

PROPOSITIONAL ATTITUDES AND THEIR CONTENTS IN THE MIDST OF
THE *DE SE*



ARAN ARSLAN

BOĞAZIÇI UNIVERSITY

2025

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THE *DE SE*

Dissertation submitted to the
Institute for Graduate Studies in Social Sciences
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Philosophy

by

Aran Arslan

Boğaziçi University

2025

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The thesis of Aran Arslan

has been approved by:

Prof. Stephen Horton Voss
(Thesis Advisor)

Assoc. Prof. Lucas Thorpe

Assist. Prof. Sun Demirli

Prof. Halit İlhan İnan
(External Member)

Assoc. Prof. Erhan Demircioğlu
(External Member)

May 2025

DECLARATION OF ORIGINALITY

I, Aran Arslan, certify that

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Signature.....

Date

ABSTRACT

Propositional Attitudes and Their Contents in the Midst of the *De Se*

This thesis develops an account of propositional attitudes and their contents that accommodates the purportedly distinctive features of *de se* attitudes (i.e., the first-person thoughts) and contents, thereby elucidating the scope of indexicality and context-sensitivity both in natural languages and human mind. To achieve this, I introduce two novel semantic primitives, almost-impossible and almost-necessary propositions, within the framework of a modified Lewisian-centered content and attitude semantics. This modification, which relies on these novel semantic primitives, remains compatible with the metaphysical foundations of Lewisian counterpart-theoretic semantics for quantified modal logic. The efficacy of this account is subsequently evaluated by addressing the problem of communication in *de se* thought, specifically the communication of first-person or self-locating thoughts across conversational participants.

ÖZET

De Se Bağlamında Önermesel Tutumlar ve İçerikleri

Bu tez, *de se* tutumların (yani birincil-kışı zamiri olan “ben” kavramını içeren düşüncelerin) ve bu düşüncelere ait içeriklerin ayırt edici özelliklerini barındıran genel bir önermesel tutum ve içerik kuramı geliştirmektedir; böylece hem doğal dillerde hem de insan zihninde endeksliğin ve bağlam duyarlılığın kapsamını aydınlatmaktadır. Böyle kapsamlı bir zihin durumu ve içerik kuramını geliştirebilmek için, değiştirilmiş bir Lewisçi-merkezi içerik ve tutum semantiği çerçevesinde, *neredeyse-olanaksız* ve *neredeyse-zorunlu* önermeler olmak üzere iki yeni semantik ilkel sunuyorum. Bu yeni semantik ilkelere dayanan bu değişiklik, nicelenmiş modal mantık için Lewisçi eşdeğer teorik semantiğin metafiziksel temelleriyle uyumlu kalmaktadır. Burada geliştirilen içerik ve düşünce kuramının etkinliği ve doğruluğu, *de se* düşüncelerin iletişim sorunu, başka bir deyişle konuşma katılımcıları arasında birincil kışı veya öz-saptayıcı düşüncelerin iletişimi sorunu ele alınarak değerlendirilmektedir.

CURRICULUM VITAE

NAME: Aran Arslan

DEGREES AWARDED

PhD in Philosophy, 2025, Boğaziçi University

MA in Philosophy, 2019, Boğaziçi University

BSc. in Physics, 2009, Koç University

AREAS OF SPECIAL INTEREST

Philosophy of Mind, Philosophy of Language, Philosophy of Science, Artificial
General Intelligence

PROFESSIONAL EXPERIENCE

Bogazici University, Department of Philosophy, Instructor & Lecturer, 2022-2025

Bogazici University, Department of Philosophy Research Assistantship in

TÜBİTAK's 2232 International Fellowship for Outstanding Researchers for the
Project Models, Theories, Research Programs (MTR), 2019-2022

Koç University, Department of Philosophy, Teaching Assistantship, 2016-2019

GRANTS AND SCHOLARSHIPS

TÜBİTAK's 2232 International Fellowship for Outstanding Researcher under the
supervision of Dr. Frank Zenker: Models, Theories, Research Programs (MTR),
December 2019-2025

Travel grant for GRG- LOGOS Graduate Conferences, College of Social Sciences
and Humanities, Department of Philosophy, Koç University, 25 June 2018

Travel grant for GRG- LOGOS Graduate Conferences, The Institute of Social Sciences, 15 June 2016, Department of Philosophy, Bogazici University
Full-Scholarship, Koc University, 2003-2009

PUBLICATIONS

Master Thesis:

Arslan A., (2019) A Critique of Hintikka's Reconstruction of Kantian Intuition in Logical and Mathematical Reasoning, (Unpublished master's thesis).
Boğaziçi University, Istanbul, Turkey.

Journal Articles

Arslan, A. Zenker, F. (2024) Cohen's convention, the seriousness of errors, and the body of knowledge in behavioral science. *Synthese* 204, 163 (2024).
<https://doi.org/10.1007/s11229-024-04753-2>

Arslan, A. (2022) Kant's Transcendental Theory of Moral Psychology Within Sellars' Manifest Image', *The Journal of Kant Studies in Turkey*, (Vol.1 Issue 1.)

Arslan, A. (2016). Semantics through Reference to the Unknown. *Croatian Journal of Philosophy* 16 (3):381-392.

Arslan A. (2025) Turkish Translation of the Philosophy of Curiosity (Routledge, 2012) by İlhan Inan, from Koc University Press, (Forthcoming, June 2025)

Arslan A. (2024) ‘Cumhuriyetin 100. Yılında 100 Felsefecimiz: İlhan İnan’ın Felsefesi Üzerine Bir İnceleme’, Türkiye Felsefe Derneği, Nobel Yayınları, cilt 2

PRESENTATIONS AND TALKS

Arslan A. (2024) The Problem of Communication in De Se Thoughts, Bogazici University Colloquium Series, Bogazici University, Istanbul, Turkey

Arslan A. (2024) The Problems of Hintikka’s Reconstruction of the Kantian Intuition Kant is 300 Years old!- Symposium, Mersin University, Mersin, Turkey.

Arslan A. (2022) Cohen’s Error-Rates and the Body of Scientific Knowledge, The POND Workshop on Social Sciences, Theory, and Replication, Bogazici University, Istanbul, Turkey

Arslan A. (2018) Semantics through Reference to the Unknown, 3rd International Gülınar Scientific & Cultural Events, Mersin, Turkey.

Arslan A. (2018) The problems of Hintikka’s Reconstruction of Kantian Intuition In Logical and Mathematical Reasoning, Logos, GRG- Graduate Conferences University of Barcelona, Barcelona, Spain.

Arslan A. (2017) Semantics through Reference to the Unknown, 1. METU Young Academicians Meta-Philosophy Conference, Middle East Technical University, Ankara, Turkey.

Arslan A. (2016) Have I just stumbled on a new semantic distinction?, Logos, GRG-
Graduate Conferences, University of Barcelona, Barcelona, Spain

Arslan A. (2012) Scientific Realism: A Case Study: Caloric Theory of Heat, Logos,
GRG- Graduate Conferences, University of Barcelona, Barcelona, Spain.



