of the key aspects of these proposals and present them below.

5.2.1. Farkas & Bruce (2010): Foundation of Discourse Model

Let us begin by examining the foundational elements of the framework. F&B (2010) propose a context model that comprises four components, as depicted in (4). The context structure developed by F&B is presented in Figure 5.1.

(4) **F&B's Context Models Components**

a. **Discourse Commitments of Participants** (henceforth, DC_X): for each discourse participant *X*, DC_X, called *X*'s public discourse commitments, are propositions (i.e. sets of worlds).)

b. **Common Ground** (CG, in Stalnaker-style (1978)[2]): the set of propositions that discourse participants publicly committed to.

c. **Table**: a stack of issues awaiting acceptance (if an issue is an assertion), or resolution (if an issue is a question) by the discourse participants. When a participant utters an assertion or a question, the at-issue mean-

[2]Stalnaker (1978) defines the common ground as an notion of the intersection of discourse participants' commitment sets. Gunlogson's (2001) common ground, on the other hand, is reconstructed as the union of these commitment sets. Lastly, the common ground in Ginzburg (2012) is called FACTS.

ing of the assertion or the question is lain on the Table.

d. **Projected Set** (PS, also called Projected CG): a set of potential CGs which captures the 'next move' of the conversation (e.g. accepting the assertion or providing possible answers) that participants expect to develop.

DC_A	**Table**	**DC_B**
Common Ground *cg*	**Projected Set** *ps*	

Figure 5.1.: F&B's Sample of Context Structure

Before delving into the discussion on assertions and polar questions, it is necessary to provide a brief summary of the notation employed in F&B's system. In their framework, four operations are defined with respect to a stack of issues on the Table *T*, as illustrated in (5).

(5) **F&B's Notation for Table Models** (F&B 2010:90)

a. *push*(*e*,*T*): representing the new stack obtained by adding item *e* to the top of the stack *T*.

b. *pop*(*T*): representing the stack obtained by popping off the top item of *T*.

c. *top*(*T*): representing the top item of the stack *T*.

d. *remove*(*e*,*T*): representing the stack obtained by removing the top-most occurrence of *e* from the stack *T*. If *e* does not occur in *T*, *T* is then returned.

In addition to the previously mentioned notation, F&B make certain assumptions regarding the sentential features of declaratives and interrogatives. They use [D] to represent declaratives and [I] to represent interrogatives. Furthermore, they propose that S[D], following Hamblin (1971), represents a singleton set, while S[I], following Karttunen (1977), represents the set of complete answers to a question. Additionally, they adopt two speech act operators, based on Krifka (2001), which are functions that compute the input context state and output context state. These operators, denoted as the assertion operator **A** and the polar question operator **PQ**,

are illustrated in (6) and (7) respectively.

(6) **Assertion Operator:** (F&B 2010:92)

A(S[D], a, K_i) = K_o such that

a. $DC_{a,o} = DC_{a,i} \cup \{p\}$

b. $T_o = push(<S[D];\{p\}>, T_i)$

c. $ps_o = ps_i \cup \{p\}$

(7) **Polar Question Operator:** (F&B 2010:95)

PQ(S[I], K_i) = K_o such that

a. $T_o = push(<S[I];\{p, \neg p\}>, T_i)$

b. $ps_o = ps_i \cup \{p, \neg p\}$

It is important to mention that in the F&B framework, K_i represents the input context, K_o represents the output context, a refers to the author of the assertion, and T_i and T_o represent the input and output Table, respectively. In their framework, the syntactic representation (e.g., S[D] or S[I]) and its denotation (e.g. $\{p\}$ or $\{p,\neg p\}$) are paired together on the table. Assuming the initial context state of a conversation is as depicted in Figure 5.2, the projected set of the initial context, ps_1, contains only s_1, which represents the initial common ground at the beginning of the dialogue.

DC_{Sp}	**TABLE**	**DC_{Ad}**
Common Ground s_1	**Projected Set** $ps_1 = \{s_1\}$	

Figure 5.2.: Initial Context State of a Conversation

Let's start by examining assertions. When a speaker utters sentence (8), the assertive moves of the speaker can be described as follows, using the assertion operator as defined in (6): (i) the proposition p is added to the discourse context of the author (DC_{sp}), (ii) the denotation of (8), $\{p\}$, is pushed onto the top of the Table stack, and (iii) $\{p\}$ is projected to the projected set ps, awaiting confirmation or ac-

ceptance. After the utterance of (8), the context state of the conversation is modified and represented as depicted in Figure 5.3.

(8) Stanley is there.

DC_{Sp}	TABLE	DC_{Ad}
p	<'Stanley is there'[D]; {p}>	
Common Ground	**Projected Set**	
$s_2 = s_1$	$ps_2 = \{s_1 \cup \{p\}\}$	

Figure 5.3.: Context State after Uttering (8)

Now, let's examine polar questions. When a speaker utters sentence (9), the interrogative moves of the speaker can be described as follows, adopting the polar question operator as defined in (7): (i) the denotation of (9), $\{p,\neg p\}$, is placed on the Table, representing the potential resolutions of the question, and (ii) $\{p,\neg p\}$ is projected to the projected set (*ps*), anticipating resolution. After the utterance of (9), the context state of the conversation is modified and represented as depicted in Figure 5.4.

(9) Is Stanley there?

DC_{Sp}	TABLE	DC_{Ad}
	<'Stanley is there'[I]; {p, $\neg p$ }>	
Common Ground	**Projected Set**	
s_1	$ps_1 = \{s_1 \cup \{p\}, s_1 \cup \{\neg p\}\}$	

Figure 5.4.: Context State after Uttering (9)

According to F&B, in order to achieve a stable conversation (i.e., when the Table is empty), further conversational moves need to be made regarding the issue on the Table. If the addressee or hearer accepts assertion (8) in a separate move, the issue $\{p\}$ is removed from the Table, and p is added to the common ground (CG). Similarly, if the addressee or hearer responds to polar question (9) with a positive answer, such as "Yes, Stanley is there." in a separate move, the issue $\{p,\neg p\}$ is removed from the Table, and only p is added to CG. This process ensures progress in the conversation and contributes to reaching a stable state.

5.2.2. Farkas (2022): Refined Table Model

In the refined Table model proposed by Farkas (2022), a context structure is composed of four components, as shown in (10). Farkas (2022) presents a reconstructed context structure, which is depicted in Figure 5.5, illustrating the arrangement of these components within the model.

(10) **Farkas' (2022) Context Structure Components**

a. **Discourse Participants**[3]: a set of discourse participants *Part*. For every discourse participant X: $X \in Part$.

[3]As Farkas (2022) assumes that the component, Discourse Participants, is a prerequisite for a conversation to be started in the context structure, this component is thus not presented in 5.5. In other words, the basic context structure, as shown in Figure 5.5, already assumes that there are two discourse participants in this context, *Speaker* (*Sp*) and *Addressee* (*Ad*).

b. **Discourse Commitments of Participant**: DC_X is a set of discourse commitments/propositions of *X*.
c. **Table**: a set of active issues that are waited to be resolved.
d. **Projected Set (ps)**: a set of future discourse commitments, DC_X, where the default value of *X* is contextually fixed to the addressee.

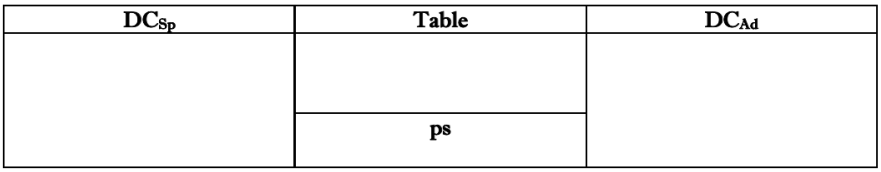


Figure 5.5.: Farkas' (2022) Basic Context Structure

Upon initial observation, one notable difference in Farkas' (2022) context structure compared to F&B's context models is the absence of the Common Ground. However, Farkas (2022) introduces some modifications based on the works of Fălăuş & Laca (2014) and Meriçi (2016), leading to a slightly different interpretation of certain aspects of the Table model. Firstly, Farkas (2022), following the spirit of Fălăuş & Laca (2014), acknowledges two distinct approaches for addressing issues on the Table: (i) the canonical way, where discourse participants resolve the issue and remove it from the Table, and (ii) non-canonical ways, such as agreeing to disagree or deciding not to pursue the issue further. In other words, leaving the issue on the Table is deemed acceptable, although the ideal and stable context state of a conversation is achieved when the Table is empty[4].

Additionally, inspired by Meriçi (2016) suggestion to project an intermediate stage to record the addressee's future commitments, rather than projecting context sets that would only be reached at the final stage (i.e., when all issues are settled or removed from the Table), Farkas (2022) follows this idea with a slight modification. Instead of fixing the anchor of discourse commitments to the *Addressee* (i.e., *ps* being a set of projected DC_{Ad}), Farkas (2022) introduces a free variable *X* as the anchor, and the value of *X* is determined by the context. However, it is important to note that the

[4]"A conversation is in a stable state when its Table is empty; a conversation is at a natural end point only when it is stable (F&B 2010:87)"

default value for X is the addressee, as indicated in the context structure components.

Apart from the setup of the context structure, Farkas (2022), in alignment with the framework of Inquisitive Semantics proposed by Ciardelli et al. (2019), makes the assumption that both declaratives and interrogatives have a denotation consisting of a downward closed set of propositions, referred to as *an issue*[5] (denoted as I). This means that in semantics, both declaratives and interrogatives refer to the same type of entity. However, there is a distinction in the internal structure between declaratives and interrogatives. Farkas (2022) provides the following representations: (11) for simple declaratives, (12) for polar interrogatives, and (13) for constituent interrogatives.

(11) a. Stanley came.
b. I = {{w: Stanley came in w}}

(12) a. Did Stanley come?
b. I = {{w: Stanley came in w}, {w: Stanley did not come in w}}

(13) a. Who came?
b. I = {{w: only Stanley came in w}, {w: only Chelsea came in w}, {w: Stanley and Chelsea came in w}}[6]

These representations illustrate that while declaratives and interrogatives denote the same type of entity, they have different inner structures.

In Farkas (2022), additional terminologies are introduced. The maximal propositions within the issue I are referred to as *alternatives* in I. The informative content of an issue I is represented by $\cup I$, the union ($\cup$) of propositions in I, and is denoted as info(I). Consequently, a declarative sentence such as (11) consists of a single alternative, while interrogative sentences like (12) or (13) contain multiple alternatives. Accordingly, the informative content of declaratives is characterized as *non-inquisitive*,

[5] A set of propositions I is downward closed iff for every $p \in I$, if $p' \subset p$, $p' \in I$.

[6] It is immaterial whether the derived interpretation of a constituent interrogative should be exhaustive or non-exhaustive in Farkas(2022); the negative alternative (e.g. {w: nobody came in w}) is also opened for further discussion. To sum up, Farkas (2022) only considers the contextually relevant alternatives for constituent interrogatives. In the case of (13), the contextual alternatives are reduced to {Stanley, Chelsea}.

while that of interrogatives is considered *non-informative*.

Lastly, Farkas (2022) introduces Convention Discourse Effects (CDE) to describe the impact of a sentence on the input context structure relative to which it is uttered[7]. Following Faller (2002), Farkas (2022) defines two types of CDE: basic CDE and special CDE. The basic CDE takes the form of functions $\lambda I.\lambda c.c[I]$, where c represents the input context, I represents the issue denoted by the sentence, and $c[I]$ represents the input context updated by I. These functions are referred to as *context change potential* functions (CCP) because they indicate the update of the input context to the output context. The CDE of utterances (11) and (12) can be illustrated as follows, with the subscripts *i* and *o* denoting 'input' and 'output' respectively.

(14) CDE of uttering (11)

a. $\text{Table}_{\text{o}} = \text{Table}_{\text{i}} \cup \{I\}$

b. $\text{ps}_{\text{o}} = \{\text{DC}_{\text{Ad,i}} \cup \{p\}\}$, where $p = \{\text{w: Stanley came in w}\}$

c. $\text{DC}_{\text{Sp,o}} = \text{DC}_{\text{Sp,i}} \cup \{\text{info}(I)\}$

(15) CDE of uttering (12)

a. $\text{Table}_{\text{o}} = \text{Table}_{\text{i}} \cup \{I\}$

b. $\text{ps}_{\text{o}} = \{\text{DC}_{\text{Ad,i}} \cup \{p\}, \text{DC}_{\text{Ad,i}} \cup \{\neg p\}\}$

c. $\text{DC}_{\text{Sp,o}} = \text{DC}_{\text{Sp,i}} \cup \{\text{info}(I)\}$

Farkas (2022) further postulates that the special CDE is elicited by a special marked sentence, which can be a morpheme or a discourse marker (abbreviated as DM). This special CDE, triggered by the presence of a DM, is combined with the basic CDEs. Consequently, the denotation of a DM is represented as functions from CCPs to CCPs, as shown in (16)..

(16) The denotation of DM (Farkas 2022:310)

$[\![\text{DM}]\!] = \lambda\text{CCP}.\lambda c.\text{DM}(\text{CCP}(c))$

The special CDE of DMs alters the impact of the utterance on the input context structure, potentially modifying or overriding the default assumptions, particularly

[7]See Gunlogson (2001), Gunlogson (2008), Condoravdi & Lauer (2012a), Condoravdi & Lauer (2012b), Faller (2002) for more discussions of CDE.

in the case of canonical questions. Farkas (2022) applies this analysis of special CDE to explain Romanian *oare*-questions. The morpheme *oare* functions as a non-intrusive question marker, which weakens the default assumptions regarding *Addressee compliance*, allowing the addressee the option of not resolving the issue in the compliant future. In accordance with (16), the denotation of the morpheme *oare*, considered as a DM, is provided in (17). An example of an *oare*-question, taken from Farkas (2022), is illustrated in (18).

(17) $[\![oare]\!] = \lambda\text{CCP}.\lambda c.oare(\text{CCP}(c))$ (Farkas 2022:311)

(18) Oare Amalia e acasă? (Farkas 2022:312)
oare Amalia is home
'Is Amalia home, I wonder.'

If an *oare*-interrogative like (18) is uttered, the specific modification prompted by the presence of *oare* (i.e., *oare* as a function applied to basic CDE) is depicted in (19). Following the utterance of (18), the context structure can be observed in Figure 5.6.

(19) $oare(c[I]) = c'$ s.t. $ps_{c'} = ps_{c[I]} \cup \{DC_{X,c[I]} \cup \{\text{info}(I)\}\}$

Figure 5.6.: The context structure after *Speaker* has uttered (18).

DC_{Sp}	TABLE	DC_{Ad}
Info(I)	{p, ¬p}	
	ps:{DC_{Ad}∪{p}, DC_{Ad}∪{¬p}, DC_{Ad}∪{info(I)}}	

By adding $\{DC_{X,c[I]} \cup \{\text{info}(I)\}\}$ to *ps*, the addressee's commitment in the future context state does not go beyond the discourse commitments of the speaker (i.e., the issue placed by the speaker on the Table). This captures the notion that using *oare* weakens the expectation of the addressee to resolve the issue and contributes to the non-intrusive effect. In conclusion, Farkas (2022) presents the definition of non-intrusive questions as given in (20).

(20) **Non-Intrusive Questions:** Farkas (2022:313)

A question is non-intrusive iff the ps of its output context state includes DC_X $\cup$ {info(I)}, where I is the issue placed on the Table by the question.

Farkas' (2022) proposal regarding non-intrusive questions is of great significance for my proposed account, as unanswerable questions exhibit a similar characteristic as described in (20). It is important to note that the addressee is unable to resolve UnansQs placed on the Table. In other words, the issue presented by the UnansQ should be allowed to remain unresolved on the Table in a felicitous manner for the discourse participants. Consequently, I plan to extend Farkas' (2022) framework in order to capture the data and the intuition surrounding UnansQs in a later section.

5.2.3. Rett (2019, 2020): Emotive Content as Discourse Commitments

Rett (2020), drawing on Gunlogson's (2001) concept of Discourse Commitments, examines the denotations of emotive markers and their contribution to the speaker's Discourse Commitments, as illustrated in (21).

(21) **Flavored Discourse Commitments** (Rett 2020:23)[8]
Let DC_a be a set of pairs representing the public commitments of a with respect to a discourse in which a and $_b$ are the participants, where:

a. <believe, p> is a public commitment of a iff 'a believes p' is a mutual belief of a and b;
b. <is-disappointed, p> is a public commitment of a iff 'a is disappointed that p' is a mutual belief of a and b;
c. <is-pleased, p> is a public commitment of a iff 'a is pleased that p' is a mutual belief of a and b;
d. <is-surprised, p> is a public commitment of a iff 'a is surprised that p' is a mutual belief of a and b;
e. <is-not-surprised, p> is a public commitment of a iff 'a is not surprised p' is a mutual belief of a and b.

[8]Rett (2020) refines the flavored discourse commitments that she proposed in (Rett 2019) that DC_a was sets of propositions of the form (e.g. $believe_a$(p) is a public commitment of a iff 'a believes p' is a mutual belief of a and b). In Rett (2020), DC_a is a set of pairs (i.e. <believe, p>). Here in (21) I present Rett's (2020) account and include the discourse commitments of emotive markers that have been proposed in both Rett (2019) and Rett (2020).

f. <is-angry, p> is a public commitment of a iff 'a is angry that p' is a mutual belief of a and b.

In her analysis, Rett (2020) extends the concept of Discourse Commitments to encompass propositional attitudes beyond belief, allowing for possible ordered pairs in the Discourse Commitment sets of discourse participants. This modification enables her to model the content of emotive markers. For instance, taking the English expressive *damn* as an example, where *damn* ranges over a proposition, Rett presents the account of *damn* as depicted in (22).

(22) *damn* (**Damn**), for clauses C with content p. **Damn**$(C,a,K_i) = (C,a,K_o)$ such that (Rett 2020:24)

a. $\text{DC}_{\text{a,o}} = \text{DC}_{\text{a,i}} \cup \{<\text{is-angry}, p>\}$
b. $\text{T}_{\text{o}} = \text{push}(<S_p;\{p, \text{T}_{\text{i}}\}>$

Furthermore, Rett (2020) introduces a distinction between at-issue and non-at-issue content, which is not explicitly accounted for in the F&B system. In light of this distinction, she reformulates F&B's assertion operator from (6) to (23).

(23) *Declarative operator* (**D**), for sentence S_p with at-issue content p and non-at-issue content q. (Rett 2019:23)
D$(S_p,a,K_{\text{i}}) = K_{\text{o}}$ such that

a. $\text{DC}_{\text{a,o}} = \text{DC}_{\text{a,i}} \cup \{<\text{believe}, p>\}$
b. $\text{T}_{\text{o}} = \text{push}(<S_p;\{p\}>, \text{T}_{\text{i}})$
c. $\text{ps}_{\text{o}} = \text{ps}_{\text{i}} \overline{\cup} \{p\}$
d. $\text{CG}_{\text{o}} = \text{CG}_{\text{i}} \cup \{q\}$

In (23-a), the at-issue content of the sentence, represented as an ordered pair, is added to DC_a, where a is the discourse participant. In (23-b), the at-issue content of the sentence is pushed to the top of the stack of issues on the Table. In (23-c), the at-issue content is added to the *projected set ps*, awaiting confirmation from a's interlocutors for admission to the Common Ground (CG). Finally, in (23-d), if the sentence includes non-at-issue content, the non-at-issue content directly updates the CG. According to Rett's (2020) framework, the at-issue content and non-at-issue content of an utterance have different effects on the admission of the context structure.