ACKNOWLEDGEMENTS

I want to thank Stephen Voss and İlhan İnan for their endless support. These two philosophers are not only the philosophers who have been showing me the correct way of looking at things philosophically but more than that, they have become true friends for me. I am deeply indebted to them. I also want to thank Lucas Thorpe, without whom I cannot have the chance to meet with many great philosophers, for being a perfect guide as a friend in showing how a philosophical discussion should be emerged and managed. Further thanks go to Erhan Demircioğlu whom I admire a lot for making me see how philosophy as a thoughtful enterprise ought to be done in such a precise and joyful manner and to Sun Demirli whom I appreciate a lot for showing me that one can still be a metaphysician and a happy man. I also want to thank Manuel Garcia Carpintero, Genoveva Marti, John Perry, Damien Storey and Robert Stalnaker for their valuable comments, feedback and elucidations on the subject matter of this dissertation.

In the fall semester of 2022 at Boğaziçi University, I taught an advanced course (Phil.48R.01) on the nature of de se thoughts. For this teaching experience, I prepared hundreds of pages of class notes and read most of the available literature. I had very brilliant students in that course, and I am grateful to them for pushing me hard and asking very puzzling questions about the content.

Furthermore, I extend many thanks to the Liberta Plus family for creating a lively study environment for me. I also want to thank my dear friend Naci Erdem Gökçe, whom I tragically lost in 2021, for everything he taught me. I am so grateful to my dear friends Emre Sarıgöl, Egemen Doğu Yusufoglu, and Emrah Kanzi for their incredible enthusiasm in enduring all of my philosophical lunacy.

Finally, I want to thank my wife Nevra Yapıcı Arslan for her endless support, patience, encouragement and love and to thank my family Rojda, İnci, Nurdan and Abdurrahman for what they have done for me, which is ineffable in content to describe its value. I want the reader to know that this work cannot be without their existence.

Lastly, my sincere thanks go to the great philosophers whose shoulders I've been fortunate enough to stand upon. And to you, the dedicated reader, who is now also shouldering the journey through this work – thank you.

I also acknowledge that I have been supported by TÜBİTAK as a Ph.D. scholar as part of the 2232 project titled: Models, Theories and Research Programs, 118C257, during the first three years of my studies.

“The more I think about language, the more it amazes me that people ever understand each other at all.”

— Kurt Gödel

This thesis is dedicated to my family, N.A.R.I.N.



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CHAPTER 1

INTRODUCTION

Philosophical dogmas are often implicit but always forceful. They are implicit because they are concealed as the ultimate presuppositions of a philosophical view and they are forceful because the philosophical view of which they are a part becomes unreasonable without them. Hence, when the ultimate presuppositions of a philosophical view become untouchable (i.e., when it becomes unreasonable to go against such presuppositions) for a person who wishes to hold that view, it is considered a philosophical dogma for that person. Philosophical dogmas, for this reason, are personal and view-specific, and they can never be universal. Thus, each philosophical view has its own dogmas from the perspective of its respective defender. For instance, Quine famously argued that from the perspective of a logical empiricist, it can be said that there are two dogmas of empiricism: One is that there is such a thing as the distinction between analytic and synthetic truths. Another is that a statement gets its meaning from the logical constructions of its terms referring to immediate objects of sensory experience. Both of them are dogmas for someone who endorses such pre-Quinian empiricism because it is unreasonable for that person to go against them within the boundaries of the view they endorse.

Folk psychology as a theory consists of such dogmas for someone who accepts it. For example, the first dogma that comes to mind would be that one has beliefs and desires. This is a philosophical dogma because it is unreasonable for someone to believe that they do not have beliefs. Similarly, it is also unreasonable for someone to desire to not have desires at all.¹ The second dogma would be that for

¹Unlike beliefs, the degree of unreasonableness of desiring not to have any desire might be suspicious here. For it is indeed conceivable that someone who endorses Buddhism could reasonably want not to

someone to act in a certain way (e.g., to do @), they must change some of their beliefs or desires (or more accurately they must form a further belief or desire in their total mental state); for it is unreasonable for someone to do @ without having a desire, D, and forming the belief that if they were to do @, they would satisfy D. And the third dogma would be that one has beliefs and desires with uniformly propositional contents. Like the first two dogmas, the third dogma is rooted in folk psychology because it is unreasonable for someone to accept that each propositional attitude they correctly ascribes to themselves by the report ‘*X* believes that *p*’ — where ‘*X*’ denotes the person in question— does not indicate a corresponding mental state they are in whose content is identified with that proposition, *p*.² The proposition associated with the that-clause in the report of a correct ascription in some loose sense appears to denote the content of the mental state attributed by the report to the person in question.

have any desire because the Buddhist theory entails that there is no self who can possibly desire anything. So, this question is legitimate in the Buddhist theory: Who does desire whatsoever if it is not the self? For the Buddhist, desiring not to have any desire is not a philosophical dogma because it is not unreasonable for him to desire not to have any desire given the theory he accepts. Similarly, for an eliminative materialist, it is not unreasonable to desire not to have any desire either. Consequently, neither the Buddhist nor the materialist can accept that desiring not to have any desire is a philosophical dogma because that is not among the ultimate presuppositions of the respective theories they wish to endorse. Yet, they have their own philosophical dogmas of their respective theories. Since neither the Buddhist nor the materialist endorse folk psychology as a theory of mind, the so-called dogma that one has desires is not in the repertoire of their philosophical views. Thus, the suspicion above is not applicable in this case.

²In a recent paper, Umut Baysan (2022) argues that propositional attitudes do not always indicate a corresponding mental state or more precisely that propositional attitudes are not always mental states. According to Baysan’s argument, there are certain entities such as institutions or groups of entities that can bear propositional attitudes but are not subjects of mental states. In his theory, propositional attitudes at most can be taken as the co-instantiations of mental states; in other words, they are typically realized by mental states. For our purposes this kind of a realization is sufficient for us to claim that mental states are typically indicated (or co-instantiated) by propositional attitudes. However, the implicit premise of Baysan’s argument is that only minded entities can be in a certain mental state whereas propositional attitudes do not require a minded entity. I do not think that his implicit premise is true; thus, I think that his argument is not sound. Even though the discussion over this point is not relevant for our general purposes in this thesis, briefly I think that a Davidsonian counter-argument can be presented against Baysan’s argument, such that given the Davidson’s argument from surprise (Davidson: 1982, p.326), only entities with a fully developed language can bear propositional attitudes and since institutions are not such entities, they cannot bear propositional attitudes nor mental states. See, Baysan, Umut., “Are Propositional Attitudes Mental States?”. *Minds & Machines* 32, 417–432 (2022). <https://doi.org/10.1007/s11023-022-09594-x>

However, can rejecting the third dogma be truly unreasonable for someone who accepts folk psychology as a theory? I doubt it can because it is one thing to report one's mental state by an ascription and another thing for one to be in such a state. The crux of the third dogma lies in the following failure of implication: From the statement (A) that the content of a belief *is expressed by* a sentence expressing a proposition, it does not follow (B) that the content itself *is identical to* a proposition. For expressibility is not the same thing as identity. Because the mediation of the sentence is often ignored both in expressibility and identity, in contemporary philosophy of mind and language the notions of content and proposition are often taken as synonymous. Therefore, the validity of inferring (B) from (A) is independent of how we construe terms like 'content' and 'proposition'. Rather, it hinges on a clear understanding of the distinction between the expressibility of a belief by an assertion whose content is expressed by a sentence and the identity of the expressed proposition to the actual content of that belief. This mediation of a sentence in expressibility whose assertion is supposed to give the content of a belief can be found in Stalnaker's influential 1978 paper "Assertion". Stalnaker thinks that there can be a difference between what a sentence expresses in general (its semantic content) and what someone specifically conveys by asserting that sentence (the asserted content).³ Since Stalnaker ignores the mediation of the sentence in identity, he takes both contents to be categorically identical to a proposition (though each is identical to a different proposition). Contrary to the orthodox view, according to which assertoric content is the semantic content of utterance, Stalnaker suggests that