Drawing on Murray's (2014) framework, Rett (2020) proposes that the at-issue content of an utterance updates *ps*, while the non-at-issue content updates the CG. Using (22) and (23), we can analyze the utterance "*Damn, Jane lost the race*" as shown in (24).

(24) $[\![$Damn, Jane lost the race$]\!] = \mathbf{D}(\mathbf{Damn}(S, a, K_i)) = K_o$ such that
(Rett 2020:24)

a. $DC_{a,o} = DC_{a,i} \cup \{<$believes, Jane lost the race$>\}$
b. $T_o = push(<S_p;\{$Jane lost the race$\}>, T_i)$
c. $ps_o = ps_i \overline{\cup} \{$Jane lost the race$\}$
d. $DC_{a,o} = DC_{a,i} \cup \{<$is-angry, Jane lost the race$>\}$

In (24-a), the declarative mood **D** represents the sincerity condition on assertions, indicating that the speaker a believes that p. The at-issue content p is then pushed to the Table as shown in (24-b). In (24-c), the at-issue content p is added to *ps* and considered for admission into the Common Ground (CG) by other interlocutors in the conversation. Finally, (24-d) captures the contribution of *damn*, where a's Discourse Commitment set is updated by the ordered pair <is-angry, p>, representing a's public commitment that she is angry that Jane lost the race.

However, applying Rett's (2020) analysis to model the emotive content of *daodi* as a set of ordered pairs in the Discourse Commitment set of the speaker poses a major problem. Under Rett's account, we cannot determine whether the addressee's reaction is directed towards the at-issue content or the emotive/non-at-issue content of the utterance, as both denotations are added to the Discourse Commitment sets without differentiation.

As mentioned earlier in this section, we require an account that can accurately model the addressee's reactions to the question. The table model framework, with its commitment-based approach, is precisely what we need and can further develop. This framework allows us to model the addressee's potential reactions in the projected discourse commitment, enabling us to capture the projection of the addressee's next moves to steer the conversation. The following section presents the main proposal of incorporating emotions into the table model framework.

5.3. Putting the Building Blocks Together

In this section, we will leverage the building blocks we have established so far, namely the CI content of *daodi* as outlined in (2), and the framework of the Table model that we have discussed. We will extend and formulate a refined commitment-based discourse model that can effectively account for the data of *daodi* questions, incorporate findings from empirical studies, and provide a framework to model the reactions between discourse participants towards the content, whether it is at-issue or non-at-issue, on the Table or in the Common Ground (CG). By combining these elements, we aim to develop a comprehensive model that captures the dynamics of discourse and the interplay between participants' commitments and emotional reactions.

5.3.1. New Framework

In previous studies, the Table models have focused solely on placing the at-issue content of an utterance on the Table. Drawing inspiration from the works of F&B (2010), Farkas (2022), and Potts (2005, 2007), I propose the following refinement, denoted as (25), to enhance the existing framework.

(25) **Key Ingredients for New Framework**

a. The Discourse Commitment of the discourse participant X, DC_X, separately records conversational moves of an utterance's at-issue content and non-at-issue content in a two-dimensional format.

b. Building on the CI content of *daodi*, proposed in (2) that '*Speaker is desperate about the question*', the semantic denotation of *daodi* is {Desp(Sp, info(I))}; {Desp(Sp, info(I))} $\in DC_{Sp}$. (Depending on whether the question is a polar question or a wh-constituent question, the denotation of info(I) is either $\{p, \neg p\}$ for polar questions, or $\{p_1, p_2, ..., p_n\}$ for wh-constituent questions.)

By incorporating the ingredients of (25) into the Table model, I propose the components of the context structure as outlined in (26). The basic context structure, depicting the arrangement of these components, is illustrated in Figure 5.7.

(26) **Components of Context Structure in New Framework**

a. **Discourse Commitments of Participant (DC_X)**: DC_X is a set of discourse commitments of *X*, which records the at-issue content of the utterance and non-at-issue content of the utterance in two-dimensional format, as proposed in (25-a).

b. **Table**: a stack of issues, anticipated to be resolved or to be reacted with.

c. **Common Ground (CG)**: the set of propositions that discourse participants publicly committed to and to be reacted with.

d. **Projected Set (*ps*)**: a set of future discourse commitments from DC_X; the default value of *X* is set to be the addressee (henceforth $DC_{ad)}$).

Figure 5.7.: Proposed Basic Context Structure

DC_{Sp}	TABLE	DC_{Ad}
CG:	*ps:*	

Before delving into the application of the proposed framework to different question types, such as EIQs, CorQs, and UnansQs, where *daodi* is employed to convey CI content as described in (2), it is necessary to provide an overview of the fundamental semantic assumptions that will be implemented into this conversational model.

5.3.2. Semantic Denotations

According to Hamblin, Inquisitive Semantics, and Farkas (2022), declaratives and interrogatives have denotations consisting of a closed set of propositions called an issue, denoted as *I*. Declaratives denote a single proposition within the set ($I = \{p\}$), while interrogatives denote the set of possible answers (e.g., for polar questions: $I = \{p, \neg p\}$; for wh-/constituent questions: $I = \{p_1, p_2, ..., p_n\}$). As the CI con-

tent is expressed in a declarative mood, it denotes a unique proposition within the set of propositions. Based on this assumption, the semantic denotation of *daodi* is {Desp(*Sp*, info(*I*))}, as proposed in (25-b).

5.3.3. Two-Dimensional Format in DC_X

Furthermore, I adopt Potts' (2005, 2007a, 2007b) combinatoric system, which incorporates CI meaning into the semantic compositional framework as truth-conditional meaning. As outlined in Potts' work, the semantic denotation in this combinatoric system can be represented as $< \alpha \cdot \beta >$, where α represents any literal at-issue content and β represents any expressive non-at-issue content conveyed by expressive items. To illustrate this, let's consider a *daodi*-question as an example within this combinatoric system, as shown in (27).

(27) Ni daodi yao-bu-yao chi wancan?
you daodi want-not-want eat dinner

a. **Truth-Conditional/At-Issue Meaning**: "Do you want to eat dinner or not?" (Semantic denotation: {p, ¬p})

b. **CI /Non-At-Issue Meaning**: "*Speaker is desperate about the question*" (Semantic denotation: {Desp(*Sp*, {p, ¬p})} = {{w: *Speaker* is desperate about {p, ¬p} in w}})

It is important to note that the proposal in (1) ensures that *daodi* can only combine with questions. By adopting the combinatoric system described above, the denotation of (27) can be represented as <{p, ¬p} · {Desp(*Sp*, {p, ¬p})} >. Following the framework of Farkas (2022), in the case of interrogatives, the denotation of *I* is both inquisitive and non-informative. The info(*I*), which is added to the Discourse Commitment set of the Speaker (DC_{Sp}), is trivial and projects all possible resolutions of I to the Table through conventional discourse effects, as described by Faller (2002). With this setup, if a speaker utters (27), the resulting context structure within the proposed framework is illustrated in Figure 5.8.

Figure 5.8.: The context structure after uttering (27)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • {Desp(Sp, {p, ¬p})}	{p, ¬p}	
CG:	***ps***: {DC_{Ad} ∪{p}, DC_{Ad} ∪{¬p}}	

5.3.4. Treatment on the Response "I don't know"

In real-world conversations, there are situations where discourse participants may not have the competence to resolve an issue, such as in the case of an UnansQ (Unanswerable Question) or a conjectural question. In such cases, the participants can only provide the response "*I don't know*" as a possible reaction to the issue, rather than a resolution to the question itself. While the semantic denotation of the response "*I don't know*" has not been extensively discussed in the literature, it can be assumed that the move in the projected set, {DC_{ad}∪{info(I)}}, can reflect the response of "*I don't know*" or the reaction of remaining silent, similar to the spirit of Farkas' (2022) analysis of *oare*-questions.

Given the reasoning above, let's consider the context structure update when an UnansQ is uttered. We can start with a neutral UnansQ, such as "*Does God exist?*". The proposed Table model for this UnansQ is illustrated in Figure 5.9.

Figure 5.9.: The context structure after uttering a neutral UnansQ (e.g. "*Does God exists?*")

DC_{Sp}	TABLE	DC_{Ad}
info(I)	{p, ¬p}	
CG:	***ps***: {DC_{Ad} ∪{info(I)}}	

In the proposed framework, we can observe a distinction between the Table mod-

els of conjectural questions (Figure 5.6) and UnansQs (Figure 5.9). In the case of conjectural questions, there are expectations on the addressee to resolve the issue in the *projected set* (*ps*). However, in the case of UnansQs, there is no expectation of issue resolution in *ps*. Instead, the presence of $\{DC_{Ad} \cup \{info(I)\}\}$ in the *ps* can be interpreted as the addressee being expected to respond with "*I don't know*" or to remain silent.

This distinction highlights the different nature of reactions in the proposed framework. In the context of UnansQs, the focus is on the addressee's acknowledgement of their inability to provide an answer, rather than on resolving the issue itself. This allows for a more nuanced modeling of reactions within the framework.

5.3.5. Modeling Emotive Contexts

This section is specific for Emo-React Study. In the Emo-React Study, participants react to *non-daodi* UnansQs in emotive contexts by "agreeing emotionally" in addition to stating "*I don't know*." The study differentiates between emotive contexts and neutral contexts, where participants are emotionally affected (e.g., desperate) in emotive contexts but not in neutral contexts. This indicates that participants infer the emotive content from the context and react accordingly.

To capture the desperation in emotive contexts, I propose (28) as the Emotive Condition Context in the Emo-React Study. This context is characterized by both discourse participants (*Speaker* (= *Sp*) and *Addressee* (= *Ad*)) being emotionally afflicted by the question. The notation $\{\forall x \in \{Sp, Ad\}.\text{Desp}(x, \text{info}(I))\}$ represents the desperation of all discourse participants regarding the question. It serves as the condition for emotive contexts in the study. Note that the denotation of info(I) is either $\{p, \neg p\}$ for polar questions, or $\{p_1, p_2, ..., p_n\}$ for wh-constituent questions.

(28) **The Emotive Condition Context in Emo-React Study**
The emotive contexts where both discourse participants are emotionally afflicted by the question:
$\{\forall x \in \{Sp, Ad\}.\text{Desp}(x, \text{info}(I))\}$ in CG, where x is the discourse participant.

In the proposed framework, (28) is used to capture the context condition of (29), which is an example from the Emo-React Study in an emotive context. The context structure of (29) is depicted in Figure 5.10.

***non-daodi*-UnansQs in Emotive Context**

Your friend (Xiao-Ming) and you are working in IT department of a company. Both your friend and you hate one of colleagues (Chang-San), who always ruins the project. This time, that colleague unsurprisingly ruins the project again. Your friend utters to you.

(29) ta shenmeshihuo hui lizhi?
she when will quit
'When will she quit?'

Figure 5.10.: The context structure after uttering (29)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
info(I)	{p$_1$,p$_2$,…,p$_n$}	
CG CG$_0$∪{∀x∈{*Sp,Ad*}.Desp(x,{p$_1$,p$_2$,…,p$_n$})}		***ps**:* {DC$_{Ad}$ ∪ {info(I)}}

In (29), since *daodi* is not used, only the at-issue content of (29) is added to the Speaker's Discourse Commitment set (DC$_{Sp}$), denoted as info(I). All possible resolutions of I are placed on the Table. Additionally, the emotive context indicates that the discourse participants are desperate about the question, which is captured by adding {∀x∈{*Sp, Ad*}.Desp(x, {p_1, p_2,..., p_n})} to the Common Ground (CG). As an UnansQ, (29) does not expect the addressee to resolve the question, so only {DC$_{ad}$∪{info(I)}} is projected in the *ps*.

5.3.6. Questions, Reactions and Updates

The concept of the canonical questioning act posits that when a questioner poses a question, the intention behind the utterance is to seek resolution or an answer. An instance exemplifying the canonical questioning act is provided below as (30). Notably, it can be observed that no difficulties arise when determining the semantic denotations for both the question and the corresponding answer.

(30) A: “Does Joe come to the party?” $<\{p,\neg p\}>$
B: “Yes.” $<p>$

We have explored how expressives are interpreted in declaratives according to Potts (2005, 2007a, 2007b), which does not necessitate issue resolutions, unlike interrogatives. Additionally, previous research (e.g., Davis & McCready, 2016[9]) has examined the treatment of expressives in interrogatives, including the derivation of their interpretation. However, one aspect that remains unclear is how responses to interrogatives with expressives should be interpreted. Specifically, when a question is posed, which includes emotive discourse particles or markers, does the response address both the at-issue content and the non-at-issue content of the question? How can we compute the semantic denotations of such responses? Let us consider the following example (31):

(31) A: “Does that idiot Joe come to the party?” $<\{p,\neg p\} \cdot \{\text{Idiot}(\textit{Sp A, Joe})\}>$, where $\{\text{Idiot}(\textit{Sp A, Joe})\} = \{\{w: \textit{Speaker A} \text{ has negative opinions on Joe in } w\}\}$

a. B: “Yes.” $\# <\{p\} \cdot \{\text{Idiot}(\textit{Ad B, Joe})\}>$

b. B: “Yes”, “ It’s annoying.” $<\{p\}>$, $<\{\text{Annoyed}(\textit{Ad B, Joe/Joe's coming})\}>$, where $\{\text{Annoyed}(\textit{Ad B, Joe/Joe's coming})\} = \{\{w: \textit{Addressee B} \text{ feels annoyed on Joe or Joe's coming in } w\}\}$

I believe it is inappropriate to derive the semantic denotation of *B*’s response as (31-a). As we know that one of the characteristics of expressives is *perspective dependence* (Potts, 2007b), it is not appropriate to derive that *Addressee B* also has negative opinions on Joe (i.e., Idiot(*Ad B*, Joe)) as *Speaker A*. Therefore, the response “Yes” only targets the at-issue content of the question. If B’s response is (31-b), we can separate this response into two parts: the reaction towards the at-issue content of the utterance and the reaction towards the non-at-issue content of the utterance. On one hand, the response “Yes” is a reaction to *Speaker A*’s question. On the other hand, the response “It’s annoying” is a reaction to the non-at-issue content of *Speaker A*’s

[9]Davis & McCready (2016) explore the interaction of expressive contents (i.e. they take Japanese antihonorific markers as test) with alternatives that wh-interrogatives generate.

expressive, “idiot.” It should be noted that “It’s annoying” is a response at the at-issue tier, and its interpretation may still vary from the expressive content of “idiot.” In other words, the expressive content from *Speaker A* targets Joe, while *Addressee B*’s utterance possibly targets the utterance as a whole, i.e., Joe’s coming, not necessarily Joe as a person. As a consequence, it can be observed that while discourse commitments do not go beyond the speaker’s commitment in the Table model, the interpretation of reactions towards non-at-issue content is more flexible. So, how will the context structure be when *Addressee B* responds with (31-b)? Let’s examine the step-by-step update from uttering the question to making reactions towards it. The context structure of *Speaker A* uttering “*Does that idiot Joe come to the party?*” is modeled in Figure 5.11.

Figure 5.11.: The context structure of uttering (31)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
info(I) • {Idiot(*Sp A, Joe*)}	{p, ¬p}	
CG:	***ps**:* {DC$_{Ad}$ ∪{p}, DC$_{Ad}$ ∪{¬p}}	

Following Murray (2014) and Rett (2019, 2020), the at-issue content in DC$_{Sp}$ projects to the Table, while the non-at-issue content in DC$_{Sp}$ directly updates the CG. Consequently, the next step in the context structure (Figure 5.11) involves updating the CG with Idiot(*Sp A*, Joe), as shown in Figure 5.12.

Figure 5.12.: The context structure of uttering (31)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
info(I)	{p, ¬p}	
CG: CG$_o$∪{Idiot(*Sp-A, Joe*)}	***ps**:* {DC$_{Ad}$ ∪{p}, DC$_{Ad}$ ∪{¬p}}	

At the point of the context structure (Figure 5.12), *Addressee B* now has two pos-

sible reactions to (31): (i) reactions towards the at-issue content of the utterance on the Table, or (ii) reactions towards the non-at-issue content of the utterance in the CG. When *Addressee B* responds with (31-b), she is reacting to both (i) and (ii), and the context structure of B's utterance is represented by Figure 5.13.

Figure 5.13.: The context structure of uttering (31-b)

DC_{Sp}	TABLE	DC_{Ad}
	{p, ¬p}	DC_{Ad} ∪{p}∪ {Annoyed(*Ad-B, Joe or Joe's coming*)}
CG: CG_o∪{Idiot(*Sp-A, Joe*)}	***ps***:	

Lastly, after *B*'s response towards (31), the issue on the Table is resolved, and the context structure of this update is represented by Figure 5.14.

Figure 5.14.: The context structure when (31) is resolved

DC_{Sp}	TABLE	DC_{Ad}
CG: CG_o∪{Idiot(*Sp-A, Joe*), p, Annoyed(*Ad-B, Joe or Joe's coming*)}	***ps***:	

The discussions above present how reactions towards questions with emotive markers are predicted and modeled. The rules for these reactions are provided in (32).

(32) **The Rules of Reactions towards Interrogatives**

a. When the utterance only conveys at-issue content:

(i) The addressee reacts to the at-issue content of the utterance on the Table by either resolving the question or stating "*I don't know*", which is equivalent to remaining silent.

b. When the utterance conveys both at-issue and non-at-issue content:

(i) The addressee reacts to the at-issue content of the utterance on the Table by either resolving the question or stating "*I don't know*" or remaining silent.

(ii) The addressee can additionally infer the non-at-issue content from the CG and react to it accordingly.

These rules outline the expected reactions towards interrogatives based on whether they convey only at-issue content or both at-issue and non-at-issue content.

As stated in the beginning of this section, the canonical questioning act aims to have the question resolved. Therefore, when the utterance is an information-seeking question, the most ideal, appropriate, and expected reaction from the addressee is to resolve the question. However, in the case of non-canonical questions (e.g., UnansQs), the addressee is allowed to have other reactions besides resolving the question, such as stating "*I don't know*" or remaining silent.

Furthermore, if the utterance contains an expressive or an emotive marker, the meaning conveyed by the expressive or emotive marker, which is stored in CG, provides the possibility for the addressee to react to it, as seen in examples (31) and (31-b). However, a speaker can only expect the addressee's reaction towards the at-issue content, not the non-at-issue content. In other words, only reactions towards the at-issue content can be added to *ps*. The reaction towards the non-at-issue content of the utterance cannot be predicted and projected in *ps* since this content is not pushed to the Table and not awaited to be resolved.

Lastly, it should be noted that reactions towards non-at-issue content may or may not be agreed upon between discourse participants. In the example provided as (31) and (31-b), discourse participants *A* and *B* convey an agreed non-at-issue content about Joe (i.e., both *A* and *B* have negative opinions on Joe), although they use different expressives (i.e., "idiot" and "annoy"). Hess (2019) also illustrates a dialogue like (33), demonstrating a disagreement over non-at-issue contents.

(33) A: Jerry told me some news today. (Hess 2019:21)
B: Yeah?
A: That bastard Kaplan got promoted.

B: Come on, Kaplan is not that bad.