³See. Stalnaker, Robert (1978). 'Assertion'. *Syntax and Semantics* (New York Academic Press) 9:315-332.

sometimes the specific features of a conversation that constitute the context of communication can make them different.⁴

Nevertheless, whatever such semantic items are called (e.g., “contents”, “propositions” or “thoughts”) and however they are characterized (using Fregean senses or ordinary possible worlds), they are taken to be linguistic representations of the world that can be true or false depending on whether the world is as they say as it is. Since the contents of sentences, assertions and beliefs are not concrete particulars that occupy a certain space-time point in the actual world but abstract characterizations that uniformly individuate propositional attitudes corresponding to the relevant mental states, I am inclined to respect the third dogma as I do the first two. Hence, I shall follow the prevailing view that semantic contents of sentences, assertions and beliefs can be characterized through propositions representing (or being identical to) the content of the attitudes one takes toward the proposition in question. The crux of the matter now lies in how we construe the notions of content or proposition. In this thesis, I will diverge significantly from those who previously contented themselves with such linguistic entities framed in terms of Fregean senses or ordinary possible worlds. Instead, by drawing on the critiques of Fregean propositions and ordinary possible worlds offered by John Perry and David Lewis, respectively, I propose characterizing contents through centered worlds, or self-

⁴Kripke's distinction between speaker's reference and semantic reference offers a parallel distinction at the lexical level. For Kripke, speaker's reference and semantic reference are often distinct except certain cases where speaker's general intentions coincide with his specific intentions, the former of which gives the semantic reference and the latter gives the speaker's reference. Despite this parallelism between these distinctions (i.e., between what is said by speaker (semantic reference and semantic content) and what he means (speaker reference and assertoric content), there is a fundamental difference between them. Stalnakerian assertion is purely intensional at sentential context whereas Kripke's understanding of reference of a term is distinct from the internal content of the term (i.e., its intension), thus purely extensional at the lexical level since reference depends on the existence of the object as its extension being referred to. The parallelism is just a parallelism between the pragmatic implications of their accounts. (See. Kripke, Saul A. (1977). 'Speaker's Reference and Semantic Reference'. *Midwest Studies in Philosophy* 2 (1):255-276.)

locating thoughts, which are demonstrably distinct from both the thoughts produced by Frege's Principle of Compositionality and the sets of ordinary possible worlds. Here, I will depart from the Fregean and standard possible-worlds accounts of content and attitude, and instead adopt the Lewisian account of centered content (akin to Perry's relativized propositions) with a modification based on Lewis' counterpart-theoretic semantics for quantified modal logic. Building upon Lewis' counterpart theory, I will introduce two novel semantic primitives: *almost-impossible* and *almost-necessary propositions*. Through this modification, I aim to demonstrate that all *de se* contents or self-locating thoughts can be described as almost-impossible propositions, which will in turn illuminate the underlying mechanism of first-person thought communication and consequently provide a solution to the problem of communication in *de se* thought, specifically the communication of first-person or self-locating thoughts across conversational participants.

The thesis consists of six chapters with several sub-sections. Here are the summaries for each chapter of the dissertation:

Chapter 1 introduces the central problem of the thesis: how to account for propositional attitudes and their contents, particularly *de se* attitudes (first-person thoughts), in a way that accommodates their distinctive features and elucidates the scope of indexicality and context-sensitivity in language and mind. I critique the third dogma of folk psychology—that beliefs and desires have uniformly propositional contents—by highlighting the distinction between the expressibility of a belief's content by a sentence and the identity of that content with a proposition. The chapter outlines the thesis's aim: to develop a modified Lewisian-centered content and attitude semantics by introducing two novel semantic primitives, “almost-impossible” and “almost-necessary” propositions. This framework, built

upon Lewisian counterpart theory, is intended to solve the problem of communicating *de se* thoughts.

Chapter 2 delves into the core challenge the thesis aims to address: the problem of communicating first-person, or *de se* thoughts. It begins by tracing the problem back to Frege's observation that everyone is presented to themselves in a unique, primitive way, making thoughts determined in this way graspable only by the thinker. This raises the question of how such seemingly private thoughts can be communicated. The chapter discusses Frege's "ersatz solution," where the incommunicable *de se* content is replaced by a publicly sharable descriptive version for communication (e.g., "I have been wounded" becomes "he who is speaking to you at this moment has been wounded"). I then introduce Perry's critique of Frege, arguing that Perry's proposal of different "ways of believing" the same content, while insightful, also falls short. The chapter sets the stage for my own solution by highlighting the inadequacies of these traditional approaches in fully explaining the mechanism of *de se* thought communication.

Chapter 3 examines traditional accounts of propositions and their shortcomings in dealing with *de se* attitudes. It categorizes these into two main camps: the Fregean view (propositions as structured, abstract Platonic entities composed of senses) and the Modal view (propositions as sets of possible worlds). The chapter details Perry's refutation of the Fregean view, using the famous "messy shopper" example to demonstrate that Fregean propositions, which are meant to have truth-values that do not vary across individuals or times, cannot adequately explain the cognitive significance and behavioral impact of *de se* beliefs. Perry argues for a

distinction between what is believed (the content) and how it is believed (the belief state or way of believing), suggesting indexicality resides in the state, not the content. I disagree with Perry's on this by claiming that indexicality is ultimately in the content. The chapter then discusses Lewis's refutation of the standard Modal view, particularly its inability to handle the ignorance of noncontingent matters (e.g., mathematical truths all being the same set of all possible worlds) and its problems with *de se* communication. Lewis's alternative—centered worlds and belief as self-ascription of properties—is introduced as an improvement but is also shown to face challenges in explaining communication without misattribution.

Chapter 4 evaluates more recent attempts to solve the problem of communicating *de se* thoughts, focusing on the solutions proposed by Recanati and Kölbel. First, Recanati's solution, rooted in his Mental File Theory, is discussed. Recanati argues for mental indexicality, suggesting that thoughts themselves can be indexical, having truth-at-conditions (i.e., Austinian propositions) rather than absolute truth conditions. He distinguishes between linguistic and psychological modes of presentation, with the latter being mental files. In his account, the self-concept is a unique self-file. Communication involves an alignment of the speaker's self-file and the hearer's speaker-file, constrained by linguistic meaning. Recanati ultimately suggests abandoning the Naïve Conception of Communication and the notion of a single “thought expressed by the utterance.” I critique this by arguing that the Naïve Conception captures the causal order of communication and that discarding the “expressed thought” undermines the expressibility of belief contents.

Second, Kölbel's ersatz solution, a modified centered-world account in a Fregean spirit, is examined. Kölbel introduces concepts of “portable contents” and

“portable surrogates.” He distinguishes between a sentence's Semantic Value (SV, often a centered proposition) and its Conversational Content (CC, a portable surrogate used for communication). Pure indexicals are CC-modifying expressions. I argue that Kölbel's account faces issues: if communication only involves surrogates, the role of nonportable centered contents becomes questionable. Furthermore, examples used to illustrate locally portable contents and CC-modifying expressions are found to be counterintuitive or problematic, suggesting that Kölbel's framework does not fully resolve the communication problem either.

Chapter 5 presents my novel solution to the problem of communicating *de se* thoughts. The core idea is to modify Lewis' centered-world account by introducing two new semantic primitives: “almost-impossible” and “almost-necessary” propositions, grounded in Lewis's counterpart theory. An almost-impossible proposition is defined as a proposition true in only a single centered world (specifically, the actual world at a particular center) and false in all others. Conversely, an almost-necessary proposition is false in only a single centered world and true in all others. I argue that *de se* contents are almost-impossible propositions. The chapter first lays out the metaphysical framework of Lewis's counterpart theory, which avoids trans-world identity issues by positing that individuals exist in only one world but have counterparts in others. It then incorporates the theory of Direct Reference (where singular terms contribute only their reference to propositional content) and Burge's mental account of reference (where reference is a subtype of representation, and indication is another, both contributing to propositional structure). I then refine the notion of a center to include not just an individual and time (or location), but also the individual's body (B), total mental state (S), and

crucially, two representational relations: \mathcal{R}_{subj} (linking the subject term to its referent) and \mathcal{R}_{pred} (linking the predicate term to the property it indicates). Thus, a *de se* content like “I am making a mess now” is represented as a singleton set: $\{\langle x, t_{now}, \mathcal{R}_{subj}(\text{“I”} \rightarrow^{REF} x), \mathcal{R}_{pred}(\text{“making a mess”} \rightarrow^{IND} \text{the property of making mess}) \rangle, W_{@}\}$. This fine-grained structure allows differentiation between, for example, “I am making a mess” and “Perry is making a mess” (even when Perry is the speaker but does not realize that he is Perry), and between different *de se* thoughts like “I am a philosopher” and “I am making a mess,” because either \mathcal{R}_{subj} or \mathcal{R}_{pred} relation will differ. The solution to the communication problem hinges on this singleton set structure. When a speaker asserts a *de se* thought, they convey information (I_1) which is this almost-impossible proposition, and information (I_2) that allows the hearer to ascribe a belief to the speaker. The hearer, using an indexical rule and contextual cues (salience, joint attention, counterfactual validation), correctly interprets the speaker's “I” (via \mathcal{R}_{subj}) as referring to the speaker, not themselves. The hearer then forms a belief with a corresponding singleton set content, but where the \mathcal{R}_{subj} reflects a third-person reference to the speaker (e.g., $\mathcal{R}_{subj}(\text{“he*”} \rightarrow^{REF} \text{Perry})$). Because the original content is a singleton tied to the speaker's specific centered world, the hearer does not misattribute the property to themselves. This model, I argue, preserves the speaker's subjective motivation while ensuring intersubjective understanding.

Chapter 6 summarizes the dissertation's main arguments and contributions. It reiterates that the thesis developed an account of propositional attitudes and their contents, specifically addressing the communication of *de se* thoughts, by introducing “almost-impossible” and “almost-necessary” propositions within a modified Lewisian centered framework. I emphasize that *de se* contents are

characterized as almost-impossible propositions (singleton sets of centered worlds true only in the actual world for that center). This approach is claimed to preserve Lewisian counterpart theory's metaphysical commitments while resolving issues faced by traditional (Fregean, possible-worlds) and other contemporary (Recanati, Kölbel) accounts regarding *de se* communication. The key is that the proposed singleton set structure, incorporating direct reference and Burgean representational relations (\mathcal{R}_{subj} and \mathcal{R}_{pred}), allows for fine-grained content individuation. This ensures that when a hearer interprets a speaker's *de se* assertion, they correctly attribute the self-locating property to the speaker, avoiding the mis-ascription problems that plague other theories. The dissertation concludes by asserting that this framework successfully bridges individual perspective and intersubjective understanding in the communication of first-person thoughts.

CHAPTER 2

THE PROBLEM OF COMMUNICATION

The problem of linguistic communication of first-person thoughts (aka *de se* thoughts or thoughts about oneself as ‘oneself’) initially stems from Frege’s theory of content as well as his conception of the mode of presentation. The problem is put forward by Frege as follows:

Now everyone is presented to himself in a *particular* and *primitive way*, in which he is presented to no-one else. So, when Dr. Lauben thinks that he has been wounded, he will probably take as a basis this primitive way in which he is presented to himself. And only Dr. Lauben himself can grasp thoughts determined in this way. (Frege, 1956: 298) (Emphases are mine).

In Frege’s example of Dr. Gustav Lauben, we see that first-person thoughts can be characterized as private contents that no one but only the thinker of thought can entertain. This shows that such thoughts are graspable only by their thinkers. But if this is so, how is it possible that such thoughts can be communicated to others if they are inaccessible to all but their thinkers? This is the problem of linguistic communication of first-person thoughts. However, we do not see in Frege why such thoughts are private contents, *ergo* why they are incommunicable. Nor do we see what that particular and primitive way might be. In so far as the problem of privacy and incommunicability of thought content is concerned, what we can best extract from Frege would be to claim that in the case of first-person thoughts, the mode of presentation in question is unique to the thinker who can nevertheless be presented to others and himself under a common description/presentation such that anyone who hears the utterance that “I have been wounded” can understand it as “he who is speaking to you at this moment has been wounded”. Frege’s solution for this problem is simply to deny the communication of the first-person (*de se*) content but

assign its communicative function to the sense of its publicly sharable version, which is called *ersatz content* (due to Pagin (2016)). Frege explicitly says the following:

But now he may want to communicate with others. He cannot communicate a thought which he alone can grasp. Therefore, if he now says " I have been wounded ", he must use the " I " in a sense which can be grasped by others, perhaps in the sense of "he who is speaking to you at this moment", by doing which he makes the associated conditions of his utterance serve for the expression of his thought. (Frege: *ibid.*)

This solution of Frege denying the communication of the original thought content appears to hold that what is communicated in such cases is not the original content held by the thinker but the ersatz content that is different from the original one in the sense of the term 'I' and the description 'he who is speaking to you at this moment' but is same in its reference (Pagin, 2016: 272). With a series of thought experiments, Perry (1979) rejected Frege's ersatz solution because there is no private content that is privileged for the speakers of a conversation. Perry thinks that if we change the order of quantifiers in what Frege said in the above passage, then we can explain the problem without having to explain it away. According to Perry, what Frege had in mind in the above passage is the following claim:

For each person, there is a particular and primitive way in which he is presented to himself and no one else . . . and no one else can grasp Thoughts determined in this way. (Perry, 2020: 8-9)

So, in order to see easily the order of the quantifiers, we can formalize the above statement with the following predicates in the following way:

$P(x)$: x is a person.

$W(y,x)$: y is a way in which x is presented to themselves.

$Primitive(y)$: y is a primitive way.

$Grasp(z,y,x)$: z can grasp the thought determined by way y for x .

$$\forall x(P(x) \rightarrow \exists y(W(y,x) \wedge \text{Primitive}(y) \wedge \forall z(P(z) \wedge z \neq x \rightarrow \neg \text{Grasp}(z,y,x))))$$

Perry then suggests that reversing the order of the quantifiers in this claim will explain the problem. Hence, reversing the order of the quantifiers then will amount to the following claim:

There is a particular and primitive way in which every person is presented to himself, and no one else. (ibid.)