In (33), *B*'s response is indeed directed towards the non-at-issue content regarding *A*'s opinion on Kaplan, rather than the at-issue content concerning Kaplan's promotion. The disagreement over the non-at-issue content differs from the dispute over the at-issue content, as it involves personal and subjective opinions. While resolving the at-issue content of the utterance on the Table is necessary for achieving a stable conversation (as mentioned in F&B), reacting to the non-at-issue content is not obligatory. Since the non-at-issue content is not placed on the Table but stored in CG, it does not impact the stability of the conversation.

5.3.7. Summary

To summarize this section, the proposed framework enriches the existing framework by redefining Discourse Commitments (DC_X) in a two-dimensional format (as discussed in section 5.3.3) and formalizing the reactions towards the at-issue and non-at-issue content of interrogatives (as outlined in (32)). It is acknowledged that Murray (2014) explores different types of updates in natural languages, and the update of non-at-issue information reduces the context set. Additionally, it is noted that Rett (2019), following Murray (2014), initially proposes that non-at-issue content directly updates CG (as shown in (23)), but later revises this proposal in Rett (2020) to consider the non-at-issue content as a discourse commitment that is added to the discourse commitment sets before updating CG (as depicted in (24-d)).

The proposed framework, which records conversational moves of non-at-issue content in a two-dimensional format (following Potts 2005, 2007), is not in conflict with Rett (2020). In Rett (2020), the distinction between discourse commitments of at-issue and non-at-issue content arises when the at-issue content is pushed to the table and the non-at-issue content updates CG. In the proposed framework, the discourse commitments of at-issue and non-at-issue content are initially stored differently in DC_X (as shown in Figure 5.11). Following Rett (2020), CG is updated in the proposed framework by adding the discourse commitment of the non-at-issue content (as illustrated in Figure 5.12). The possible reactions towards interrogatives in the discourse model are predicted based on (32). The next step is to apply the pro-

posed account to *daodi*-data and discuss the results of empirical studies presented in Chapter 4.

5.4. Data & Results Explained

In applying the proposed commitment-based discourse model to the *daodi*-data and empirical results, it is important to note that in the framework, when an interlocutor utters a *daodi*-question, they are conveying a CI/non-at-issue content, specifically "*Speaker is desperate about the question*." This content, {Desp(*Sp*, info(*I*)}, is committed to DC_{Sp}.

Based on the review of the *daodi*-data in Chapter 4, it is observed that *daodi* is used in contexts where the speaker is afflicted by the question. To account for this background context, I propose using the use-conditional content of *daodi* in (1) to encompass the reasons for using *daodi*. To capture the context where the Speaker is afflicted by the question, I model that {{Desp(*Sp*, {p_1,p_2,...,p_n})}} (if the question is a wh-question) or {{Desp(*Sp*, {p,¬p})}} (if the question is a polar question) is already stored in CG for the *daodi*-data discussed in Sections 5.4.1 to 5.4.3.

Moving to Section 5.4.4, the proposed framework will account for the results of the Emo-React Study. Recall that the Emo-React Study follows a 2x2 design, with context conditions [emotion-loaded (emo), neutral (neu)] and expressions [*daodi*, *non-daodi*]. As a result, there are four combinations of data: *daodi* in emo, *daodi* in neu, *non-daodi* in emo, and *non-daodi* in neu. The proposal will address each of these data combinations in that section accordingly.

5.4.1. Daodi-UnansQs

Let's first examine *daodi*-UnansQs. An example of *daodi*-UnansQs is restated here as (34). The context structure following Domingo's utterance of (34) is presented in Figure 5.15, and the updated context structure is depicted in Figure 5.16.

UnansQ Scenario: Domingo and Sophia are friends. They are waiting in a long queue for getting their lunch. The staff has called customer 25 many times to get

their meal. However, that customer still does not show up, which delays service for everyone else. Domingo is very annoyed and utters to Sophia.

(34) Daodi she shi na er-shi-wu hao?
daodi who be that two-ten-five number

a. DC_{Sp}: 'Who the hell is that number 25?' (= info(I) and I = {p_1, p_2,...,p_n})

b. DC_{Sp}: 'I am desperate about the question' (= {Desp(Sp, {p_1, p_2,...,p_n})})

Figure 5.15.: The context structure after uttering (34)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • {Desp(Sp, {p_1,p_2,…,p_n})}	{p_1,p_2,…,p_n}	
CG		***ps***: {DC_{Ad} ∪ {info(I)}}

Figure 5.16.: The updated context structure of Figure 5.15

DC_{Sp}	TABLE	DC_{Ad}
info(I)	{p_1,p_2,…,p_n}	
CG CG_o∪{Desp(Sp, {p_1,p_2,…,p_n})}		***ps***: {DC_{Ad} ∪ {info(I)}}

In the proposed analysis, the utterance of (34) is committed to DC_{Sp} and stored in a two-dimensional format: the at-issue content as (34-a) and the non-at-issue content as (34-b) (as depicted in Figure 5.15). While (34-a) is pushed to the Table, (34-b) subsequently updates the CG (consistent with Murray (2014) and Rett (2019, 2020), where the emotive content updates the CG in the context structure). Consequently, the context structure is updated by including {Desp(Sp, {p_1, p_2,...,p_n})} from DC_{Sp} into CG, as shown in Figure 5.16. Since the question is unanswerable, the speaker does not anticipate the addressee to resolve the question. Thus, {DC_{Ad}∪{info(I)}} is projected at the level of *ps*.

Though the addressee cannot resolve the issue that the speaker has raised on the table, the addressee can still demonstrate cooperation and emotional commiseration with the speaker. For instance, the addressee may utter (35) as a response. The context structure after the utterance of (35) is depicted in Figure 5.17.

(35) Sophia: "I don't know. It's annoying." $<$ DC$_{Ad}$ $\cup$ {info(I)} $>$, $<$\{Annoyed(Ad,\{p_1, p_2,..., p_n\})\} $>$

Figure 5.17.: The context structure after uttering (35)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
	{p_1,p_2,…,p_n}	DC$_{Ad}$∪{info(I)}∪ {Annoyed(Ad,{p_1,p_2,…p_n})}
CG CG$_0$∪{Desp(Sp,{p_1,p_2,…,p_n})}	***ps**:*	

The response (35) encompasses two reactions: one towards (34-a) and another towards (34-b). The utterances "*I don't know*" and "*It's annoying*" belong to the at-issue tier. As expected, the response "*I don't know*" is a reaction to (34-a), leading the addressee to commit DC$_{Ad}$∪{info(I)} in their discourse commitments set.

Furthermore, since the speaker's emotive content from *daodi*, {Desp(Sp,{p_1,p_2,...,p_n})}, is stored in the CG, the addressee infers this emotive content and responds with "It's annoying", which can be interpreted as commiseration towards the speaker. Consequently, {Annoyed(Ad,{p_1,p_2,...,p_n})} is added to DC$_{Ad}$.

Importantly, following Farkas' (2022) analysis of non-intrusive questions, the trajectory of an UnansQ, which involves conversational moves between discourse participants, leads to the removal of the issue from the Table, even if the issue remains unresolved. Expanding upon Farkas (2022), in the conversation of UnansQs involving emotive contents, a state of harmony is reached where the speaker and the addressee share the negative emotion, even if they express it using different emotive markers. Consequently, the final context structure of this conversation is illustrated in Figure 5.18.

Figure 5.18.: The final updated context structure of Figure 5.17

DC$_{Sp}$	**TABLE**	**DC**$_{Ad}$
CG $CG_0 \cup \{Desp(Sp, \{p_1,p_2,\ldots,p_n\}),$ $Annoyed(Ad, \{p_1,p_2,\ldots,p_n\})\}$	***ps**:*	

5.4.2. Daodi-EIQs

In the literature on English EIQs, there is a general consensus that EIQs typically take the form of wh-questions, such as wh-*the-hell* questions or wh-*on-earth* questions. An example of *daodi*-EIQs is provided in (36), and the context structure, applying the proposed Table model to (36), is illustrated in Figure 5.19. The updated context structure is also presented in Figure 5.20.

EIQ scenario: Amanda and Cathy are sisters. Amanda is searching for her key in the apartment. Amanda knows that she always puts her key either on the desk or on the bookshelf. Amanda has searched those places, but the key is not there. Amanda utters to Cathy.

(36) Daodi yaoshi zai nali?
daodi key at where
a. DC_{Sp}: 'Where the hell/on earth is the key?' (= info(I), where I = $\{p_1, p_2,\ldots,p_n\}$)
b. DC_{Sp}: 'I am desperate about the question' (= $\{Desp(Sp, \{p_1, p_2,\ldots,p_n\})\}$)

Figure 5.19.: The context structure after uttering (36)

DC$_{Sp}$	**TABLE**	**DC**$_{Ad}$
info(I) • $\{Desp(Sp, \{p_1,p_2,\ldots,p_n\})\}$	$\{p_1,p_2,\ldots,p_n\}$	
CG	***ps**:* $\{DC_{Ad} \cup \{p_1\}, DC_{Ad} \cup \{p_2\},\ldots, DC_{Ad} \cup \{p_n\}\}$	

Figure 5.20.: The updated context structure of Figure 5.19

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
info(I)	$\{p_1,p_2,\ldots,p_n\}$	
CG $CG_0 \cup \{Desp(Sp, \{p_1,p_2,\ldots,p_n\})\}$		***ps***: $\{DC_{Ad} \cup \{p_1\}, DC_{Ad} \cup \{p_2\},\ldots, DC_{Ad} \cup \{p_n\}\}$

Firstly, similar to *daodi*-UnansQs, the at-issue and non-at-issue content of the utterance (36) are recorded in two-dimensional format in DC$_{Sp}$. Next, since EIQs are still information-seeking questions, the conversational moves following an information-seeking question aim to remove the question from the Table. In other words, the ultimate goal for the Speaker is to have their *daodi*-EIQ resolved. Therefore, in the *ps*, Amanda still hopes that Cathy, the addressee, can provide a resolution to the issue raised on the Table. Suppose that Cathy happens to know the answer, as shown in (37). The context structure after Cathy's response is presented in Figure 5.21.

(37) Cathy: "It is on the desk." ($=\{p_1\}$)

Figure 5.21.: The context structure after uttering (37)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
	$\{p_1,p_2,\ldots,p_n\}$	$DC_{Ad} \cup \{p_1\}$
CG $CG_0 \cup \{Desp(Sp, \{p_1,p_2,\ldots,p_n\})\}$		***ps***:

Unlike UnansQs, the issue of EIQs, when placed on the Table, can only be removed if the issue is solved. In this case, as Cathy resolves the question by providing the answer, the conversation in this context structure reaches a stable state. Therefore, the context structure is updated from Figure 5.21 to Figure 5.22.

Figure 5.22.: The final updated context structure of Figure 5.21

DC_{Sp}	TABLE	DC_{Ad}
CG $CG_o \cup \{Desp(Sp, \{p_1, p_2, \ldots, p_n\}), p_1\}$	***ps:***	

5.4.3. Daodi-CorQs

CorQs in Taiwan Mandarin are not limited to the syntactic structure of *or-not* alternative questions, as commonly found in the literature. In Taiwan Mandarin, CorQs can take the form of various types of questions, including wh-questions, alternative questions (referred to as "wh-like questions"), and A-not-A questions, as long as the word *daodi* is used in the question. For example, plain information-seeking questions in Taiwan Mandarin can be expressed as "What do you want to drink?" or "Do you want to drink coffee?" When *daodi* is added to these questions, it creates the effect of cornering and conveys the interpretation of CorQs. Therefore, Taiwan Mandarin CorQs can be formed as "What *daodi* do you want to drink?" or "Do you *daodi* want to drink coffee or not?"

In parallel to English *or-not* alternative questions, *daodi*-CorQs will be used in A-not-A constructions, as shown in (38). Applying the proposed framework, the context structure after uttering (38) is demonstrated in Figure 5.23. Once again, the context structure is updated, resulting in Figure 5.24.

CorQ Scenario: Christina wants to know if Elon, her son, has passed the exam. She asked him once, Elon pretended that he did not hear it. She asked him again, Elon remained silent. Christina walks right in front of Elon and utters to him.

(38) Ni daodi you-mei-you tongquo kaoshi?
you daodi exist-not-exist pass exam
a. DC_{sp}: 'Do you pass the exam or not?' (= info(I), where $I = \{p, \neg p\}$)
b. DC_{Sp}: 'I am desperate about the question.' (= $\{Desp(Sp, \{p, \neg p\})\}$)

Figure 5.23.: The context structure after uttering (38)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • {Desp(Sp, {p, ¬p})}	{p, ¬p}	
CG	***ps:*** {DC_{Ad} ∪ {p}, DC_{Ad} ∪ {¬p}}	

Figure 5.24.: The updated context structure of Figure 5.23

DC_{Sp}	TABLE	DC_{Ad}
info(I)	{p, ¬p}	
CG CG_o∪{Desp(Sp, {p, ¬p})}	***ps:*** {DC_{Ad} ∪ {p}, DC_{Ad} ∪ {¬p}}	

Firstly, the at-issue and non-at-issue content of utterance (38) are separately recorded in the discourse commitments of the speaker (DC_{Sp}), as depicted in Figure 5.23. Consistent with other *daodi*-questions, the emotive content conveyed by *daodi* updates the common ground (CG), as illustrated in Figure 5.24. Similar to *daodi*-EIQs, *daodi*-CorQs serve an information-seeking function, indicating that the primary objective of the conversation is to resolve the raised issue, which can only be accomplished if the addressee demonstrates cooperation by providing an answer. In this scenario, suppose that Elon finally decides to respond with utterance (39) to his mom.

(39) Elon: "Yes, I passed." (= {p})

Figure 5.25.: The context structure after uttering (39)

DC_{Sp}	TABLE	DC_{Ad}
	{p, ¬p}	DC_{Ad} ∪ {p}
CG CG_o∪{Desp(Sp, {p, ¬p})}	***ps:***	

As the addressee provides the answer, the issue raised on the Table can be resolved and removed. The answer provided by the addressee is incorporated into the Common Ground (CG), alongside the speaker's emotional state of desperation conveyed by *daodi*. This updated context structure is depicted in Figure 5.26.

Figure 5.26.: The final updated context structure of Figure 5.25

DC_{Sp}	TABLE	DC_{Ad}
CG $CG_o \cup \{Desp(Sp, \{p, \neg p\}), p\}$	***ps:***	

Above, we have provided an example of the effect of *daodi* using an A-not-A question. The same pattern applies to wh-constituent questions and alternative (wh-like) questions, with the difference lying in the semantic denotations of the issues being discussed. In the case of wh-constituent questions, the denotation of the issue on the Table is represented as $\{p_1, p_2,...,p_n\}$. On the other hand, for alternative questions such as "What *daodi* do you want to drink, coffee or tea?", the denotation of the issue is $\{p_{coffee}, p_{tea}\}$, representing the options of coffee and tea.

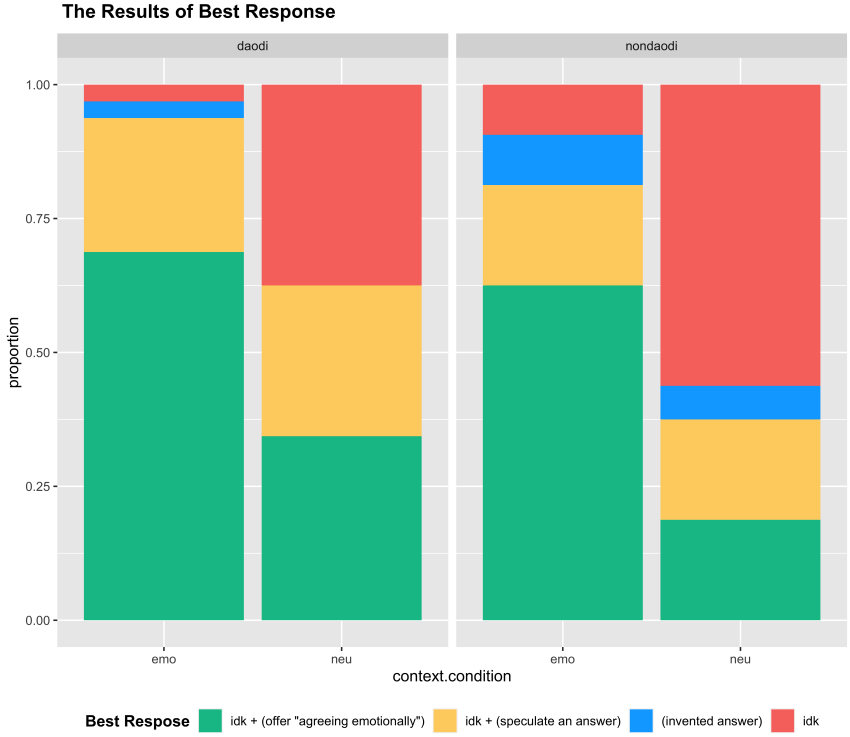
5.4.4. Results of Emo-React Study

In the results of the Emo-React Study, it was observed that native speakers, regardless of whether the expression used was *daodi* or *non-daodi*, consistently chose the response "I don't know + offer agreeing emotionally" to UnansQs in emotive contexts. This indicates that the presence of emotive contexts plays a significant role in signaling the emotive content[10] shared by both the speaker and the addressee, suggesting that they are emotionally affected by the question. To explain these empirical

[10]It is important to note the distinction between the emotive context condition and the neutral context condition in the Emo-React Study. The emotive context condition refers to a situation where discourse participants are emotionally agitated by the question being asked, and this emotional agitation is captured as the emotive content. On the other hand, the neutral context condition indicates that discourse participants are not emotionally affected by the question at all, and therefore, no specific emotive content is associated with it. This differentiation allows us to analyze the impact of emotive contexts on participants' responses to UnansQs and understand how emotions influence the dynamics of the conversation.

findings, I propose in section 5.3.5, as shown in (28), that discourse participants are already emotionally affected by the question in emotive context conditions. As a result, the emotive content $\{\forall x \in \{Sp, Ad\}.\text{Desp}(x, \text{info}(I))\}$ is already stored in the Common Ground (CG), where the semantic denotation of info(I) depends on the types of questions being asked. The Figure depicting the results of the Emo-React Study is presented again here as Figure 5.27 for reference.

Figure 5.27.: The Results of Best Response in Emo-React Study



As depicted in Figure 5.27 , the results of the Emo-React Study can be categorized into four combinations that need to be addressed in this section. These combinations include *daodi*-UnansQ in an emotive context, *non-daodi*-UnansQ in an emotive context, *daodi*-UnansQ in a neutral context, and *non-daodi*-UnansQ in a neutral context. Each combination represents a specific scenario that requires analysis and discussion in order to understand the effects of *daodi* and the emotive context on the participants' responses to UnansQs.

In analyzing the stimuli of UnansQs in an emotive context condition, we will utilize the proposed framework and refer to (28). The *daodi*-UnansQ and *non-daodi*-UnansQ in the emotive scenario are represented by (40) and (41) respectively. The context structure following the utterance of (40) is illustrated in Figure 5.28, while the context structure following the utterance of (41) is presented in Figure 5.29. These context structures provide insights into how the proposed framework captures the dynamics of the conversation and the effects of *daodi* and emotive context on the discourse participants' commitments and reactions.

UnansQ Emotive Scenario: Your friend (Xiao-Ming) and you are working in IT department of a company. Both your friend and you hate one of colleagues (Chang-San), who always ruins the project. This time, that colleague unsurprisingly ruins the project again. Your friend utters to you.