So, the formulization of this statement would be the following:

$$\exists y(\text{Primitive}(y) \wedge \forall x(P(x) \rightarrow (W(y,x) \wedge \forall z(P(z) \wedge z \neq x \rightarrow \neg \text{Grasp}(z,y,x))))))$$

The key difference is that the first statement asserts that each person has their own unique primitive way, while the second claims that there is a single primitive way common to all people. Indeed, the order of quantifiers changes the meaning significantly. Here, due to this difference, Perry thinks that there is no need for a multiplicity of contents, one of which is private to the thinker and the other is publicly shareable version of it (i.e., the ersatz one). He claims that there is only one content which is about a particular person having a particular property but two different ways or states through which the content is accessed. By reversing the order of the quantifiers in Frege's contention, we allow the multiplicity of ways of accessing the content. Thus, the communication of such thoughts is now possible for the speakers of a conversation. Since the way Dr. Lauben accesses to the content expressed by the sentence "I have been wounded" is not the same way his audience accesses to the same content, the audience will correctly believe that not he but Dr. Lauben has been wounded. Here, Perry again appeals to Kaplan's distinction between the content and the character. He assumes that the contents of the utterances

‘I have been wounded’ and ‘he who is speaking to you at this moment has been wounded’ are the same but their characters are different; thus, the ways of accessing it are different.

However, I believe that both Frege’s ‘ersatz solution’ and the solution of Perry’s ways of believing to this problem are not satisfactory. Here I am happily agreeing with Perry that the belief state in question has some cognitive significance even though I believe this significance eventually is rooted in the content. But unlike Perry, I think we do not have one single information communicated by the content. I think we have two different information that the content carry as I argue in chapter 5; and unlike Frege, and following Perry, I do not think one of the contents is private and the other is shareable. Both must be sharable if the gossip about Dr. Lauben’s being wounded could spread amongst the members of the army. Frege’s solution is not satisfactory because from the speaker’s belief in the proposition that ‘he who is speaking to you at this moment has been wounded’, it does not follow that he believes in the proposition expressed by the sentence that ‘I have been wounded’. A speaker might believe in the content expressed by the sentence ‘he who is speaking to you at this moment has been wounded’ without believing in the content expressed by the sentence ‘I have been wounded’. There can be a third party in the conversation who is speaking to the same audience and is wounded. Or even worse, one might see his reflection on the mirror as if a third party is speaking to his audience without realizing both that the reflection is himself and he himself has been wounded. I think Frege’s solution seems to “get around the problem” without tackling it. But Perry’s solution provides with us important insights on the nature of the thoughts about oneself as ‘oneself’ except determining the source of the problem.

In chapter 5, I will try to determine this source with my modified account of the Lewisian-centered content.



CHAPTER 3

TRADITIONAL ACCOUNTS OF PROPOSITION

Isn't it so strange that a translation of a sentence like 'I am making a mess now' into the language of quantificational logic is not yet available? No, it might not be strange at all because we are ignorant of the logical forms and the truth conditions of the propositions expressed by the sentences containing indexicals such as 'I' and 'now'.⁵ We cannot know the logical form and truth conditions of a proposition expressed by a sentence without knowing what proposition is expressed by it. So, the questions then are: What proposition, if any, does the sentence 'I am making a mess now' express? What is the semantics proper for the attitude ascriptions (e.g., '*X* believes that *p*') whose contents identified with propositions are expressed by the sentences containing indexicals? What is believing anyway?

Traditional answers to these questions can be categorized into two camps (call both '*the traditionalists*'). In the first camp, we have Fregeans who hold the Fregean view, according to which a propositional attitude, a belief, is a relation between an agent and a proposition conceived as bearers of truth and falsity permanently. In this view, a proposition as an intension of a sentence is an abstract Platonic entity with a logical structure, constituted by senses, and graspable by agents (Frege, 1956; 1960). In the second camp, we have possible-worlds-semanticists who hold the Modal view, according to which an agent takes an attitude,

⁵I take indexicals as those whose reference and content can shift from context to context such as, 'I', 'you', 'here', 'today', 'this', ...etc.; and indexical attitudes as those that include them. However, the point I want to stress might not be just a terminological issue but also a philosophical one because the mere use of an indexical in an attitude report might be neither necessary nor sufficient for the given report to be described as an indexical attitude (See Magidor, Ofra. 'The myth of the de se.' *Philosophical Perspectives* 29 (2015): pp. 272-274.). Nevertheless, for simplicity, in the paper I will consider indexical attitudes as those whose contents include indexicals.

say a belief, toward a proposition if and only if that proposition is true in all of the worlds compatible with the agent's beliefs (Hintikka, 1969; Lewis, 1979a; Kripke 1980; Magidor, 2015). In this view, a proposition is the set of possible worlds in which it is true. Both camps share a common conception about propositional attitudes and their contents by using different sets of theoretical tools we see in truth-conditional and possible world semantics. According to this common conception, propositional attitudes are uniformly analyzed and individuated in terms of their representational contents identified with propositions.

However, the seminal works of Castañeda (1966; 1968), Perry (1977; 1979; 2020), and Lewis (1979a) (call them '*the revisionists*') pose certain notable challenges to that shared conception through a special category of singular thoughts, namely *de se* contents and *de se* attitudes, or self-locating attitudes — the attitudes about where one is, when it is and who one is. Depending on the semantic framework the revisionists employ, they challenge the traditionalists by arguing that (i) the object (the content) of a *de se* attitude cannot be given by a proposition as understood traditionally, (ii) necessary and sufficient conditions under which propositions are individuated should be determined in a more fine-grained way than is provided by the Fregean senses or the sets of ordinary possible worlds, and (iii) indexicality should be a property of the state through which its content is accessed or a property of the centered content the sentence expresses.

When it comes to making sense of the traditionalists challenged by the revisionists, many philosophers (call them '*the de se-defenders*') such as Carpintero (2015; 2017), Cresswell (1985), Ninan (2016), Kaplan (1989), Kölbel (2019), Recanati (2009), Stalnaker (1981;1999), and Torre (2018), agree that *de se* attitudes require special treatment since they pose genuine problems for the traditionalists.

However, there is some considerable resistance against the *de se* from some philosophers (call them ‘*the de se-deniers*’) such as Millikan (1990), Cappelen and Dever (2013), and Magidor (2015). The *de se*-deniers generally hold that neither the phenomenon of the *de se* is philosophically interesting nor does it require any special amendment of traditional accounts of propositional attitudes. In this thesis, I have no intention to quarrel with the claims of the *de se*-deniers; for there is plenty of research showing that their general criticism of the *de se* does not work in solving various problems at hand (See. Carpintero 2016b; Torre 2018; Perry 2020).⁶ On the contrary, following the revisionists, I will accept that *de se* attitudes and contents pose notable challenges against the traditionalists and following the *de se*-defenders, I take it for granted that they require special treatment in solving these problems.