(40) daodi ta shenmeshihuo hui lizhi?
daodi he when will quit
a. DC_{Sp}: 'When will he quit?' (= info(I), where I = $\{p_1, p_2,...,p_n\}$)'
b. DC_{Sp}: 'I am desperate about the question.' (= $\{Desp(Sp,\{p_1, p_2,...,p_n\})\}$)

(41) ta shenmeshihuo hui lizhi?
he when will quit
DC_{Sp}: 'When will he quit?' (= info(I), where I = $\{p_1, p_2,...,p_n\}$)

Figure 5.28.: The context structure after uttering (40)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • $\{Desp(Sp,\{p_1,p_2,\ldots,p_n\})\}$	$\{p_1,p_2,\ldots,p_n\}$	
CG $CG_o \cup \{\forall x \in \{Sp,Ad\}.Desp(x,\{p_1,p_2,\ldots,p_n\})\}$		***ps***: $\{DC_{Ad} \cup \{info(I)\}\}$

Figure 5.29.: The context structure after uttering (41)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
info(I)	{p$_1$,p$_2$,…,p$_n$}	
CG CG$_0$∪{∀x∈{*Sp,Ad*}.Desp(x,{p$_1$,p$_2$,…,p$_n$})}		***ps**:* {DC$_{Ad}$ ∪ {info(I)}}

The context structures in Figure 5.28 and Figure 5.29 differ in terms of the linguistic cue *daodi*, which explicitly conveys the Speaker's despair towards the question in Figure 5.28 but not in Figure 5.29. Additionally, unlike the context structure of *non-daodi*-UnansQs, the context structure of *daodi*-UnansQs requires an update to the CG by adding the emotive content of *daodi* from DC$_{Sp}$, as shown in Figure 5.30. This update reflects the incorporation of the speaker's emotional state into the context structure, capturing the effect of *daodi* on the participants' discourse commitments and the overall dynamics of the conversation.

Figure 5.30.: The context structure after uttering (40)

DC$_{Sp}$	**TABLE**	**DC$_{Ad}$**
info(I)	{p$_1$,p$_2$,…,p$_n$}	
CG CG$_0$∪{∀x∈{*Sp,Ad*}.Desp(x,{p$_1$,p$_2$,…,p$_n$}), Desp(*Sp*,{p$_1$,p$_2$,…,p$_n$})}		***ps**:* {DC$_{Ad}$ ∪ {info(I)}}

It is crucial to note that in both context structures, the addressee has the ability to infer the emotive content from the CG and respond with a "commiserating emotionally" reaction (e.g., "*He is totally a bummer!*"). In the case of *daodi*-UnansQs in an emotive context, the addressee can infer the emotive content from both *daodi* and the overall emotive context condition. However, in the case of *non-daodi*-UnansQs in an emotive context, the addressee can only infer the emotive content from the context condition itself, as the absence of *daodi* limits the explicit conveyance of the speaker's emotional state.

Let's now shift our focus to the UnansQ neutral (Neu) scenario that was used in the study. The *daodi*-UnansQ in the neutral context and the *non-daodi*-UnansQ in the

neutral context are given as (42) and (43), respectively. The context structure after uttering (42) is provided in Figure 5.31, and the context structure after uttering (43) is shown in Figure 5.32.

UnansQ Neutral Scenario: Your friend (Jie) and you go travelling abroad and shopping in a mall today. In a store, you both hear an announcement in an unknown language. Your friend utters to you.

(42) na guangbuo daodi shi zai shuo shenme?
that broadcast daodi be at say about
a. DC_{Sp}: 'What is that broadcast talking about?' (= info(I), where I = {p_1, p_2,...,p_n})'
b. DC_{Sp}: 'I am desperate about the question.' (= {Desp(Sp,{p_1, p_2,...,p_n})})

(43) na guangbuo shi zai shuo shenme?
that broadcast be at say about
DC_{Sp}: 'What is that broadcast talking about?' (= info(I), where I = {p_1, p_2,...,p_n})'

Figure 5.31.: The context structure after uttering (42)

DC_{Sp}	**TABLE**	**DC_{Ad}**
info(I) • {Desp(Sp, {p_1,p_2,…,p_n})}	{p_1,p_2,…,p_n}	
CG	***ps***: {DC_{Ad} ∪ {info(I)}}	

Figure 5.32.: The context structure after uttering (43)

DC_{Sp}	**TABLE**	**DC_{Ad}**
info(I)	{p_1,p_2,…,p_n}	
CG	***ps***: {DC_{Ad} ∪ {info(I)}}	

The distinction between the context structures in Figure 5.31 and Figure 5.32 lies in the additional expression of the CI content of *daodi* in the utterance (42). Despite the context being neutral and the addressee possibly not understanding why the speaker is agitated and using *daodi* in the question, the addressee in the context structure of *daodi*-UnansQs in Neu (Figure 5.31) can still react to the speaker's emotive content. However, in the context structure of *non-daodi*-UnansQ in Neu (Figure 5.32), the addressee can only react to the at-issue content of the utterance, i.e., the issue that has been raised to the Table.

5.5. Discussion

This section discusses the contributions of the proposed analysis to the current literature on expressives in interrogatives. The results of the Emo-React Study in Chapter 4 have shown that it is not necessary for a discourse participant to use specific discourse particles or emotive markers like *daodi* to convey their emotions. Instead, as long as both discourse participants are emotionally affected in the situation or scenario, it is feasible, reasonable, and understandable for them to react to this non-at-issue/emotive content. While pragmatic contexts are known to play a significant role, little has been done in formulating the effects of contexts in an analysis.

In contrast to Farkas' (2022) Table model, the proposed analysis incorporates the CG into the context structure to capture the effects of contexts. Even if a speaker does not explicitly utter *daodi* in questions to convey their despair, their despair already exists in the context, signaling to the addressee that both speaker and addressee are emotionally affected by the question in an emotive context condition. Based on this reasoning, the analysis models the emotive content of emotive contexts in the CG. In other words, the CG becomes a key ingredient in the context structure to demonstrate the effects of contexts. Consequently, even though the speaker does not explicitly state their non-at-issue content in the utterance, which would be added to the discourse commitments set (DC_{Sp}), the addressee, drawing from what is evident (i.e., the emotional affliction of discourse participants, $\{\forall x \in \{Sp,Ad\}.\text{Desp}(x, \text{info}(I)\}$) in the CG, can appropriately react to the utterance by showing emotional support or commiseration with the speaker (e.g., adding $\{\text{Desp}(Ad,\text{info}(I))\}$ to DC_{Ad}).

In addition to capturing the effects of contexts, the proposed framework provides a specific delineation of the context structure for UnansQs. UnansQs are unique among non-canonical questions in that they do not require the resolution of the issue raised[11]. In fact, it is even considered infelicitous if discourse participants attempt to resolve the issue, as exemplified in the example (46) in Chapter 4. Therefore, in the context structure of UnansQs, only $\{DC_{Ad} \cup \{info(I)\}\}$ is allowed to be added at the *ps* level. This restriction allows for a precise representation of the context structure of UnansQs, acknowledging that the focus is on capturing the ongoing discourse and the non-resolved nature of the issue at hand.

Next, I would like to discuss the effect of *daodi* in comparison to Romanian *oare* as discussed in Farkas (2022). Unlike *oare*, the effect of *daodi* does not modify the output context by inserting $\{DC_{Ad} \cup \{info(I)\}\}$ in the *ps*. So, how does *daodi* indicate that a question is non-canonical? I propose that the CI content of *daodi* in interrogatives enhances the engagement of the utterances by seeking reactions or guiding the addressee's understanding, similar to the effect of emojis in discourse (Danesi 2017, Cramer et al. 2016). For example, without *daodi*, EIQs or CorQs would not differ significantly from plain ISQs. However, when *daodi* is added to the question, it signals to the addressee that the question is challenging to answer (in the case of EIQs). Similarly, when *daodi* is used in a question, it indicates to the addressee that the speaker is desperate to have the issue resolved (in the case of CorQs). Lastly, the effect of *daodi* in UnansQs elicits a stronger reaction towards the non-at-issue content of the utterance, as evidenced by the results of the Emo-React Study. These pragmatic considerations regarding the effect of *daodi* demonstrate how *daodi* marks a question as non-canonical.

5.6. Chapter Summary

Chapter 4 provided a comprehensive overview of the *daodi*-data and presented two empirical results: (i) the correlation between the use of *daodi* and pragmatic con-

[11] Some may argue that rhetorical questions (RhQs) also do not require the addressee to resolve the issue, as it is believed that the addressee already knows the answer. Therefore, I argue that it is not accurate to claim that RhQs do not request answers, as the questions themselves are already resolved. We will delve deeper into the topic of RhQs in Chapter 8 to provide a more thorough discussion.

texts, and (ii) the reaction towards UnansQs. The analysis proposed in this chapter effectively captures the *daodi*-data and empirical findings discussed in Chapter 4. The proposed framework comprises two essential components: the expressive/CI contents and the conversational discourse model. These components are intricately intertwined, resulting in a novel Table model where the Discourse Commitment of a discourse participant X, DC_X, records the conversational moves of both the at-issue and non-at-issue content of an utterance in a two-dimensional format.

This developed discourse model fulfills the criteria for an empirically adequate analysis. It goes beyond existing literature, such as Farkas (2022) and Rett (2020), by not only providing a clear and distinct delineation for UnansQs but also significantly distinguishing the discourse commitment of the at-issue content and the non-at-issue content within the discourse commitments set. Most importantly, the analysis effectively models emotive contents conveyed through the linguistic cue *daodi* or pragmatic contexts as discourse commitments added to CG. These discourse commitments, which record the emotive content, elicit the reactions of "agreeing emotionally" from the discourse participants, particularly the addressee by default, in addition to the discourse commitments that record the at-issue content of the utterance.

In contrast to the analyses discussed in Chapter 2 and 3, this analysis gives due consideration to the semantic contributions of expressives in a conversation and how their semantic contributions shape the discourse. In other words, with this developed analysis, the contributions and effects of expressives on the discourse are much more transparent and discernible. Up next is the third part of this dissertation — More on Comparison (The Crosslinguistic Perspective).

Part III.

MORE ON COMPARISON

6. The Crosslinguistic Perspective

This chapter focuses on reviewing expressives in interrogatives from the perspective of cross-linguistic variations. Building upon the analysis presented in Chapter 5, the goal of this thesis is to explore the applicability of the developed framework in accounting for emotive markers in conversations across different languages. Specifically, this chapter examines emotive markers that express a speaker's desperation towards the question, similar to the Taiwan Mandarin particle *daodi*.

Section 6.1 begins with a review of the typology of questions in despair. As desperate questions in English have been extensively studied and discussed in the literature (as seen in Chapter 2), the focus then shifts to two other languages, Japanese and German, for comparison with Taiwan Mandarin *daodi* and English in Sections 6.2 and 6.4 respectively. By surveying the data from these languages, the developed dynamic discourse model is subsequently applied to the Japanese and German data in Sections 6.3 and 6.5 respectively. This analysis allows us to observe how the proposed framework captures the non-at-issue/emotive content of utterances in conversations across languages. Lastly, Section 6.6 proposes a default context structure for questions in despair, encompassing EIQs, CorQs, and UnansQs. The chapter further categorizes two distinct cross-linguistic phenomena related to questions in despair: (i) the use of identical discourse particles to depict a general picture of desperate questions (e.g., Taiwan Mandarin and Japanese), and (ii) the use of different particles or forms (e.g., English and German) to differentiate each type of desperate question.

6.1. The Typology of Questions in Despair

In Chapter 1, we briefly introduced the concept of questions in despair, encompassing EIQs, CorQs, and UnansQs, based on the Taiwan Mandarin *daodi*-data. In Figure 1.2, which displays the cross-linguistic variations of EIQs and CorQs, we now include the data of UnansQs as well, as we have encountered *daodi*-UnansQs in previous

chapters. Thus, an updated view of the cross-linguistic variations of questions in despair is presented in Figure 6.1.

Questions in Despair				
	General		**Specific**	
	Taiwan Mandarin	**Japanese**	**English**	**German**
EIQs	Where ***daodi*** is the key?	Where ***ittai*** is the key?	Where ***the-hell*** is the key?	Wo ist der Schlüssel ***bloß****?*
CorQs	Do you ***daodi*** want to have dinner?	Do you ***ittai*** want to have dinner?	Do you want to have dinner ***or not***?	Möchtest du Abendessen haben ***oder nicht*****?**
UnansQs	Who ***daodi*** is that No. 25?	Who ***ittai*** is that No. 25?	Who ***the-hell*** is that No. 25?	Wer ***verdammt*** nochmal hat den jetzt die 25?

Figure 6.1.: Cross-linguistic Variations (Taiwan Mandarin, Japanese, English and German) of Questions in Despair

Figure 6.1 illustrates that Taiwan Mandarin and Japanese employ the same discourse particle to express these desperate non-canonical questions. Conversely, English and German utilize different discourse markers or structures to convey questions in despair.

This chapter builds upon Figure 6.1 as a starting point, aiming to investigate whether the proposed framework can serve as a unified analysis to account for these cross-linguistic variations.

6.2. The View from Japanese

This section provides an overview of Chang's (2022b) study on the Japanese discourse particle *ittai* in interrogatives, which exhibits similar behavior to the Taiwan Mandarin *daodi*. In questions, *ittai* expresses the speaker's impatience, annoyance, and lack of knowledge regarding the question (Oguro 2017b, Kuroiwa 2019). In other words, its usage conveys the speaker's negative attitudes. We will now exam-

ine the *ittai*-data presented in Chang's study (2022b). An example of *ittai*-EIQs is given in (1).

EIQ scenario: Yui and Taro are a couple. Yui is hosting her birthday party today. Yui asks Taro to only order some drinks and chicken wings for the party. Now Yui sees the pizza on the table and she asks Taro if he has also ordered the pizza, but he says he did not. Yui does not request any guest to bring the food, and also does not see anyone bring the pizza. She utters in the party:

(1) Dare-ga ittai pizza-o chuumonshi-ta no? (Chang 2022:366)
who-TOP ittai pizza-ACC order-PST Q
'Who the hell ordered the pizza?'

Similar to Taiwan Mandarin *daodi*-questions, if Yui does not include *ittai* in (1), the question would be perceived as a regular information-seeking question (ISQ). Therefore, the presence of *ittai* in the utterance indicates the speaker's profound ignorance and desperate need for an answer.

Ittai can also be employed in cornering questions (CorQs) to convey the speaker's frustration with the addressee, who is perceived as uncooperative in providing the desired answer promptly. Therefore, the speaker expresses an urgent and desperate need for the question to be answered (i.e., *cornering effects* (Biezma 2009)). Notably, it is considered odd and infelicitous to initiate a discourse with an *ittai*-question. In other words, *ittai*-questions, in contrast to *non-ittai*-questions (ISQs), are marked questions that are restricted to specific situations. A felicitous dialogue exemplifying *ittai*-CorQs is provided below.

CorQ dialogue: Yui and Taro are a couple. Yui wants to know what Taro wants for dinner, so she utters to Taro (2). However, Taro is busy in playing his Nintendo games, so he does not respond to Yui. Yui is very hungry now, and almost all the restaurants are about to close. She asks (3) to Taro.

(2) Konban nani tabe-tai no? (= ISQ) (Chang 2022b:367)
tonight what eat-want.to Q

'What do you want for dinner tonight?'

(3) Bangohan ittai taberu no, tabe-nai no? (= CorQ) (Chang 2022b:367)
dinner ittai eat Q, eat-not Q
'Do you want to have dinner or not?'

Similar to example (1), if *ittai* is not used in example (3), the question would be a plain information-seeking question (ISQ). As uttering (2) does not yield the desired answer, the speaker avoids repeating (2) and instead utters (3) to corner the addressee into providing the answer. In addition to seeking information, (3) conveys the speaker's desperation towards the question and communicates it to the addressee. These data demonstrate the similarities between Taiwan Mandarin *daodi* and Japanese *ittai*.

Building on the work of David & Gutzmann (2015), Chang (2022b) proposes that *ittai* functions as a shunting use-conditional item (shunting UCI). As a shunting UCI, *ittai* contributes to the interpretation of the utterance solely at the use-conditional level, without affecting the truth-conditional meaning. Chang (2022) provides the following analysis of *ittai*, as shown in (4).

(4) *ittai*: for questions. Taking arguments of type <<s,t>,t >. (Chang 2022b:369)
   a. Truth-conditional content: $[\![ittai]\!]^t = \lambda Q.Q$, given Q is of type <<s,t>,t>.
   b. Use-conditional content: *sets of contexts*, where c_s = speaker in context *c*
      (i) $[\![ittai]\!]^u$= {c: c_s emphasizes that the speaker has tried to search answers for Q in previous time, but answers for Q remain tremendously difficult to get in c_w}
      (ii) $[\![ittai]\!]^u$= *felicitous*, if $c_@ \in$ {c: c_s emphasizes that the speaker has tried to search answers for Q in previous time, but answers for Q remain tremendously difficult to get in c_w}

While Chang (2022b) successfully captures the use-conditional meaning of *ittai* in questions, her proposal does not account for the effect of *ittai* in discourse, particularly in terms of its impact on the addressee's reactions towards the question. The

analysis does not address how the use of *ittai* influences the overall interaction and emotional responses from the addressee.

Going beyond the data presented in Chang (2022b), I will now introduce the usage of *ittai* in the context of UnansQs. Similar to the emotive scenario of *daodi*-UnansQs, *ittai* can also be employed in Japanese UnansQs to convey a sense of desperation and emotional engagement. An example of *ittai* in the context of UnansQs is provided in (5).

UnansQ Emotive Scenario: Domingo and Sophia are friends. They are waiting in a long queue for getting their lunch. The staff has called customer, whose ticket number is 25, many times to get their meal. However, that customer still does not show up, which delays service for everyone else. Domingo is very annoyed and utters to Sophia.

(5) nijugo ban no hito ittai doko-ni iru?!
twenty-five number POSS person ittai where-LOC be
'Where the hell is that number 25?!'

In this particular scenario, we observe that while Taiwan Mandarin *daodi*-UnansQs are formulated as 'who' questions, Japanese expresses *ittai*-UnansQs as 'where' questions. A typical response to UnansQs in Japanese, as shown in (6), focuses solely on addressing the at-issue content of the utterance. However, it is noteworthy that another possible reaction to *ittai*-UnansQs involves the use of the discourse particle '*ne*' at the end of the sentence, serving as an additional response to the emotive content of the utterance, as demonstrated in (7).

(6) wagara nai.
know not
'I don't know.'

(7) doko-ni iru darou ne?
where-LOC be modal DP
a. at issue content: 'I wonder where that customer is?'
b. non-at-issue content: 'I agree with your emotion and I am desperate

about the question together.'

The response depicted in (7) involves several crucial aspects. Firstly, the addressee employs the evidential modal *darou* to rephrase or paraphrase the speaker's question, thereby transforming it into a conjectural or self-addressed question. This usage of *darou* aligns with previous studies (Hara 2006, 2018, 2019; Oguro 2017a; Chang 2020a) that discuss its role in marking questions as self-addressed. Furthermore, the discourse particle *ne* is used at the end of the sentence in (7) to indicate the addressee's agreement with the speaker's emotional state expressed in the question (5).