3.1. The Fregean View and Perry’s Refutation

Let us recall the Fregean account of attitude and proposition. In the Fregean view, attitudes and their propositional contents are characterized by the following three doctrines

⁶Apart from our current problem, namely the problem of communication in *de se* thoughts, we can list miscellaneous problems with which philosophers deal in the debate of the *de se* as follows: the problem of the explanatory role of the *de se* in the rationalization of intentional actions, the problem of whether the *de se* is an instance of Frege Puzzles, the problem of the cognitive significance of attitudes themselves, the problem of locating indexicality, and the problem of whether *de se* attitudes are immune to error through misidentification. Even though I will mention some of these problems in their relation to the traditionalist and revisionist accounts, I won’t focus on them specifically because each of those particular problems requires a separate thesis and constitute an entire dissertation topic in its own right. Nevertheless, all of them are the natural consequence of not having a proper account of attitude and content— an account that is supposed to explain whether or how the context of linguistic utterances is related to the semantic content of sentences, assertions and beliefs. I think a proper characterization of propositional attitudes and their contents through *de se* attitudes cannot be given unless such an account provides a solution for each problem either by explaining it or explaining it away. For now, I will leave the reader to check whether my modified account does provide a solution for the remaining problems.

- i. Attitudes are characterized in terms of a relation between a proposition and the agent who takes the attitude toward that proposition.
- ii. The truth-values of propositions do not vary across individuals or times.
- iii. Necessary and sufficient conditions under which propositions are individuated are determined in a more fine-grained way than is provided by their truth-conditions.

Another related doctrine that seems to be a natural consequence of these three doctrines – especially ii and iii – is that indexicality can only be a property of sentences rather than that of the propositions the sentences express. Thus,

- iv. Propositions themselves cannot be indexical, but the sentences expressing them can.

Now the paradigm example given by Perry against these doctrines is the following one:

I once followed a trail of sugar on a supermarket floor, pushing my cart down the aisle on one side of a tall counter and back the aisle on the other, seeking the shopper with the torn sack to tell him he was making a mess. With each trip around the counter, the trail became thicker. But I seemed unable to catch up. Finally it dawned on me. I was the shopper I was trying to catch [. . .] I believed at the outset that the shopper with a torn sack was making a mess. And I was right. But I didn't believe that I was making a mess. That seems to be something I came to believe. And when I came to believe that, I stopped following the trail around the counter, and rearranged the torn sack in my cart. My change in beliefs seems to explain my change in behavior. (Perry, 1979, p.3)

Perry, unbeknownst to himself, has a belief about himself that the shopper with the torn sack is making a mess. However, this belief does not lead him to rearrange the torn sack in the cart; for he does not believe that he himself is the

shopper with the torn sack. Unless he comes to believe in the sentence ‘I am making a mess’ or ‘I am the shopper with the torn sack, who is making a mess’, no change in his behavior in the relevant way is expected to occur since only such beliefs do provide a reason for Perry to act in a certain way, namely, to rearrange the torn sack. By respecting the dogmas of folk psychology, Perry assumes that the change in his behavior indicates a change in his beliefs. When we replace the first-person pronoun ‘I’ with other descriptions uniquely identifying Perry, we lose the grounds on which we explain his behavior. To explain the change in his behavior of rearranging the torn sack, he cannot rely on any belief whose content does not contain the indexical ‘I’ even though any such beliefs contain a singular term uniquely identifying Perry. It seems that ‘I’ is an essential element of his beliefs when it comes to explaining and rationalizing his behavior. It seems that the use of indexical is ineliminable in explaining such a change in behavior. Consider the following sentences and suppose that all are true:

- a) The shopper with the torn sack is making a mess
- b) John Perry is making a mess
- c) John Perry is the shopper with the torn sack who is making a mess

Suppose further that Perry believes in these three sentences. Is this enough for him to change his behavior in a way that he changes when he believes in the proposition ‘I am the messy shopper’? Although Perry could believe in these three propositions, forming these beliefs is insufficient to make him change his behavior and lead him to rearrange the torn sack in the cart. Perry will not change his behavior in the relevant way if he merely believes (a) that the shopper with the torn sack is

making a mess, or (b) that John Perry is making a mess, or (c) that John Perry is the shopper with the torn sack who is making a mess or any combination of these sentences. If Perry changes his behavior, then among the other things he comes to believe, he needs to believe either ‘I am making a mess’ or ‘I am the shopper with the torn sack who is making a mess’ or ‘I am John Perry who is making a mess’ or any combination of them. To explain why Perry stops and starts rearranging the torn sack, it appears that the concept represented by the first-person pronoun ‘I’ must be taken into consideration as an essential part of the content of his belief playing a constitutive role in the change of his behavior.

Does, for Perry, the essentiality of the concept represented by the first-person pronoun ‘I’ in the content show that indexicality is an essential property of the thought expressed? I doubt it does. Nevertheless, for some *de se*-defenders such as Kaplan (1989), Carpintero (2016a), and Stalnaker (1981), Perry’s messy shopper example shows that removing the indexicals from a sentence changes the nature of the content expressed by the sentence. As Stalnaker (1981: 133) explicitly puts it, “there seems to be no way to eliminate the indexical element in the expression or report of the attitude without distorting the content”. Therefore, indexicality is an essential property of the thought expressed. This idea is nevertheless utterly mistaken for Perry.⁷ As Perry completely rejects such a view in his recent work (2020), he complains that the conclusions of his papers have often received much less attention than the examples he used to motivate them. He explicitly claims that the main moral we can draw from his previous papers is that we need to revise substantively the

⁷Thanks to Genoveva Marti for pointing out this common mistake in one of our correspondences. Further thanks go to John Perry for elaborating his recent views on this matter, published in his (2020: *Revisiting the Essential Indexical*. Centre for the Study of Language et Information Publications).

doctrines (i) and (iv), keep (ii), and reject (iii) (2020: 5). In what follows, I will expose Perry's views on how we should handle these doctrines.

Perry thinks (2020: 28) that the amendment regarding the first doctrine (i) is inevitable for it misses the singular aspect of the thought. Frege denies singular propositions sometimes called "Russellian propositions" which are taken as an ordered pair $\langle x, F \rangle$ of an individual, x , and a property, F . For Russell, singular propositions take individuals as their constituents whereas for Frege propositions do not have individuals as constituents because they all are general or qualitative as invariant, universal, and objective Platonic entities residing in the third realm. For Perry, propositional attitudes do not consist in a relation between an agent and a qualitative or general proposition. Rather than being a relation to abstract objects of some sort, according to Perry, they just consist in having various mental episodes in the brain and central nervous system of an agent at a time and nothing more than that. Besides qualitative propositions, for Perry, a propositional attitude also takes circumstances or singular propositions as its object.

In addition, Perry's essential indexical also undermines classical Russellian propositions. A Russellian structured proposition is an ordered pair $\langle x, F \rangle$ of an individual, x , and a property, F . Since both 'Perry is making a mess' and 'I am making a mess' (when said by Perry) express one and the same Russellian proposition (i.e., since both can be represented as the ordered pair $\langle Perry, making-mess \rangle$), we again lose the ground on which we explain the difference in the content of the beliefs that motivates Perry's respective behaviors (here we are assuming that Perry's desires remain unchanged and constant during the messy-shopper case).