To generalize, this reaction (7) encompasses three significant perspectives. Firstly, by paraphrasing the UnansQ as a self-addressed question, the addressee acknowledges that the question does not necessarily need to be resolved. This aligns with Farkas' analysis (2022) of *oare*-questions (i.e., non-intrusive questions or conjectural questions) being anticipated to remain unresolved within the *projected set* (*ps*). Secondly, the act of responding with a self-addressed question does not directly resolve the issue on the Table, suggesting that it can be interpreted as an indirect way of conveying "*I don't know*" to the speaker's question. It also signifies that the question holds speculative value. Finally, regarding the non-at-issue content of the question, the presence of the discourse particle *ne* indicates that the addressee deduces and acknowledges the speaker's emotional state, thereby reacting to the conveyed emotive content of *ittai*.

Another possible reaction to (5) is the utterance of (8), which incorporates the discourse particle *yo* along with a falling intonation (↘) to respond to the emotive content of *ittai*.

(8) doko-ni iru-nda yo? ↘
where-LOC be-COP.PRS DP

a. at-issue content: 'Where is he?'
b. non-at-issue content: 'the speaker has negative emotion towards the absent customer.'

Oshima (2014), building on the works of McCready (2009a) and Davis (2011), presents multiple uses of the discourse particle *yo* with a non-rising contour, which

includes falling intonation. Besides the interpretation of blaming ignorance, this usage of *yo* can serve at least three distinct functions: (i) expressing emotion towards the propositional content, (ii) serving as an exclamatory expression of the speaker's mental state or impression, and (iii) indicating intention or plan. In the case of (8), the presence of *yo* adds a tone of accusation and conveys the speaker's dissatisfaction with the customer who did not show up. Similar to example (7), the utterance of (8) clearly demonstrates a reaction to the emotive content within the context structure. While the non-at-issue content of the utterance may not be explicitly projected onto the Table and awaits a response, the emotive content of *ittai*, particularly in the context of UnansQs, still triggers a reaction towards this non-at-issue content within the context structure, as shown in (7) and (8).

Note that I am not claiming that *ittai* marks the question as unanswerable. Rather, it is used to convey the speaker's emotional response or attitude towards the context, as illustrated in the example (5), or towards the topic itself, as exemplified by (9), which represents a Japanese neutral UnansQ.

(9) kamisama-tte iru no?
god-TOP be Q
'Does God exist?'

Ittai can also be used in (9) to express the speaker's emotional reaction towards the at-issue content of the utterance. In this chapter, the focus is specifically on *ittai*-questions as part of the investigation of cross-linguistic data on questions in despair. Other types of questions where the contexts may be emotive but *ittai* is not used, or neutral UnansQs, are not within the scope of this chapter.

In light of the example of *ittai*-UnansQs, it becomes apparent that Chang's (2022b) use-conditional analysis of *ittai* does not fully capture its usage in (5). In this example, the speaker did not attempt to search for answers to the question in the previous interaction, as it is already an UnansQ. This highlights the need for an analysis that can account for *ittai*-UnansQs. Before delving into the analysis of Japanese *ittai*-data, receiving feedback on *ittai* from Prof. Satoshi Tomioka would be valuable for further discussion. Additionally, *ittai* can also be used in a neutral surprise context, as shown

in (10).

Neutral Surprise Scenario: Ellen and her husband know that their teenage son, Marcus, never cleans his room. Today, they decide to clean up Marcus' room. When Ellen opens the door, she is surprised to see that Marcus' room is unprecedentedly clean and tidy. She utters to her husband.

(10) ittai nani-ga okotta no ka?!
ittai what-NOM happened NMLZ Q
'What on earth has happened?!'

In the neutral surprise context, the speaker exhibits a high level of ignorance about the situation. However, in the case of (10), *ittai* does not necessarily convey a negative emotion such as desperation, similar to the English expression "the hell". Rather, *ittai* in (10) indicates that the speaker lacks bias, hints, or any knowledge of how to proceed. Although *ittai* in this scenario does not convey the speaker's desperation in terms of their mental state, it can still be interpreted as conveying linguistic desperation, similar to *daodi*. The speaker in (10) is unable to find any possible answer to their question, and they express linguistic desperation as they perceive the question to be challenging to solve. This example clarifies that *ittai*, like *daodi*, is about expressing desperation towards the question itself rather than reflecting a person's mental state. With this consistent explanation for desperation in the linguistic sense, we can proceed to analyze *ittai*-data in the next section.

6.3. Analyzing Japanese Data

In this section, we aim to apply the proposed commitment-based discourse model to analyze the data involving *ittai*. As previously discussed, *ittai*, similar to Taiwan Mandarin *daodi*, conveys the speaker's linguistic desperation. Building on the insights from Chang (2022b) and the analysis of *ittai*-UnansQs, we can conclude that the speaker is emotionally affected and even desperate in the contexts of EIQs, CorQs, and UnansQs. Therefore, I propose that *ittai* expresses the non-at-issue content that

the speaker is desperate regarding the question, as illustrated in (11).

(11) a. *ittai*, in interrogatives, conveys the non-at-issue content:
"*Speaker is desperate about the question*."
b. the semantic denotation of *ittai*:
{Desp(*Sp*,info(*I*))} ; {Desp(*Sp*,info(*I*))} $\in$ DC_{Sp}

6.3.1. *Ittai*-EIQs

Let us start by revisiting *ittai*-EIQs discussed earlier. The example (1) is restated as (12) along with its semantic denotations. The resulting context structure after uttering (12) is illustrated in Figure 6.2.

(12) Dare-ga ittai pizza-o chuumonshi-ta no?
who-TOP ittai pizza-ACC order-PST Q
a. DC_{Sp}: 'Who the hell ordered the pizza?' (= info(I), where $I = \{p_1,p_2,...,p_n\}$)
b. DC_{Sp}: 'I am desperate about the question.' (= {Desp(*Sp*,$\{p_1,p_2,...,p_n\}$)})

Figure 6.2.: The context structure after uttering (12)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • {Desp(*Sp*, $\{p_1,p_2,\ldots,p_n\}$)}	$\{p_1,p_2,\ldots,p_n\}$	
CG	***ps***: {$DC_{Ad} \cup \{p_1\}$, $DC_{Ad} \cup \{p_2\}$,..., $DC_{Ad} \cup \{p_n\}$}	

In (12), both the at-issue content (12-a) and the non-at-issue content (12-b) are represented in a two-dimensional format within the Discourse Commitments Set of *Speaker* (DC_{Sp}). Regarding the at-issue content, as (12) is a wh-question, the possible resolutions of the question (denoted as '*I*') are added to the Table. As for the non-at-issue content, following Rett (2020), the non-at-issue/emotive content of *ittai*, represented as {Desp(*Sp*,$\{p_1,p_2,...,p_n\}$)} in DC_{Sp}, updates the *Common Ground* (CG) in the subsequent conversational move. Since EIQs are aimed at seeking information,

the speaker expects the addressee to resolve the issue placed on the Table and commit to one of the possible resolutions in the *projected set* (*ps*).

6.3.2. *Ittai*-CorQs

Let's now analyze *ittai*-CorQs. The example (3) is repeated here as (13) along with the corresponding semantic denotations. The context structure after uttering (13) is illustrated in Figure 6.3.

(13) Bangohan ittai taberu no, tabe-nai no?
dinner ittai eat Q, eat-not Q

a. DC_{Sp}: 'Do you want to have dinner or not?' (= info(I), where I= {p, ¬p})

b. DC_{Sp}: 'I am desperate about the question.' (= {Desp(Sp,{p,¬p})})

Figure 6.3.: The context structure after uttering (12)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • {Desp(Sp, {p, ¬p})}	{p, ¬p}	
CG	***ps:*** {DC_{Ad} ∪ {p}, DC_{Ad} ∪ {¬p}}	

Firstly, similar to *ittai*-EIQs, *ittai*-CorQ (3) is added to DC_{Sp}. The at-issue content (13-a) is pushed to the Table, indicating that it is expected to be resolved. On the other hand, the non-at-issue content (13-b) is directly admitted into the CG. Since the purpose of CorQs is to seek resolution, the addressee in the context structure is anticipated to commit to one of the possible resolutions in the *ps*. The context structure can only reach a stable state once the issue on the Table is resolved. Otherwise, as suggested by Beltrama et al. (2018), the speaker should avoid repeating (13) and explore different strategies to achieve resolution.

6.3.3. *Ittai*-UnansQs

Lastly, let us examine the novel data where *ittai* is used in UnansQs. The question (5) is restated as (14) along with the corresponding semantic denotations. The context structure of uttering (14) within the proposed framework is illustrated in Figure 6.4.

(14) nijugo ban no hito ittai doko-ni iru?!
twenty-five number POSS person ittai where-LOC be
a. DC_{Sp}: 'Where the hell is that number 25?!' (= info(I), where I = $\{p_1,p_2,\ldots,p_n\}$)
b. DC_{Sp}: 'I am desperate about the question.' (= $\{Desp(Sp,\{p_1,p_2,\ldots,p_n\})\}$)

Figure 6.4.: The context structure after uttering (14)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • $\{Desp(Sp,\{p_1,p_2,\ldots,p_n\})\}$	$\{p_1,p_2,\ldots,p_n\}$	
CG	***ps*:** $\{DC_{Ad} \cup \{info(I)\}\}$	

In the proposed framework, the context structure captures the elements of (14) within separate discourse commitments of the speaker. The at-issue content (14-a) is transferred from DC_{Sp} to the Table, while the non-at-issue content (14-b) updates the CG, following the analysis by Rett (2020). Unlike *ittai*-EIQs and *ittai*-CorQs, *ittai*-UnansQs are not expected to result in a resolution of the issue on the Table. Therefore, $\{DC_{Ad} \cup info(I)\}$ is included at the *ps* level, indicating that the addressee can choose to remain silent or state "*I don't know*." In accordance with Farkas's (2022) analysis of non-intrusive questions, the context structure of UnansQs can reach a stable state even if the issue remains unresolved and is removed from the Table.

Although the addressee may not be able to resolve the at-issue content of the utterance in UnansQs, she can still make inferences about the emotive content of *ittai* from CG and respond accordingly. Instead of remaining silent or solely stating "*I don't know*", the addressee has the ability to react to the emotive content. For example,

uttering (7) as a response, which is restated here as (15) along with the corresponding semantic denotations, allows the addressee to engage with the emotive aspect of *ittai*. The context structure of (15) is depicted in Figure 6.5.

(15) doko-ni iru darou ne?
where-LOC be modal DP

a. DC_{Ad}: 'I wonder where that customer is?'
(= info(I), where I = $\{p_1,p_2,...,p_n\}$)

b. DC_{Ad}: 'I agree with your emotion and I am desperate about the question together.' (= $\{Desp(Ad,\{p_1,p_2,..,p_n\})\}$)

Figure 6.5.: The context structure after uttering (15)

DC_{Sp}	TABLE	DC_{Ad}
	$\{p_1,p_2,\ldots,p_n\}$	$DC_{Ad} \cup \{info(I)\} \cup \{Desp(Ad,\{p_1,p_2,\ldots p_n\})\}$
CG $CG_0 \cup \{Desp(Sp,\{p_1,p_2,\ldots,p_n\})\}$	***ps***:	

The response's at-issue content remains within the scope of the speaker's question, as expected in the *ps*. However, the non-at-issue content of the utterance, represented by the use of the discourse particle *ne*, signifies that the addressee shares the speaker's sense of desperation regarding the question. The inclusion of the discourse particle *ne* in these utterances serves as evidence that discourse participants react to the non-at-issue content by offering emotional support or expressing empathy in conversations. Consequently, similar to the reactions observed in *daodi*-UnansQs, the discourse participants establish a harmonious state of shared emotive content in the UnansQ conversation, with both participants expressing a sense of desperation towards the UnansQ, as illustrated in Figure 6.6.

Figure 6.6.: The final context structure of the Figure 6.5

DC_{Sp}	TABLE	DC_{Ad}
CG $CG_0 \cup \{Desp(Sp, \{p_1,p_2,\ldots,p_n\}), Desp(Ad, \{p_1,p_2,\ldots,p_n\})\}$	***ps:***	

The proposed commitment-based discourse model has demonstrated its effectiveness in analyzing *ittai*-questions in despair and capturing the reactions associated with them. Moving forward, let us now shift our focus to the perspective of German questions in despair.

6.4. The View from German

This section provides a review of the German data concerning questions in despair. As discussed in section 6.1, German employs various particles or forms to express such questions. We will begin with German EIQs. Eckardt & Yu (2020) analyze the use of the particle *bloß* as a marker of EIQs. It signifies that the speaker has already dismissed the answers to the question that she considered likely in a previous instance. An example illustrating *bloß*-EIQs is given in (16).

(16) Wer hat bloß Pizza bestellt?
who has bloß Pizza order
'Who on earth ordered the pizza?'

(16) without the particle *bloß* is a plain information-seeking question (ISQ) in German. Previous studies, such as Thurmair (1989) and Kwon (2005), have described examples like (16) as "*urgent questions*" or "*can't find the value questions*" (Bayer & Obenauer, 2011). The sense of urgency or the inability to find a suitable answer is argued to arise through implicature, as analyzed by den Dikken & Giannakidou (2002) in their study on domain widening. According to their analysis, the speaker has already exhausted all possible and reasonable answers, leading to a state of despair where the speaker must consider unlikely alternatives. Taking into account these

previous studies on *bloß*-EIQs, it becomes evident that in the context of uttering such questions, the speaker experiences desperation due to the perceived loss of possible answers.

Parallel to English *or-not*-alternative questions, German also employs the form of alternative questions, where two opposite alternatives are expressed to convey the reading of cornering questions (CorQs). Drawing on the scenario of *ittai*-CorQs, an example of German CorQs is provided in (17).

(17) Möchtest du Abendessen haben oder nicht?
would you dinner have or not
'Would you want to have dinner or not?'

Similar to English, Taiwan Mandarin, and Japanese CorQs, German CorQs (e.g., (17)) cannot be used at the beginning of a discourse. This aligns with the explanation of cornering effects provided by Beltrama et al. (2018).

Lastly, let's examine German UnansQs, which can be categorized into neutral UnansQs and emotive UnansQs. An example of a German neutral UnansQ is provided in (18).

(18) Existiert Gott?
exist God
'Does God exist?'

As mentioned earlier, the main focus of this chapter is to investigate questions in despair from a cross-linguistic perspective. In this section, we will specifically examine the possible expressions of emotive UnansQs in German. Drawing upon the scenario we used for *ittai*-UnansQs (i.e., (5)), German employs the word '*verdammt*', which translates to '*damn*' in English, in '*who*'-UnansQs, and uses '*Idiot*', similar to the English term '*idiot*', in '*where*'-UnansQs. These examples are illustrated in (19) and (20) respectively.

(19) Wer verdammt nochmal hat denn jetzt die 25?!
who damn still have particle now the 25
'Who the hell is that number 25 now?!'

(20) Wo ist der Idiot mit der 25?
where is the idiot with the 25
'Where is that idiot with the number 25?'

In response to the strong emotive content expressed in the utterances (19) or (20), the reactions are provided in (21) and (22) respectively.

(21) Keine Ahnung.
no idea
'No idea.'

(22) Ja, so ein Idiot...
yea, so an idiot
'yea, what an idiot...'

While (21) represents a standard response towards the at-issue content of German neutral or emotive UnansQs, (22) is a clear reaction that specifically targets the non-at-issue content of (19) and (20), namely the emotive content expressed by the expressive *verdammt* and *Idiot*.

6.5. Analyzing German Data

As we have surveyed the German data of questions in despair, this section aims to analyze these data within the proposed dynamic framework. Unlike Taiwan Mandarin and Japanese, where the particles *daodi* and *ittai* are used in all three kinds of questions in despair, German employs different linguistic words or forms. Specifically, it uses *bloß* to form EIQs, *oder-nicht* (or-not) in the form of alternative questions, and emotive expressives to convey the readings of emotive UnansQs. Consequently, it is necessary to proceed with a careful examination of how the proposed framework

applies to the German data on a case-by-case basis.

6.5.1. *Bloß*-EIQs

Let's begin with the *bloß*-EIQ provided above. Similar to *daodi* and *ittai*, which convey the speaker's desperation in a linguistic sense, *bloß* indicates that the speaker has dismissed possible answers and is desperate to find a value or an answer to the question. Thus, we can derive the at-issue and non-at-issue content of (16), which is repeated here as (23) with the semantic denotations. The context structure of (23) is presented in Figure 6.7.

(23) Wer hat bloß Pizza bestellt?
who has bloß Pizza order
   a. DC_{Sp}: 'Who on earth has ordered the Pizza?' (= info(I), where I = $\{p_1,p_2,...,p_n\}$)
   b. DC_{Sp}: 'I am desperate about the question.' (= $\{Desp(Sp,\{p_1,p_2,...,p_n\})\}$)

Figure 6.7.: The context structure after uttering (23)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • $\{Desp(Sp,\{p_1,p_2,\ldots,p_n\})\}$	$\{p_1,p_2,\ldots,p_n\}$	
CG	***ps***: $\{DC_{Ad} \cup \{p_1\}, DC_{Ad} \cup \{p_2\},\ldots, DC_{Ad} \cup \{p_n\}\}$	

As *bloß*, similar to *daodi* and *ittai*, explicitly conveys a sense of urgency and desperation towards a question for which the speaker cannot find the answer, its semantic denotation can be represented as $\{Desp(Sp,\{p_1,p_2,...,p_n\})\}$. This denotation is recorded in the DC_{Sp} in the proposed framework in a two-dimensional format. According to Thurmair (1989), the speaker has an urgent need to search for answers in the case of *bloß*-EIQs. Therefore, it is evident that *bloß*-EIQs are information-seeking, and the addressee is expected to provide a resolution at the level of *ps* in order to remove the issue from the Table.

6.5.2. *Oder-Nicht*-CorQs

In most cases when CorQs are uttered, the speaker has already experienced emotional distress due to the uncooperative behavior of the addressee in the discourse. As a result, the speaker is compelled to corner the addressee in order to resolve the issue in the conversation. To capture this pragmatic reasoning of cornering effects, I propose that {Desp(*Sp*,{p,¬p}) is committed to DC_{Sp} along with the at-issue content of the utterance (i.e., info(*I*)). It is important to note that the lexical words "*oder-nicht*" do not directly convey the speaker's desperation, but rather serve as a means to initiate the pragmatic reasoning. The commitment {Desp(*Sp*,{p,¬p}) which is later updated in CG, indicates that the speaker has been desperate about the question due to the addressee's continuous failure to provide a resolution in the discourse. Let's analyze the German *oder-nicht*-CorQs (17), repeated here as (24) with their semantic denotations. The context structure for modeling (24) in the proposed framework is shown in Figure 6.8.

(24) Möchtest du Abendessen haben oder nicht?
would you dinner have or not
a. DC_{Sp}: 'Would you want to have dinner or not?' (= info(*I*), where I = {p,¬p})
b. From pragmatic reasoning of cornering effects:
DC_{Sp}: 'I am desperate about the question.' (= {Desp(*Sp*,{p,¬p})})

Figure 6.8.: The context structure after uttering (24)

DC_{Sp}	TABLE	DC_{Ad}
info(*I*) • {Desp(*Sp*, {p, ¬p})}	{p, ¬p}	
CG	***ps:*** {DC_{Ad} ∪ {p}, DC_{Ad} ∪ {¬p}}	

Unlike *bloß*-EIQs, the speaker does not use any explicit emotive marker while uttering *oder-nicht*-CorQs to convey the emotive content. In other words, the phrase *oder-nicht* (= *or-not*) itself does not introduce any non-at-issue content into DC_{Sp}.

However, in the proposed framework, the pragmatic reasoning of cornering effects is still modeled as {Desp(*Sp*,{p,¬p})} and committed to DC_{Sp} to capture the speaker's desperation. As a result, the addressee can perceive the speaker's sense of urgency and desperation in resolving the question, as illustrated in Figure 6.8. Lastly, as we have established that uttering a CorQ is aimed at resolving the question (i.e., removing the issue from the Table), the addressee is expected to commit to one of the possible solutions in *ps*.

6.5.3. *Verdammt/Idiot*-UnansQs

Let us now proceed to analyze emotive UnansQs in German. The previous examples (19) and (20) will be restated as (25) and (26) respectively, accompanied by their semantic denotations. By applying the proposed discourse model to these emotive UnansQs, we present the context structures of (25) and (26) in Figure 6.9 and Figure 6.10 respectively.

(25) Wer verdammt nochmal hat denn jetzt die 25?!
who damn still have particle now the 25

a. DC_{Sp}:'Who the hell is that number 25 now?!' (= info(*I*), where $I = \{p_1,p_2,...,p_n\}$)

b. DC_{Sp}: 'Speaker has negative attitudes towards the question.'
(= {Neg.Attitude(*Sp*,$\{p_1,p_2,...,p_n\}$)})

Figure 6.9.: The context structure after uttering (25)

DC_{Sp}	TABLE	DC_{Ad}
info(*I*) • {Neg.Attitude(*Sp*,$\{p_1,p_2,\ldots,p_n\}$)}	$\{p_1,p_2,\ldots,p_n\}$	
CG	***ps***: $\{DC_{Ad} \cup \{info(I)\}\}$	

(26) Wo ist der Idiot mit der 25?
where is the idiot with the 25

a. DC_{Sp}:'Where is that idiot with the number 25?' (= info(*I*), where $I = \{p_1,p_2,...,p_n\}$)

b. DC_{Sp}: 'Speaker has negative attitudes towards the person, *y*, whose ticket number is 25.' (= {Neg.Attitude(*Sp*, *y*)})

Figure 6.10.: The context structure after uttering (26)

DC_{Sp}	**TABLE**	**DC_{Ad}**
info(*I*) • {Neg.Attitude(*Sp*, *y*)}	{p_1,p_2,…,p_n}	
CG	***ps*:** {DC_{Ad} ∪ {info(*I*)}}	

Like *daodi*, *ittai* and *bloß*, the German expressions *verdammt* and *Idiot* are expressives that convey non-at-issue content in the utterance. *Verdammt* expresses the speaker's negative attitude towards the question, while *Idiot* expresses the speaker's negative attitude towards the person in the context. In the case of the utterance (25), the at-issue content is represented as (25-a), while the non-at-issue content of *verdammt* is represented as (25-b). According to the proposed analysis, the at-issue content and non-at-issue content of the utterance are recorded separately and added toDC_{Sp}. The at-issue content is then pushed to the Table to await resolution, while the non-at-issue content awaits an update to CG. Similarly, in the case of the utterance (26), both the at-issue content (26-a) and the non-at-issue content of the expressive *Idiot*, (26-b), are initially recorded in DC_{Sp}. In the subsequent conversational move, (26-a) is pushed to the Table, while (26-b) updates CG.

Although the speaker does not expect the addressee to solve the question in (25) or (26) (i.e., only {DC_{Ad}∪{info(*I*)}} is projected to *ps*), the addressee is still allowed to infer the emotive/non-at-issue content of *verdammt* or *Idiot* from CG and react to it emotionally. An example of such emotive agreement is given in (27), where the addressee expresses agreement with the emotive content. The context structure of (27) is presented in Figure 6.11 , taking the updated context structure from Figure 6.10 as the example to be reacted to.

(27) Ja, so ein Idiot...
yea, so an idiot

a. DC_{Ad}: (being silent to the at-issue content of the utterance)
(= $DC_{Ad} \cup \{info(I)\}$)

b. DC_{Ad}: 'Addressee has negative attitudes towards the person *y*, whose ticket number is 25.' (= {Neg.Attitude(*Ad*,*y*)})

Figure 6.11.: The context structure after uttering (27)

DC_{Sp}	TABLE	DC_{Ad}
	$\{p_1,p_2,\ldots,p_n\}$	$DC_{Ad} \cup \{info(I)\}$ • {Neg.Attitude(*Ad, y*)}
CG: $CG_o \cup \{Neg.Attitude(Sp, y)\}$	***ps***:	

The addressee's utterance (27) represents a distinct reaction directed towards the non-at-issue content of (26) rather than the at-issue content. In (27), the addressee explicitly remains silent regarding the at-issue content of (26), resulting in the move $DC_{Ad} \cup \{info(I)\}$ which signifies a reaction of silence towards the matter under discussion. Despite the addressee's silence concerning the question, they employ the same expressive term "Idiot" as used by the speaker, thereby demonstrating agreement on the non-at-issue content within the conversational exchange. Consequently, akin to *daodi*-UnansQs and *ittai*-UnansQs, the final context structure of *Idiot*-UnansQs attains a state of harmony regarding the emotive contents, and the issue is effectively removed from the Table (refer to Figure 6.12).

Figure 6.12.: The final context structure of Figure (27)

DC_{Sp}	TABLE	DC_{Ad}
CG: $CG_o \cup \{Neg.Attitude(Sp, y),$ $Neg.Attitude(Ad, y)\}$	***ps***:	

To conclude this section, the proposed commitment-based discourse model successfully analyzes various types of German questions in despair, including *bloß*-EIQs,

oder-nicht-CorQs, and emotive UnansQs such as *verdammt*-UnansQs and *Idiot*-UnansQs. Although the utterance of *oder-nicht*-CorQs does not explicitly convey the speaker's desperation, the proposed analysis still captures the underlying sense of desperation towards the question by modeling the pragmatic reasoning of cornering effects as {Desp(*Sp*,info(*I*))}. Furthermore, the proposed framework effectively records the non-at-issue content of *bloß*-EIQs, *verdammt*-UnansQs, and *Idiot*-UnansQs separately from the at-issue content. Additionally, the proposed Table model enables the capture of the addressee's reaction towards the non-at-issue content within the context structure. As the emotive content is updated and stored in CG, the addressee can infer this emotive content from CG and respond with commiseration or emotive agreement.

6.6. An Unification of Questions in Despair

In this section, the focus is on unifying different types of non-canonical questions that are referred to as "Questions in Despair". Based on the analysis of cross-linguistic data from languages such as Taiwan Mandarin, Japanese, German, and English, the key factor that characterizes these non-canonical questions is the emotional distress experienced by the discourse participant (i.e., the speaker) in relation to the question in the context. This emotional distress leads to a sense of desperation regarding the question.

To accommodate the typology of questions in despair within the proposed framework, I propose the addition of {Desp(*Sp*, info(*I*))} to both DC_{Sp} and the updated CG. This captures the emotional state of the speaker and its impact on the discourse. Consequently, the CG of the final context structure, after the utterance of "Questions in Despair" is updated by {Desp(*Sp*, info(*I*))}, as depicted in Figure 6.13.

Figure 6.13.: The final context structure of "Questions in Despair"

DC_{Sp}	TABLE	DC_{Ad}
CG $CG_0 \cup \{Desp(Sp, info(I))\}$	***ps:***	

In Figure 6.13, the focus is specifically on emphasizing the context structure of "Questions in Despair" and highlighting the speaker's desperation towards the question. While it is possible for the addressee to also be emotionally affected by the UnansQ in the emotive context condition of the Emo-React study, the current emphasis is solely on the speaker's emotional state.

If the addressee is also agitated by the question in the context or wishes to express empathy towards the speaker, the CG can be further updated by adding {Desp(*Ad*,info(*I*))} or any other similar negative emotions or attitudes as discourse commitments to CG∪{Desp(*Sp*, info(*I*))}.

To summarize, the common thread among EIQs, CorQs, and UnansQs is the speaker's emotional affliction and desperation towards the question. The CG in the context structures of these non-canonical questions effectively captures and represents the speaker's sense of despair, providing a unified perspective under the umbrella term "Questions in Despair".

6.7. Chapter Summary

Chapter 4 focused on Taiwan Mandarin *daodi*-questions in despair, examining their characteristics and implications. Chapter 5 then introduced the commitment-based discourse model as a framework to analyze the emotional content of utterances and predict the reactions to these non-canonical questions. In this chapter, we expand our analysis to include cross-linguistic variations of questions in despair, presenting data from different languages. We discuss how the proposed analysis within the commitment-based framework can effectively account for these variations and provide a comprehensive understanding of questions in despair across languages.

In this chapter, we begin by presenting an overview of cross-linguistic questions in despair. We observe two distinct patterns in the formation of desperate questions across languages. The first pattern, found in English and German, involves the use of various discourse particles or structures to convey desperation in the questions. These particles or structures serve as markers of the speaker's emotional state and indicate their desperate need for an answer or resolution.

The second pattern, observed in Taiwan Mandarin and Japanese, involves the use

of a single discourse particle to formulate questions in despair. In Taiwan Mandarin, the particle *daodi* is employed, while in Japanese, it is *ittai*. These particles carry the specific meaning of desperation and serve as linguistic markers of the speaker's emotional distress.

By identifying these two patterns, we highlight the different linguistic strategies employed by languages to express questions in despair. This analysis sheds light on the cross-linguistic variations in the expression of emotional states and provides insights into the ways different languages encode and convey emotive information.

In the following section, the chapter focuses on the analysis of Japanese *ittai*-questions in despair. The proposed framework captures the emotive content expressed by the discourse particle *ittai* at the level of Discourse Commitments Set (DC_{Sp}). Simultaneously, the at-issue content of the question is added to DC_{Sp}, raising the issue to the Table for resolution.

Of particular importance is the recording of the emotive content associated with *ittai* in the context structure. This allows the addressee to infer the non-at-issue content conveyed by *ittai* from the Common Ground (CG). As a result, the addressee can react to the non-at-issue content by using the discourse particle *ne* in their utterance. This particle serves to indicate emotional commiseration with the speaker, acknowledging and sharing their emotional state.

This analysis highlights the interaction between the emotive content expressed by *ittai* and the addressee's response, showcasing the role of discourse particles in conveying and reciprocating emotional states in Japanese questions in despair.

In addition to the analysis of Japanese data, the chapter also delves into German questions in despair. The proposed framework allows for a comparable analysis of German *bloß*-EIQs to Taiwan Mandarin *daodi*-EIQs or Japanese *ittai*-EIQs. These questions involve the use of emotive markers to express non-at-issue or emotive content. The speaker, who is desperate about the question in the discourse, conveys this desperation through the inclusion of Desp(Sp,p,¬p) in DC_{Sp}, utilizing pragmatic reasoning.

Regarding German oder-nicht-CorQs, although these questions do not explicitly use emotive markers to convey non-at-issue or emotive content, the speaker's des-

peration about the question in the discourse is still captured through the inclusion of {Desp(Sp,{p,¬p})} in DC_{Sp}. This demonstrates the significance of pragmatic reasoning in conveying the speaker's emotional state.

In the case of emotive UnansQs, German freely utilizes various emotive markers, such as *verdammt* and *Idiot*, in the utterance to convey the speaker's negative attitudes towards the question. These markers serve to express non-at-issue or emotive content while also raising the issue to the Table for resolution. Importantly, when the issue on the Table is not solvable, individuals infer the non-at-issue or emotive content of the utterance from the CG and react accordingly. This highlights the pivotal role of non-at-issue content in shaping conversations.

Overall, the analysis of German questions in despair within the proposed framework showcases the importance of considering non-at-issue or emotive content and its impact on conversation dynamics.

Lastly, the chapter puts forth the proposal that the CG of the context structure for "Questions in Despair" is consistently updated by adding {Desp(Sp, info(I))}. Regardless of whether emotive markers are used in the utterance (such as the pragmatic reasoning of cornering effects in CorQs), the context structure of these non-canonical questions consistently indicates that the speaker is experiencing despair towards the question in the discourse. Furthermore, the addressee has the potential to react to this sense of desperation inferred from the CG. The fourth and final part of this dissertation will delve into further exploration of pragmatic contexts — More on Pragmatic Contexts.

Part IV.

MORE ON PRAGMATIC CONTEXT

7. Discussions

7.1. Rhetorical Questions

Rhode (2006) initially analyzes rhetorical questions (RhQs) as redundant questions since they lack informative content but convey an assertive meaning. Uttering a RhQ implies the speaker's bias towards a particular answer, serving the purpose of aligning beliefs between the speaker and the addressee. Caponigro & Sprouse (2007) propose that rhetorical questions are not semantically different from ordinary questions, but they diverge at the pragmatic level. When a question is interpreted as a RhQ, both the speaker and the addressee already know the answer, as the obviousness of the answer is clear to both participants. Conversely, when a question is interpreted as an ordinary question, the speaker sincerely seeks an answer and believes that the addressee possesses the answer. Previous studies on RhQs demonstrate that the speaker does not actually expect the addressee to provide a resolution to the question. The analyses of RhQs offer insights into comparing rhetorical questions with unanswerable questions, as both types of non-canonical questions do not require the answer to be resolved. In Mandarin Chinese, RhQs can be distinguished from information-seeking questions (ISQs) through features such as F0 and voice quality (Zahner et al., 2020), and Taiwan Mandarin RhQs behave similarly to Mandarin Chinese. An example of Taiwan Mandarin RhQs is provided in (1).

RhQ scenario: A and B are teachers of kindergarten. They are buying fruit together for children's picnic. A and B know that no kid likes to eat the fruit with strong smell. A fruit stall, selling durians, keeps persuading A to buy durians. A cannot figure out who likes to eat durians, so A utters to B.

(1) she hui xihuan chi liulian?
who would like eat durian
'Who would like to eat durians'

As mentioned earlier, the sentence (1) can be interpreted as both an information-seeking question (ISQ) and a rhetorical question (RhQ), with the distinction relying on prosodic differences on the word '*she*' (= *who*), specifically the intonation pattern. Additionally, considering that the scenario is emotionally charged for Speaker A, the discourse particle *daodi* can be employed in (1), as exemplified in (2). Applying the proposed analysis to (2), the context structure of the utterance is presented in Figure 7.1.

(2) daodi she hui xihuan chi liulian?
daodi who would like eat durain
a. DC_{Sp}: 'Who would like to eat durians?' (= info(I), where $I = \{p_1,p_2,...,p_{nobody}\}$)
b. DC_{Sp}: 'I am desperate about the question.' (= $\{Desp(Sp,\{p_1,p_2,...,p_{nobody}\})\}$)

Figure 7.1.: The context structure after uttering (2)

DC_{Sp}	TABLE	DC_{Ad}
Info(I) • $\{Desp(Sp,\{p_1,p_2,\ldots,p_{nobody}\})\}$	$\{p_1,p_2,\ldots,p_{nobody}\}$	
CG: $CG_o \cup \{p_{nobody}\}$		***ps***: $\{DC_{Ad} \cup \{p_{nobody}\}\}$

Based on the analysis proposed, in accordance with Caponigro & Sprouse (2007), the utterance (2) is interpreted as a rhetorical question (RhQ) when both the speaker and the addressee are already aware of the answer. Consequently, in the proposed framework, the answer, "*nobody would like to eat durians* (= $\{p_{nobody}\}$)", is already represented in the Common Ground (CG). Furthermore, following Caponigro & Sprouse (2007), there is no distinction in deriving the semantic denotation of the at-issue content between a RhQ and an information-seeking question (ISQ). Therefore, possible resolutions of the issue are still projected to the Table and await resolution.

Importantly, adhering to Rhode (2006), only the most evident answer, which is already known to the discourse participants, is projected to the level of *ps*. This implies that the speaker is verifying the answer with the addressee, despite both participants

already sharing a mutual belief in the CG. Finally, the non-at-issue content of *daodi* in RhQs serves to emphasize that the answer to the question is exceedingly obvious, and the speaker's desperation stems from being unable to find any alternative value or answer to the question.

In the proposed analysis, the level of *ps* in the context structure can indeed aid in distinguishing whether the utterance is an information-seeking question (ISQ) or a rhetorical question (RhQ). When the utterance is a RhQ, it indicates that the speaker anticipates the addressee to already be aware of the most evident and correct answer to the question. As a result, only the resolution itself is projected to be committed by the addressee in *ps*. This distinction in the commitment projection reflects the speaker's expectation that the addressee is not required to actively resolve the question but rather confirm their mutual knowledge or understanding of the answer.

Logically, the most appropriate response to rhetorical questions (RhQs) is to provide the most obvious and already known answer to the speaker, as it helps synchronize the beliefs between the speaker and the addressee (Rhode, 2006). However, when it comes to emotive RhQs, such as *daodi*-RhQs, the reaction can extend beyond just the standard answer and may involve responding to the non-at-issue content of the utterance in the context structure. The reaction of native Taiwanese speakers to (2) is exemplified in (3), and the corresponding context structure is illustrated in Figure 7.2.

(3) shi ya. liulian zheme chou .
yes DP durian this smelly
   a. towards at-issue content of (2): 'Yeah (nobody would like to buy durians).'
   b. towards non-at-issue content of *daodi* in (2): 'Durians are this smelly' (=$\{$Find.Smelly(Ad,*y*)$\}$, where y = durians)

Figure 7.2.: The context structure after uttering (3)

DC_{Sp}	TABLE	DC_{Ad}
	$\{p_1, p_2, \ldots, p_{nobody}\}$	$DC_{Ad} \cup \{p_{nobody}\} \cup \{\text{Find.Smelly}(Ad, y)\}$
CG: $CG_o \cup \{p_{nobody}, \text{Desp}(Sp, \{p_1, p_2, \ldots, p_{nobody}\})\}$		***ps***:

Please note that in Figure 7.2, the emotive content conveyed by the speaker through the use of *daodi* has already been updated in the context structure's Common Ground (CG) (cf. Figure 7.1). The addressee not only commits to the expected answer in the conversation of RhQs but also reacts to the emotive content expressed by the speaker. This finding aligns with Rhode's (2006) analysis, which suggests that the purpose of RhQs is to synchronize the commitments of the discourse participants. Interestingly, the addressee tends to synchronize their perception of the speaker's emotion as well, agreeing emotionally with the speaker's sentiment that durians are indeed smelly and that there is no other value to the question. Based on this example, it is evident that the reactions to RhQs and UnansQs are similar. Both types of questions do not require the questions to be resolved, as the answers are already known for RhQs and impossible to find for UnansQs. What is particularly intriguing is that the reaction solely to the at-issue content of the utterance appears to be insufficient. In the case of RhQs, the addressee responds with a mere "*yeah*", and in the case of UnansQs, the addressee responds with "*I don't know*". However, the addressee tends to optimize their reactions, especially in conversations involving RhQs and UnansQs. Recognizing that it would be redundant to solely react to the issue on the Table, the addressee also responds to other commitments present in the context structure, such as the emotive content conveyed by *daodi*, in order to steer the conversation.

7.2. Self-Addressed Questions

In addition to "Questions in Despair", Chang (2022b) extends the analysis to include instances where *ittai* is used in self-addressed questions, also known as conjectural questions or SAQs. The proposed framework is capable of capturing the use of *ittai* in self-addressed questions as well. An example of an *ittai*-SAQ taken from Chang

(2022b) is provided in (4) along with its corresponding semantic denotations. By applying the proposed analysis, the context structure of (4) is depicted in Figure 7.3.