Even though I accept Perry's characterization of beliefs (i.e., I can agree with the claim that beliefs are in "the head"), I prone to take their contents as determined

partly by external factors and partly by internal structure of the mind including the physiological features of the brain. Thus, I do not see this acceptance as incompatible with Frege's idea that simply claims the contents as Platonic entities are not in the head because they can be instantiated by both the environment and the brain.⁸ What makes us then think that the contents are abstract characterizations of their states if such contents are actually in the head? Since Perry in the debate agree with the doctrine (ii) that the truth-values of propositions do not vary across individuals or times, I will continue with the controversies on the doctrines (iii) and (iv).

Now let us see the reasons why Perry rejects the doctrine (iii). The doctrine (iii) finds its more precise formulation in Perry's recent work as follows:

iii* If X believes the proposition that S , that belief will lead X to regard S as true. That is, the proposition not only captures the truth-conditions of S , but also its cognitive content or cognitive significance, the beliefs that lead one to regard it as true.⁹

The reason why necessary and sufficient conditions under which contents of sentences or beliefs are individuated should be determined in a more fine-grained way than is provided by their truth-conditions is that even though it is necessary for that Φ and that Ψ to be the same, that they have the same truth condition, it is not sufficient for them to be the same. For (Φ) that Cicero was an orator and (Ψ) that Tully was an orator have the same truth conditions and yet are not the same propositions construed traditionally. Although the conditions under which both Φ and Ψ are true are the same, they do not express one and the same proposition. One who believes in Φ does not necessarily believes in Ψ since one might not know

⁸For externalist accounts of content, cf. Putnam 1975; Burge 1979, 2010; Kripke 1980.

⁹See Perry, J. (2020), *Revisiting the Essential Indexical*. Centre for the Study of Language et Information Publications, p.5.

whether Cicero is Tully. In addition to that, even though it is necessary for that Φ and that Ψ to be the same, that they have the same truth value, it is not sufficient for them to be the same. For (Ω) that water is colorless and (Σ) that snow is white have the same truth value and yet are not the same propositions construed traditionally.

Perry rejects the doctrine (iii) and (iii*) explicitly for the following reasons:

Belief reports classify beliefs in terms of their truth-conditions, not in terms of the types of the belief episodes that are involved. That is, belief reports are concerned with what is believed, not how it is believed. The choice of the embedded sentence will often suggest something about how the belief is held, however. If X regards “Cicero was an orator” as true and does not so regard “Tully was an orator,” it will be misleading, but true, to say “ X believes Tully was an orator. (Perry, 2020, p.7)

The point becomes fairly apparent when we see that the indexical ‘I’ used in an utterance discloses more important information about the belief that motivates the utterance ‘I am making a mess’ than when a proper name is used in the utterance. It is because, for Perry, this disclosure is not reflected in the singular proposition that serves as its content in Kaplan’s sense, what is said but reflected in the way of believing that serves as its character. Hence, he prefers Kaplan’s account over Frege’s as follows:

Suppose Fred says, “Cicero was an orator.” I’ll say that Fred discloses a belief with the cognitive significance of “Cicero was an orator” – that is, a belief that leads a competent speaker to regard this sentence as true. I’ll say that Fred expresses the belief that Cicero was an orator; that is, a belief with the truth-conditions identified by the proposition that Cicero was an orator. And I’ll say “Fred believes that Cicero was an orator” reports his having a belief in that proposition. On Frege’s theory, the aspect of the belief disclosed is the same as that expressed or reported. On the [Kaplanian] singular propositions account, this is not so. Fred would disclose a different belief with “Tully was an orator” but would express the same proposition.” (Emphasizes are original), (Perry, 2020, p.14)

As a result, Perry's distinctions between what is believed and how it is believed can be seen as a derivative of Kaplan's distinction between the content and the character of an expression. We see that for Perry, Frege's theory misses the aspect of the belief that the Kaplanian singular proposition account does not miss; namely, the cognitive significance associated with the belief rather than that of the proposition expressed as its content. If all singular propositions are such that they are immediately related to their objects just in case they are the contents of belief *de re*, it might be expected that belief *de re* can provide the required significance in constituting the causal patterns that forge the behavior in question.¹⁰ However, given the convincing critiques of Perry, the typical attribution of belief *de se* does not seem to be equivalent to any attribution of belief *de re* and *de dicto*.¹¹ This failure of equivalency leads us to an open-ended discussion as to whether indexicality is essential to the content of the state or to the state itself. Given the messy shopper example, despite the sameness of the contents of two distinct states of the same kind, one of the states does not result in a certain action while the other does. But with this, it is not certain whether the psychological or representational modes of states are of the same kind. *De se* belief could be a wholly distinct mental state that cannot simply be regarded as a type of propositional attitude as we know it since its content does not seem to be captured by a proposition conceived as permanently true or false.

¹⁰The immediate relation of a mental representation to a single object usually motivates the idea that the notions of a *de re* representation and a singular representation are co-extensional notions in the sense in which both apply to the same set of representations as their contents. For instance, Burge characterizes *de re* representations in a similar fashion: "[T]o be a *de re* state or attitude is to bear a peculiarly direct [immediate] epistemic and representational relation to a particular referent in perception or thought" (See. Burge, Tyler (2009). 'Five theses on *de re* states and attitudes'. *The Philosophy of David Kaplan*, 246, 324. p.246). Given the distinctive features of the *de se*, this is not correct because each *de se* content is a singular proposition and yet they are not *de re*.

¹¹As Perry (1979: 42) points out, this will not help those who think a *de re* singular thought can do the job as well: "Suppose there were mirrors at either end of the counter so that as I pushed my cart down the aisle in pursuit I saw myself in the mirror. I take what I see to be the reflection of the messy shopper going up the aisle on the other side, not realizing that what I am really seeing is a reflection of myself." By seeing himself on the mirror, Perry now has a *de re* belief about himself but yet it too will not motivate him to rearrange the torn sack in the cart.

Thus, given the *de se*, a substantial revision regarding the nature of the contents of propositional attitudes, in this account, seems inevitable.

For Perry indexicality is not a property of the content, which we see in his need for an amendment in the doctrine (iv) and we also see that it is not a property of sentences either. But where to locate the indexicality if not in the contents or the sentences expressing them? To give an answer, Perry surprisingly appeals to the critiques of the *de se*. The general criticism of the *de se*-deniers against the essentiality of the *de se* both in the characterization of content and attitude and in the rationalization of intentional action seems to rely on the idea that the purported problems inherited in such expressions and reports are just instances of a more general problem of the failure of substitution of co-referring expressions *salva veritate* in certain contexts. Interestingly, in Perry's view too, the particular cases of the *de se* are what obtains in Frege's puzzles in general. But if this is the case, then the solutions offered for Frege's puzzles in terms of the distinction between sense and reference should be a general solution for the cases of *de se* contents. This means that a similar form of Frege's distinction must be available for propositional attitudes and their contents.

Indeed, Perry makes a similar distinction between the content of a belief and the belief itself (i.e., in Perry's terminology between what one believes and how one believes). He argues that the way one accesses the content by taking an attitude toward a proposition appears to be cognitively significant. Perry in the end recommends that if one wishes to understand the relation of indexical belief to action, one will need to analyze not what an agent believes but how the agent believes it—the agent's 'belief state' or 'way of believing' (1979: 16-20). As Perry argues (1979: 19), "Anyone at any time can have access to any proposition. But not

in any way.” Hence, to give a full account of rational action, we need to mention not only the content but also the state through which the content is accessed, which has a cognitive significance. It seems that for Perry the required amendment regarding the doctrine (iv) is to locate indexicality within the states themselves instead of the sentences expressing their contents since the way of believing in a content is indexed only to the believer in a discriminative way. But it is not clear how Perry’s view in this context poses a challenge to the traditionalists since taking the *de se* as an instance of Frege’s Puzzles is also what the *de se*-deniers claim after all (Cappelen and Dever, 2013; Magidor, 2015). I agree with Perry that the way one believes in a proposition has some cognitive significance that is different from the significance of the proposition that sets the veridicality conditions of the belief state in question. But I do not think that we should locate indexicality in the mental states themselves without recognizing the fact that the indexicality of the state comes from its content. In this respect, I am closer to Lewis’s account than that of Perry.