SAQ scenario: Yui and Mizuki are flatmates. Yui has been looking for her ring for hours, but she cannot find it. Yui never tells Mizuki where she keeps her ring. Yui utters next to Mizuki.

(4) Yubiwa ittai doko-ni oi-ta kana? (Chang 2022b:368)
ring ittai where-LOC put-PST Q
a. DC_{Sp}: '(I wonder) where the ring is.' (= info(I), where $I = \{p_1,p_2,...,p_n\}$)
b. DC_{Sp}: 'I am desperate about the question.' (= $\{Desp(Sp,\{p_1,p_2,...,p_n\})\}$)

Figure 7.3.: The context structure after uttering (4)

DC_{Sp}	TABLE	DC_{Ad}
info(I) • $\{Desp(Sp,\{p_1,p_2,\ldots,p_n\})\}$	$\{p_1,p_2,\ldots,p_n\}$	
CG	***ps***: $\{DC_{Ad} \cup \{p_1\}, DC_{Ad} \cup \{p_n\}, DC_{Ad} \cup \{info(I)\}\}$	

The self-addressed question particle "*kana*" in Japanese functions similarly to the Romanian discourse marker *oare* (Farkas, 2022). It weakens the assumption of "*Addressee compliance*", which is a default assumption in canonical questions (as discussed in Farkas, 2022, or (4) in Chapter 1). This weakening allows the issue, introduced by the speaker's move, to remain unresolved in future conversational states. Consequently, following Farkas (2022), both possible resolutions of the issue and $\{DC_{Ad} \cup \{info(I)\}\}$ are projected at the level of *ps*. This implies that the addressee is not necessarily expected to resolve the issue, but if the addressee happens to know the answer, it would also be acceptable for her to provide a solution to the question.

The context structure of SAQs exhibits a clear distinction between EIQs and UnansQs. In the context structure of EIQs, the addressee is still anticipated to provide a resolution to the issue, resulting in only the possible answers being projected to the

level of *ps*. On the other hand, in the context structure of UnansQs, the addressee is not expected to resolve the issue at all, and only $\{DC_{Ad} \cup info(I)\}$ is added to the level of *ps*. The context structure of SAQs appears to fall between these two types of non-canonical questions, indicating that the addressee may choose to resolve the question or leave it unanswered.

7.3. Open Issues

In this section, we will address three main topics. Firstly, we will delve into the complex and unexpected results obtained from the Emo-Daodi Study. Secondly, we will shift our focus to the interpretation of non-canonical questions in the context of surprise. Lastly, we will examine an example where disagreements arise over the expressive content, could serve as a potential topic for future research.

In the Emo-Daodi Study, the initial hypothesis was that *daodi*-questions would be preferred over *non-daodi*-questions in an emotive context. However, the results of two specific stimuli in emotive contexts, namely (5) and (6), did not align with this prediction.

(5) **Emotional-loaded context (= EIQ context)**
A and B are friends, and they are in a small sightseeing area and it seems that there is only one WC nearby. A is in an urgent need to use the WC, but the WC is occupied. (5 minutes passed. A came back to check the WC, but WC remained occupied.) A decides to check if there is other WC around that she can use. A has tried to find an available WC for 10 minutes, but she cannot fine one. So, A utters to B:

(a) *Daodi* where is the next, closest toilet?

(b) Where is the next, closest toilet?

(6) **Emotional-loaded context (= CorQ context)**
(A is a customer and B is a shop owner. A and B are friends)
A: May I get the AAA battery here?
B: No, I don't sell it here.

A: May I get the AAA battery in the shop over there?
B: No, they also don't sell it.
A asks B:

(a) *Daodi* where can I buy AAA battery?

(b) Where can I buy AAA battery?

The participants' judgments regarding these stimuli exhibited a decrease in clarity. In contrast to the ambiguous judgments observed for stimuli (5) and (6), native Taiwanese speakers unanimously favored *daodi*-questions in response to stimuli (7) and (8).

(7) **Emotional-loaded context (= EIQ context)**
B is A's best friend. B has complained about her job and said to A that she would quit and find a new job for the past 5 years. B always complains that she didn't get along well with her colleagues, and her boss always gives her too much of work that she has to stay in the office almost until 10 pm. A has felt more and more annoyed at listening to B's complaint about her job for the past 5 years. A always believes that B will quit her job after listening to her complaint. Today A and B have dinner together. B starts complaining her job (the same one) again. So, A utters to B:

(a) Do you *daodi* want to quit the job?

(b) Do you want to quit the job?

(8) **Emotional-loaded context (= CorQ context)**
(A is a customer and B is a staff of a restaurant)
A: I'm in a hurry. How long will I need to wait for getting the meal.
B: 10 min.
(10 min passed and A still did not get the meal)
A: Is the meal ready?
B: Your meal will be ready soon for you.
(20 min passed, A still did not get the meal)
So, A utters to B:

(a) How long *daodi* will I need to wait for the meal?

(b) How long will I need to wait for the meal?

The contexts for stimuli (5), (6), (7) and (8) undoubtedly evoke emotional distress for the discourse participant A. The contrast between (5) and (7) lies in the nature of the EIQs, specifically whether the speaker stands to benefit from the answer. Similarly, the contrast between (6) and (8) pertains to the roles of the discourse participants in CorQs.

Let's analyze EIQs (5) and (7) further. In (5), the speaker is in desperate need of finding answers, specifically needing to locate a WC to use. The speaker's motivation in (5) is sincere, as they genuinely seek information to resolve the issue at hand. This aligns with the characteristics of a canonical information-seeking question, as discussed by Searle (1969) and Farkas (2022). On the other hand, in (7), the speaker is also desperate, but receiving answers does not actually impact the speaker in any significant way. Even if the speaker receives an answer from the addressee, they do not derive any benefit from it. Consequently, the focus of (7) is more on conveying the speaker's emotion rather than solely seeking a solution to the issue. This distinction may help explain why *non-daodi* questions are preferred as much as *daodi* questions in the context of (5).

Let's now discuss the case of CorQs, specifically (6) and (8). In these contexts, the speaker benefits from receiving an answer, which distinguishes them from the previous case of EIQs (5) and (7). Hence, the explanation provided for (5) may not be applicable here. As mentioned in the overview of *daodi* use-conditions introduced in Chapter 4, *daodi* can be appropriately used between friends and customers. In the context of (6), the interaction takes place between friends. Although the speaker cannot obtain an answer from her friend, it is reasonable to assume that the speaker does not want to convey her negative emotion for fear of being perceived as a grumpy person by her friend. In other words, the speaker may choose not to express her desperation overtly in order to maintain a positive social dynamic within the friendship. On the other hand, in the context of (8), the interaction is between a customer and a staff member. In this situation, it is more fleixble for the customer to express her desperation and dissatisfaction with the service. Therefore, the customer may feel more comfortable using *daodi*-questions as a means of conveying her dissatisfaction,

rather than using *non-daodi*-questions. These considerations may provide a plausible explanation for why *non-daodi*-questions are as preferred as *daodi*-questions in the context of (6), contrary to the initial prediction.

The second part of this section aims to discuss the interpretation of non-canonical questions in a surprise context. In Chapters 5 and 6, we have previously addressed the usage of *daodi* and *ittai* in surprise contexts, which allows for a distinction between the linguistic sense of desperation and the mental state of desperation. The surprise context is reiterated below.

Neutral Surprise Scenario: Ellen and her husband know that their teenage son, Marcus, never cleans his room. Today, they decide to clean up Marcus' room. When Ellen opens the door, she is surprised to see that Marcus' room is unprecedentedly clean and tidy. She utters to her husband.

(9) women-de erzi daodi fasheng-le shenme shi?!
we-POSS son daodi happen-ASP what thing
'What on earth has happened to our son?!'

On one hand, one may argue that (9) is an EIQ, as the speaker is completely ignorant and genuinely seeks an answer. On the other hand, the addressee in the surprise context is similar to the contexts of UnansQs discussed in previous chapters, as they also lack knowledge of the answer. Therefore, ((9) can also be argued as an UnansQ. According to my proposal, the interpretation of a non-canonical question depends on the speaker's expectation in *ps*. However, it is worth noting that the expectations for EIQs and CorQs in *ps* cannot be distinguished from each other, as both question types are seeking information. Based on these examples, we observe the difficulty in distinguishing between types of non-canonical questions. This difficulty arises from the role of pragmatic contexts, which is also the central focus of this chapter that this dissertation aims to address and discuss. Whether the speaker in the context expects the issue to be resolved or not determines whether the question is an EIQ, an UnansQ, or possibly a SAQ. While the proposed framework is theoretically capable of delineating the types of non-canonical questions, it remains challenging for the addressee to judge and pragmatically interpret the question.

Lastly, I would like to address some potential avenues for future research in this section. In my proposed framework, the updating of the CG is directly influenced by the discourse commitments associated with expressive contents. Unlike the at-issue contents of interrogatives that are resolved, the non-at-issue contents of expressives are left pending for resolution. However, it is worth noting that Hess (2019) presents an alternative perspective on expressives, which challenges this notion. To illustrate this, let us revisit an example from Chapter 5, marked as (10) for reference.

(10) A: Jerry told me some news today. (Hess 2019:21)
B: Yeah?
A: That bastard Kaplan got promoted.
B: Come on, Kaplan is not that bad.

This dialogue between A and B illustrates that B disagrees with A's expressive content concerning Kaplan. It suggests that instead of directly updating the expressive content to the CG, it is also possible to present the expressive content to the Table, where it awaits acceptance or rejection. It is important to note that B's response, "*Kaplan is not that bad.*", pertains to the at-issue tier. In a similar manner, if the non-at-issue meaning of an utterance can be projected to the Table, it raises the question of whether we can predict, in the *ps*, whether the addressee will accept or reject the non-at-issue content on the Table. While my proposal successfully captures and predicts reactions towards non-canonical questions with emotive expressives, I have not considered situations in which disagreements arise over non-at-issue contents. Therefore, this topic remains open for future investigation.

7.4. Chapter Summary

This chapter shifts the focus from cross-linguistic variations of questions in despair to the examination of emotive expressives in two other types of non-canonical questions: rhetorical questions (RhQs) and self-addressed questions (SAQs). Let us begin by exploring the pragmatic contexts of RhQs. Drawing on the work of Rhode (2006) and Caponigro & Sprouse (2007), RhQs are characterized as questions where both

the speaker and the addressee already possess knowledge of the answer. Accordingly, the proposed framework posits that the answer to an RhQ already exists within the Common Ground (CG). Moreover, since the pragmatic purpose of uttering RhQs is to align the beliefs between interlocutors (Rhode 2006), the most apparent answer is projected at the level of the *projected set* (*ps*) in the proposed analysis. By including the answer in the *ps* despite it being already known in the CG, it becomes evident that RhQs are redundant questions. Additionally, the use of *daodi* in RhQs, akin to the situations observed in UnansQs, elicits a response of agreeing with the speaker's sense of despair regarding the inability to find an alternative answer to the question.

While it is true that the addressee already knows the answers to RhQs, the same cannot be said for SAQs. According to Chang (2022), the use of *ittai* in SAQs can also evoke a sense of despair regarding the difficulty of obtaining an answer to the question. In line with Farkas' (2022) concept of non-intrusive questions, the proposed framework predicts that possible answers or $\{DC_{Ad} \cup info(I)\}$ are projected at the level of *ps*, indicating that the addressee is given the opportunity to resolve the question if she possesses the answer, or she can choose to remain silent and participate in speculating potential answers to SAQs with the speaker. The analysis proposed in this dissertation successfully distinguishes and classifies EIQs, SAQs, RhQs, and UnansQs based on commitment-based discourse models.

Lastly, the chapter concludes by highlighting some open issues that could be explored further, particularly concerning cases of disagreements over expressive contents. While the current dissertation primarily focuses on questions in despair and incorporates the analysis of emotive agreement regarding desperate emotions between discourse participants, it is worth exploring whether interlocutors can also establish an emotive agreement in surprise scenarios. This topic holds potential for future research and could provide valuable insights into the dynamics of emotive expressions and their impact on communication.

8. Concluding Remarks

In this dissertation, the primary focus is to examine the interaction between non-canonical questions and emotive expressives, treating it as a case study. From a semantic standpoint, the interpretation of expressives does not directly affect the truth-conditional content of interrogatives. However, from a pragmatic perspective, the presence of emotive markers in interrogatives can influence the reactions and responses of the interlocutors, leading to different communicative outcomes.

The investigation began with two empirical and experimental studies conducted in Chapter 4. The first study, known as the Emo-Daodi Study, aimed to examine the relationship between the use of *daodi* and emotion-loaded contexts. The results revealed a strong correlation between the use of *daodi* and situations where the discourse participants were emotionally agitated. This finding provided evidence for a pragmatic association between the use of *daodi* and emotive contexts. The second study, referred to as the Emo-React Study, built upon the findings of the first study and focused on assessing the naturalness of *daodi* in both emotive and neutral contexts. Importantly, this study also investigated the reactions towards unanswerable questions with and without *daodi* in both emotive and neutral contexts. The results not only showed that *daodi*-questions were rated as more natural than *non-daodi*-questions in emotive contexts but also demonstrated that native speakers, perceiving the speaker's desperate emotion conveyed through the use of *daodi*, responded with an "agreeing emotionally" reaction. Expanding beyond the findings of Gutzmann (2013), it was observed in the Daodi-React Study that pragmatic contexts played a critical role. In the absence of explicit linguistic cues like *daodi*, the context itself served as a signal for the speaker's emotional state to the addressee. In other words, the speaker's agitation stemmed from the context, and expressives were used to reflect the situation at hand.

In Chapter 5, a proposal was made to integrate the two-dimensional meanings

from Potts (2005, 2007a, 2007b) with Table models from Farkas & Bruce (2010) and Farkas (2022) in order to capture the data related to daodi in questions and the reactions towards them. The proposal is based on the following basic assumptions: (i) Consistent with Inquisitive Semantics, the denotations of both declaratives and interrogatives involve a set of propositions called *an issue* (= *I*). The informative content of an issue, represented as info(*I*), is the union of the propositions within *I*. (ii) For interrogatives, the denotation of the issue is inquisitive and non-informative. The addition of info(*I*) to the Discourse Commitments Set of *Speaker* (= DC_{Sp}) is trivial and projects all possible resolutions of *I* to the Table through conventional discourse effects (as discussed in Faller, 2002).

The proposal suggests the following: (i) *Daodi* conveys conventional implicature content that reflects the speaker's desperation about the question. The semantic denotation of daodi is represented as {Desp(*Sp*, info(*I*))}, where *Sp* refers to the speaker and info(*I*) represents the informative content of the issue *I*. This denotation belongs to the Discourse Commitments Set of *Speaker* (DC_{Sp}). The semantic denotation of info(*I*) depends on whether the question is a polar question or a wh-constituent question. For polar questions, info(*I*) is $\{p, \neg p\}$, while for wh-constituent questions, it is $\{p_1, p_2, ..., p_n\}$. (ii) The Discourse Commitment of a discourse participant *X*, DC_X, is used to separately track the conversational moves related to both the at-issue content and the non-at-issue content of an utterance. In the proposed dynamic framework, a *daodi*-unanswerable question is modeled as shown in Figure 8.1. This framework allows for a detailed analysis and representation of the semantic and pragmatic aspects of *daodi*-questions, including their conventional implicature content and the commitment of at-issue utterance.

Figure 8.1.: The context structure after uttering *daodi*-unanswerable questions

<table>
<tr><th>DC_{Sp}</th><th>TABLE</th><th>DC_{Ad}</th></tr>
<tr><td>info(I)
•
{Desp(Sp, {p_1,p_2,…,p_n})}</td><td>{p_1,p_2,…,p_n}</td><td></td></tr>
<tr><td>CG</td><td colspan="2">ps:
$\{DC_{Ad} \cup \{info(I)\}\}$</td></tr>
</table>

In line with Murray (2014) and Rett (2019), the at-issue content within DC_{Sp} is projected to the Table, while the non-at-issue content in DC_{Sp} directly updates the Common Ground (CG). This process is illustrated in Figure 8.2.

Figure 8.2.: The updated context structure of Figure 8.1

DC_{Sp}	TABLE	DC_{Ad}
info(I)	$\{p_1,p_2,\ldots,p_n\}$	
CG $CG_o \cup \{Desp(Sp, \{p_1,p_2,\ldots,p_n\})\}$		***ps***: $\{DC_{Ad} \cup \{info(I)\}\}$

The proposed framework goes beyond the work of Rett (2019, 2020) and Farkas (2022) by not only defining unanswerable questions using the Table model, but also by incorporating the recording and updating of emotive content within the framework. In this approach, the at-issue and non-at-issue content of an utterance are independently recorded in the two-dimensional format inspired by Potts (2005). As a result, the addressee can react to the at-issue content displayed on the Table and infer the non-at-issue content from the CG, allowing them to respond to the emotive content conveyed in the utterance.

In Chapter 6 and 7, the dissertation expands its scope to explore cross-linguistic variations and pragmatic contexts related to other types of non-canonical questions. Chapter 6 extends the proposed framework to analyze data from Japanese and German questions that include emotive markers. The framework proves to be versatile in accommodating cross-linguistic data. Additionally, it is argued that "Questions in Despair", encompassing extreme-ignorance questions, cornering questions, and unanswerable questions, ultimately capture the speaker's desperation about the question in the CG. In Chapter 7, the focus shifts to rhetorical questions and self-addressed questions, specifically those using emotive expressives *daodi* and *ittai*. By applying the proposed framework to these types of questions, a clear distinction can be drawn between unanswerable questions, where only $\{DC_{Ad} \cup info(I)\}$ is added to the *projected set* (*ps*), extreme-ignorance questions, where only possible answers to the question are accepted in *ps*, and self-addressed or conjectural questions, where possible resolutions as well as $\{DC_{Ad} \cup info(I)\}$ are predicted in *ps*. This distinction helps

elucidate the varying pragmatic contexts and expectations associated with these different question types.

In conclusion, the dissertation finds that individuals, through pragmatic reasoning, tend to react to different types of questions in distinct ways. The generalizations drawn from the analyses are as follows:

(i) Information-seeking questions, including bias questions, extreme ignorance questions, and cornering questions, typically elicit a standard answer or response from the interlocutor.

(ii) Self-addressed questions/Conjecture questions prompt a speculative answer or may result in silence.

(iii) Unanswerable questions are typically met with responses such as "*I don't know*", which is already known by both the speaker and the addressee, or with expressions of sympathy or understanding towards the speaker, particularly when pragmatic contexts or linguistic cues play a significant role.

(iv) Rhetorical questions, which typically convey propositions that are already known by both the speaker and the addressee, are generally met with agreement or affirmation. However, when linguistic cues like *daodi* are employed in the question, there may also be expressions of sympathy or commiseration with the speaker.

These generalizations highlight the nuanced ways in which individuals respond to different types of questions based on their pragmatic understanding and the specific linguistic cues or contextual information present.

Appendix: Materials Used in Experimental Empirical Studies

Stimuli of Emo-Daodi Study

Group A (CorQ):

Emotive Context:

(A: a customer; B: staff)

A: I'm in a hurry. How long will I need to wait for getting the meal?

B: 10 min.

(10 min passed, A still does not get the meal)

A: Is the meal ready?

B: almost ready.

(20 min passed, A still does not get the meal)

A asks B:

(1) Candian (daodi) yao den duojiu?
meal (daodi) need wait how.long
'How long (daodi) will I need to wait for the meal?'

Neutral Context:

(A: a customer; B: staff at the ordering counter)

A has a meeting in 30 minutes later. But it's already the lunch time. That means that A only has 30 minutes to get the meal and finish the lunch. A wants to order a meal that he doesn't need to wait for too long. Getting a meal in 10 min would work the best for him. So, A stands at the ordering counter and asks B:

(2) Candian (daodi) yao den duojiu?
meal (daodi) need wait how.long
'How long (daodi) will I need to wait for the meal?'

Group B (CorQ):

Emotive Context:

(A: girlfriend; B: boyfriend)

A: When can we go out to have dinner this evening? I'm hungry.

B: I'm in games. Maybe 15 min later.

(15 min passed. B is still playing games)

A: Hey! I'm very hungry.

B: Almost done, just another 10 min.

(30 min passed, B's game doesn't seem to be over)

So, A asks B:

(3) Women (daodi) shenme shihou neng chuqu chi wancan?
we (daodi) when time can go-out eat dinner
'When (daodi) can we go out having dinner?'

Neutral Context:

(A: girlfriend; B: boyfriend)

A and B decided to have dinner outside this evening, but they didn't decide when to go out. A is searching on the internet which restaurant near around their place has good reviews and choosing which restaurant to go. After reviewing almost 10 restaurants, A decides to have dinner in the Vietnamese restaurant. There is no negative review about that restaurant. A is happy with her decision and A wants to know when they can go out to have dinner. A asks B:

(4) Women (daodi) shenme shihou neng chuqu chi wancan?
we (daodi) when time can go-out eat dinner
'When (daodi) can we go out having dinner?'

Group C (UnansQ):

Emotive Context:

A and B are friends and are waiting in the long queue for their ramen in the food court of the mall. The staff of that ramen restaurant has yelled the customer, whose

ordering number is 25, many times for getting the meal. However, 15 passed, and that staff seemed to have yelled ordering number 25 for almost hundred times. That person keeps not showing up. A is very hungry. Their ramen seems to be delayed by that person who didn't show up and get his meal. A utters to B:

(5) (daodi) she shi na-wei 25 hao?
(daodi) who be that-CLF 25 number
'(Daodi) who is that number 25?'

Neutral Context:

A is a new coming teacher. A is trying to get to know the student and their corresponded student numbers. There are 30 students in her class. It's a bit difficult for her to remember everything in a day. Today A found an exam sheet on the hallway with only the student number 25 on it. A wants to know who is number 25 and wants to return the exam sheet back to the student. A walks to a random student in the classroom, and A asks the student:

(6) (daodi) she shi na-wei 25 hao?
(daodi) who be that-CLF 25 number
'(Daodi) who is that number 25?'

Group D (EIQ):

Emotive Context:

A and B are friends and are in a small sightseeing area and it seems that there is only one WC nearby. A is in an urgent need to use the WC, but the WC is occupied.
(5 min passed. A came back to check the WC, but WC remained occupied.)
A decides to check if there is other WC around that she can use. A has tried to find an available WC for 10 minutes, but she cannot fine one. So, A utters to B:

(7) (Daodi) xia yi-ge zuijin-de cesuo zai nali?
(daodi) next one-CLF closest-POSS toilet at where
'(Daodi) where is the next, closest toilet?'

Neutral Context:

A is a new student at the elementary school. A has only come to this new school since yesterday, so he is still trying to be familiar with the locations of all the facilities on campus. A wants use the WC. However, the WC, near his classroom, is under construction. In addition, A doesn't know which WC near the classroom is available. So, A asks his classmate:

(8) (Daodi) xia yi-ge zuijin-de cesuo zai nali?
(daodi) next one-CLF closest-POSS toilet at where
'(Daodi) where is the next, closest toilet?'

Group E (EIQ):

Emotive Context:

B is A's best friend. B has complained about her job and said to A that she would quit and find a new job for the past 5 years. B always complains that she didn't get along well with her colleagues, and her boss always gives her too much of work that she has to stay in the office almost until 10 pm. Today A and B have dinner together. B starts complaining her job (the same one) again. So, A utters to B:

(9) Ni (daodi) you-mei-you xiangyao cizhi?
You (daodi) have-not-have want quit
'Do you (daodi) want to quit or not?'

Neutral Context:

B is A's best friend. Today A and B have dinner together. It is their first time having dinner together since the college graduation.They start talking about their working life since the graduation. B works in a company that she is not sure if she likes the job. She often feels that she is only doing some tedious work for the company. She couldn't apply what she learnt in the college to her work. After listening B's story, A asks B:

(10) Ni (daodi) you-mei-you xiangyao cizhi?
You (daodi) have-not-have want quit
'Do you (daodi) want to quit or not?'

Group F (CorQ):

Emotive Context:

(A is a customer and B is a shop owner. A and B are friends)

A: May I get the AAA battery here?

B: No, I don't sell it here.

A: May I get the AAA battery in the shop over there?

B: No, they also don't sell it.

A asks B:

(11) Wo (daodi) zai nali keyi maidao san-hao dianchi?
I (daodi) at where can buy three-CLF battery
'Where (daodi) can I buy AAA battery?'

Neutral Context:

(A: a customer; B: the owner of the shop. A and B are friends)

A wants to watch an important baseball game this evening. Just when A sits down and wants to turn on her TV with the remote, A realized that the remote doesn't work. A thinks perhaps the battery for the remote is empty, so A wants to go buying AAA battery. A goes to her friends' small shop right at the corner of her place. A asks B:

(12) Wo (daodi) zai nali keyi maidao san-hao dianchi?
I (daodi) at where can buy three-CLF battery
'Where (daodi) can I buy AAA battery?'

Group G (CorQ):

Emotive Context:

(A: a son; B: a mom)

A: Mom, when will the train come?

B: In 10 min.

(10 min passed, train still has not come yet)

A: Mom, 10 min passed, the train still doesn't come.

B: It will come soon. Be patient.

(15 min passed)
A asks B:

(13) Huoche (daodi) shenme shihuo hui lai?
train (daodi) when time will come
'When (daodi) will the train come?'

Neutral Context:
A is a ten-year-old boy. A and his mom, living in Tainan, are going to take a train to Taipei. It's A's first time going to Taipei. They have decided to visit Taipei 101 and the night market. A packed his water bottle, and a small bag of cookies before leaving home. When they just arrive at the platform of the train station and wait for the train to Taipei, A asks mom:

(14) Huoche (daodi) shenme shihuo hui lai?
train (daodi) when time will come
'When (daodi) will the train come?'

Group H (CorQ):
Emotive Context:
(A: mom; B: son)
A: (Yelling from the kitchen) Hey son! How's the exam? Last week was the exam week, wasn't it? Your dad and I would like to know how's your exam.
B pretends that he didn't hear it and turns the music louder.
(10 min passed)
A: Hey! Did you not hear me? Did you pass the exam?
B remains silent and goes to play video games.
A walks angrily to B's room
A asks B:

(15) Ni (daodi) you-mei-you tongguo kaoshi?
you (daodi) have-not-have pass exam
'Do you (daodi) pass the exam or not?'

Neutral Context:

(A: mom; B: son)

A knows that B had a very important exam that he must pass the exam last week. A is slightly worried at B's performance in the exam. If B passes the exam, A decides to take B to his favorite restaurant and celebrate that his hard work pays off. The result of the exam is announced today, and A sees B look very happy. A asks B:

(16) Ni (daodi) you-mei-you tongguo kaoshi?
you (daodi) have-not-have pass exam
'Do you (daodi) pass the exam or not?'

Group I (Fillers):

Politeness Context:

(A: manager; B: newly-hired employee. A invites B for lunch in a restaurant.)

A: We are really pleased to have you in our team.

B: It's my honor.

A: This restaurant is very popular near around our company.

B: Oh, really?! I can't wait to try it.

(The dishes are served.)

A: How do you like your meal?

B: Very nice!

A: Hmm...I found my dish is somehow plain today.

A utters to B.

(17) keyi qing ni na yan-guan gei wo ma?
can please you take salt-bottle to me Q
'Could you please pass me the salt?'

(18) na yan-guan gei wo!
take salt-bottle to me
'Pass me the salt!'

Imperative Context:

(A: mom; B: son)

A: Don't you have exam tomorrow?

B: Yea, don't worry about it. I'll pass. (B keeps playing games)

A: But you know, it's already past 12, right?

B: Hmm, got it.

(A is about going to sleep. However, the volume of the sound of the game is too loud.)

A: Hey! Too loud!

B: oh ok. (B keeps playing games and does not lower the volume of the sound)

A utters to B.

(19) keyi qing ni ba youxi yinliang tiao di ma?
can please you make game sound adjust low Q
'Could you please lower the volume of the sound of your game?'

(20) Youxi gei wo guandiao!
game make me turn.off
'Turn off the game!'

Politeness Context:

(A and B are colleagues)

A: Hey! Are you alright? You seems pretty busy today.

B: Yea. I have another two meetings later in a row and I still need to prepare some files for other departments.

A: oh wow. Sounds that you have a tough day.

B: yea. It's annoying. Are you available now?

A: Yes. I have a 15-min break before the next meeting coming up.

B utters to A.

(21) keyi qing ni bang wo ba zhe-fen wenjian nage renshibu ma?
can please you help me take this-CLF file give.to HR Q
'Could you please help me take this file to HR?'

(22) ba zhe-fen wenjian nage renshibu!
take this-CLF file give HR

'Take this file to HR!'

Imperative Context:

(A: daughter; B: mom)

A: Mom. I'm hungry. Is there any snack at home?

B: Yes. There are some cookies in the box.

A: Yay! I'm going to take some of them.

B: Sure! Don't forget to wash your hands first.

(A opens the box and A is about to taking the cookies.)

B: Hey! Go wash your hands.

(A pretends that she does not hear it and takes the cookie.)

B utters to A.

(23) keyi qing ni qu xishou ma?
can please you go wash.hand Q
'Could you please go washing your hands?'

(24) ge wo qu xishou!
get me go wash.hand
'Wash your hands!'

Stimuli of Emo-React Study

Condition Group A: emotive x *daodi*:

Context: Your friend (Xiao-Ming) and you are working in IT department of a company. Your friend and you both hate one of colleagues (Chang-San), who always ruins the project. This time, that colleague unsurprisingly ruins the project again. Your friend utters to you.

(25) Ta daodi shenmeshihuo hui lizhi?
he daodi when will quit
'When the hell will he quit?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Next month.
b. I don't know.
c. I don't know. Maybe next month.
d. I don't know. He is such a bummer!

Context: Your friend (Xiao-Wei) and you are having dinner in an exotic restaurant. You ordered omakase dishes to try new flavors you never have tasted before. However, the food are terribly disgusting. Xiao-Wei spits the food out and utters to you.

(26) zhexie liaoli daodi shi shenme zuo-de?
these dish daodi be what make-with
'What the hell are these dishes made with?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sheep offal.
b. I don't know.
c. I don't know. Maybe it is made with sheep offal.
d. I don't know. It is terribly disgusting!

Condition Group B: emotive x *non-daodi*:

Context: Your friend (Xiao-Ming) and you are working in IT department of a company. Your friend and you both hate one of colleagues, who always ruins the project. This time, that colleague unsurprisingly ruins the project again. Your friend utters to you.

(27) Ta shenmeshihuo hui lizhi?
he when will quit
'When will he quit?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Next month.
b. I don't know.
c. I don't know. Maybe next month.
d. I don't know. He is such a bummer!

Context: Your friend (Xiao-Wei) and you are having dinner in an exotic restaurant. You ordered omakase dishes to try new flavors you never have tasted before. However, the food are terribly disgusting. Xiao-Wei spits the food out and utters to you.

(28) zhexie liaoli shi shenme zuo-de?
these dish be what make-with
'What the hell are these dishes made with?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sheep offal.
b. I don't know.
c. I don't know. Maybe it is made with sheep offal.
d. I don't know. It is terribly disgusting!

Condition Group C: neutral x *daodi*: Context: Your friend (Jie) and you go travelling abroad and shopping in a mall today. In a store, you both hear an announcement

in an unknown language. Your friend utters to you.

(29) na guangbuo daodi shi zai shuo shenme?
that broadcast daodi be at say about
'What is that broadcast talking about?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. It's Icelandic.
b. I don't know.
c. I don't know. It's Icelandic.
d. I don't know. It's an interesting language.

Context: Your friend (Lung-Lung) and you do not know your college classmates that well. You two are the only friend for each other. Five years after the graduation, you and Lung-Lung meet and have meal together. Lung-Lung utters to you. "Are the couple in our class daodi still together?"

(30) Women banshang-de bandui daodi hai you-mei-you zai yiqi
our class-POSS couple daodi still exist-not-exist at together
'Is the couple in our class still together or not?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. They have broken up.
b. I don't know.
c. I don't know. Maybe they have broken up.
d. I don't know. I have no clue whether a relationship could last that long.

Condition Group D: neutral x *non-daodi*:

Context: Your friend (Jie) and you go travelling abroad and shopping in a mall today. In a store, you both hear an announcement in an unknown language. Your friend utters to you.

(31) na guangbuo shi zai shuo shenme?
that broadcast be at say about
'What is that broadcast talking about?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. It's Icelandic.
b. I don't know.
c. I don't know. It's Icelandic.
d. I don't know. It's an interesting language.

Context: Your friend (Lung-Lung) and you do not know your college classmates that well. You two are the only friend for each other. Five years after the graduation, you and Lung-Lung meet and have meal together. Lung-Lung utters to you. "Are the couple in our class daodi still together?"

(32) Women banshang-de bandui hai you-mei-you zai yiqi
our class-POSS couple still exist-not-exist at together
'Is the couple in our class still together or not?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. They have broken up.
b. I don't know.

c. I don't know. Maybe they have broken up.

d. I don't know. I have no clue whether a relationship could last that long.

Condition Group E: Fillers (Uttering Politeness Questions or Imperatives)

Context: Your friend (Xiao-Zhen) and you are having dinner in a restaurant together. The salt bottle is just right in front of you. Xiao-Zhen wants to have a bit more salt on her steak. She utters to you.

(33) ni keyi bang wo ba yen na guolai ma?
you can help me hold salt take over Q
'Could you pass me the salt?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: Your friend (A-Zhen) and you are having dinner in a restaurant together. The salt bottle is just right in front of you. A-Zhen wants to have a bit more salt on her steak. She utters to you.

(34) bang wo ba yen na guolai!
help me hold salt take over
'Help me pass the salt!'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: One day morning, your manager (A-Guan) is in a hurry, grabbing your arm and talking to you, "A meeting is going to start." He utters to you.

(35) ni keyi bang wo zhunbei cha-shui ma?
you can help me prepare tea-water Q
'Could you help me prepare some tea and water?'

Question 1: How natural do you find to the question that your manager utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your manager?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: One day morning, your manager (A-Guan) is in a hurry, grabbing your arm and talking to you, "A meeting is going to start." He utters to you.

(36) bang wo zhunbei cha-shui!
help me prepare tea-water
'Help me prepare the tea and water!'

Question 1: How natural do you find to the question that your manager utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your manager?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: Your friend and you are playing together at your yard. A college student, who is your neighbor, is preparing an important exam. Because your friend and you are playing too loudly. That college student opens the window and utters to you.

(37) keyi qing nimen xiaoshen yidian ma?
can please you lower.voice a.bit Q
'Could you please lower a bit your noise?'

Question 1: How natural do you find to the question that your neighbor utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your neighbor?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: Your friend and you are playing together at your yard. A college student, who is your neighbor, is preparing an important exam. Because your friend and you are playing too loudly. That college student opens the window and utters to you.

(38) nimen xiaoshen yidian!
you lower.voice a.bit
'Lower your noice a bit!'

Question 1: How natural do you find to the question that your neighbor utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your neighbor?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: You surprisingly meet your friends on the street and start having a good chat without noticing that you all are somehow blocking the street. Suddenly, an elder utters to you.

(39) keyi qing nimen nang-ge lu ma?
can please you spare-a.bit road Q
'Could you please give way for me?'

Question 1: How natural do you find to the question that the elder utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to the elder?

a. Sure.

b. No.

c. I heard you.

d. I don't know.

Context: You surprisingly meet your friends on the street and start having a good chat without noticing that you all are somehow blocking the street. Suddenly, an elder utters to you.

(40) nimen nang-ge lu!
you spare-a.bit road
'Give way for me!'

Question 1: How natural do you find to the question that the elder utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to the elder?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: You and your friend (Xiao-Qi) lives together and often you cook together at home to save some money. Xiao-Qi suddenly finds out that there is no more sugar. She utters to you.

(41) keyi qu bang wo mai bao tang ma?
can go help me buy bag sugar Q
'Could you go help me buy a bag of sugar?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: You and your friend (Xiao-Qi) lives together and often you cook together at home to save some money. Xiao-Qi suddenly finds out that there is no more sugar. She utters to you.

(42) qu bang wo mai bao tang!
go help me buy bag sugar
'Go help me buy a bag of sugar!'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: Your friend (Xiao-Gua) and you go traveling together. You both waiting at the platform of the train station. Suddenly, you both hear an announcement about the platform-changed information, but you don't hear it that clearly. Your friend utters to you.

(43) keyi qu bangmang wen yixia zhanwuyuan women-de che gai dao
can go help ask a.bit staff we-POSS train change to
nage yuentai?
which platform
'Could you help go asking the staff which platform our train is changed to?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: Your friend (Xiao-Gua) and you go traveling together. You both waiting at the platform of the train station. Suddenly, you both hear an announcement about the platform-changed information, but you don't hear it that clearly. Your friend utters to you.

(44) ni qu wen yixia zhanwuyuan women-de che gai dao nage yuentai!
you go ask a.bit staff we-POSS train change to which platform
'Go asking the staff which platform our train is changed to!'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: Xiao-Fei is your flatmate and you both share the kitchen together. Sometimes you did not wash the dishes as clean as your flatmate. One day, your flatmate utters to you.

(45) keyi qing ni ba wanpan xi ganjing xidian ma?
can please you hold bowl.plate wash clean a.bit Q
'Could you please wash the dishes more cleanly?'

Question 1: How natural do you find to the question that your flatmate utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your flatmate?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: Xiao-Fei is your flatmate and you both share the kitchen together. Sometimes you did not wash the dishes as clean as your flatmate. One day, your flatmate utters to you.

(46) ba wanpan xi ganjing xidian!
hold bowl.plate wash clean a.bit
'Wash the dishes more cleanly!'

Question 1: How natural do you find to the question that your flatmate utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your flatmate?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: Your friend (A-Hung) and you are running a bakery together. One day, the timer/alarm is not going off, and A-Hung notices that the bread in the oven is baked a bit too long. A-Hung utters to you.

(47) keyi gankuai ba mianbao na chulai ma?
can quickly hold bread take out Q
'Could you quickly go take out the bread?'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

Context: Your friend (A-Hung) and you are running a bakery together. One day, the timer/alarm is not going off, and A-Hung notices that the bread in the oven is baked a bit too long. A-Hung utters to you.

(48) kuai ba mianbao na chulai!
quickly hold bread take out
'Quickly take out the bread!'

Question 1: How natural do you find to the question that your friend utters to you? (7-point Likert scale).
Question 2: Which of the following responses is the best response for you to reply to your friend?

a. Sure.
b. No.
c. I heard you.
d. I don't know.

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