3.2. The Modal View and Lewis’ Refutation

Now let us turn to the second camp and see what the Modal view is. Possible-worlds-semanticists hold the Modal view, according to which an agent takes an attitude, say a belief, toward a proposition if and only if that proposition is true in all of the worlds compatible with the agent’s beliefs (Hintikka, 1969; Lewis, 1979a; Kripke 1980; Magidor, 2015). In this view, a proposition is the set of possible worlds in which it is true. In the Modal view, both an agent’s total mental state and its contents are typically described as sets of possible worlds. Hence, in this account, one, x , whose total belief state is S , believes, B , a proposition, p , if and only if p is true in all

worlds in S (Hintikka, 1969: 148; Lewis, 1979a: 514-517; Magidor, 2015: 250). That is to say:

$$A. \quad Bxp \leftrightarrow \forall w \in S (p \in S)$$

The locution ‘true in all worlds in *S*’ is taken slightly differently in Hintikka’s formulation from this formulation (A) in that the agent’s total belief state, *S*, is marked by all possible worlds compatible with what the agent believes. One may consider *S* as a set of possible worlds or as a class of Fregean thoughts or as a function from propositions to their truth values — a function that constitutes Fregean judgments. Conversely according to Lewis (1986, p. 585), "the content of a total mental state is the system of belief and desire that best rationalizes the behavior to which that state would tend to dispose one". If the proposition holds in each member of *S*, then it is believed; otherwise not believed by the agent. Thus, in this formulation, the agent does not believe that *p* (e.g., it is not the case that the agent believes that *p*) if and only if in at least one world compatible with *S*, it is not the case that *p*.¹² That is to say,

$$B. \quad \sim Bxp \leftrightarrow \exists w \in S (\sim p \in S)$$

This account of belief fails to provide a solution for the problem of communication of *de se* thoughts. Suppose the only person who has been wounded in the Dr. Lauben example is Dr. Lauben himself. Then, when Dr. Lauben believes in the content, *p*, of ‘I have been wounded’ and asserts that belief to his audience by the

¹² See Hintikka, Jaakko (1969). “Semantics for Propositional Attitudes”. In: *Models for Modalities. Synthese Library, vol 23. Springer, Dordrecht.* https://doi.org/10.1007/978-94-010-1711-4_6

sentence 'I have been wounded', according to the Modal view, p must be included in the set of all possible worlds compatible with what Dr. Lauben believes. When his audience believes in the content of Dr. Lauben's assertion, then according to Modal view, the audience believes in p expressed by the sentence 'I have been wounded' because in all the worlds compatible with what the audience believes, it is the case that the audience has been wounded. But it is not the case that the audience has been wounded because by the supposition the only person who has been wounded is Dr. Lauben himself. The modal view also seems to be unsuccessful in explaining the successful communication between Dr. Lauben and his audience.

The Modal view, which defines propositions by means of sets of possible worlds, faces another significant challenge. Just as truth-conditions alone are insufficient to individuate propositions, defining a proposition in terms of the set of all possible worlds in which it is true is also problematic. The problem stems from the equal sets of ordinary possible worlds because such equal sets imply one and the same proposition. Even though Lewis acknowledges this issue (1979a: 515), he does not propose a solution for it. Nonetheless he uses it as one of the reasons to abandon the Modal view in favor of his account of centered content. Lewis calls this problem "the problem of ignorance of noncontingent matters". We may put forward the problem as follows:

Let P be the proposition expressed by the mathematical sentence ' $2+6=8$ '. Given the Modal view, P is necessarily true since it is true in all possible worlds. Thus, P is the set of all possible worlds in which it is true, namely the set of all possible worlds. But let Q be the proposition expressed by Fermat's last theorem. Then Q is also necessarily true because Fermat's last theorem was mathematically proved by Andrew Wiles. Hence Q must be the same set of possible worlds, namely

all. If P and Q are the same set (i.e., if they are equal sets), then given the Modal view they must express one and the same proposition. Therefore, one who knows P also should know Q. But this is not always the case.

In the Modal view as in the Fregean view, as Lewis describes it (1979a: 513), “the objects of attitudes are uniform in category” in the sense that attitudes uniformly have propositions as their objects identified as sets of worlds. Those uniform propositional objects of attitudes “facilitate systematic commonsense psychology” (1979a: 514) as we see in the third dogma of folk psychology. Following the third dogma Lewis keeps the categorical uniformity of objects of attitudes by taking such objects as properties rather than propositions. A Lewisian property as an object of an attitude is a more general category than propositions in the sense that all propositions correspond to some properties whereas not all properties correspond to some propositions. Lewis describes his property account of proposition as follows:

The word "property" also is used in many senses. I mean a set: the set of exactly those possible beings, actual or not, that have the property in question. That means that I shall confine myself to properties that things have or lack simpliciter... I am using the word "property" broadly. I do not limit myself to natural properties, as opposed to gruesome gerrymanders. Nor do I limit myself to intrinsic properties like size or shape; I include also properties that things have in virtue of their relations to other thing... Now I am ready to defend my first thesis: when propositional objects of attitudes will do, property objects also will do. Since I construe properties broadly, this thesis is not very bold. We have a one-one correspondence between all propositions and some properties. Whenever it would be right to assign a proposition as the object of an attitude, I shall simply assign the corresponding property. Since the correspondence is one-one, no information is lost and no surplus information is added. The attitude is equally well characterized either way. (Lewis, 1979a: 516)

What I might call the Property-Based-Centered Model of Content in solving the problem comes originally from Lewis (1979a) but in time it has been improved further by many with some substantive revisions (e.g., Recanati (2010), (2016);

Kölbel (2013); Pagin (2016); Kindermann (2016); and Weber (2016)), Here, I will solely consider Lewis’s account of the centered model but further expose Recanati’s and Kölbel’s solution in the next chapter. Lewis, by consulting the views of Quine (1969), develops his theory of content in terms of centered worlds as opposed to ordinary possible worlds we see in the Modal view. For Lewis, a centered possible world is a pair $\langle C, w \rangle$ of a center C and an ordinary world w (Lewis, 1979a: 531–2). A center C is characterized as either a space-time point, i.e., a pair $\langle l, t \rangle$ of a location l , and a time t , or a pair $\langle x, t \rangle$ of an individual x and a time t (1979a: 531-2). Just as propositions conceived as sets of possible worlds correspond to some properties in the Lewisian account, “a class of centered worlds corresponds to a property” (1979a: 532). As opposed to ordinary possible worlds identifying objective information within logical space, a centered world identifies subjective information within logical space.¹³ In his account, if John sincerely utters ‘Some people are benevolent’, he believes (self-ascribes) the property of being an inhabitant of a world in which some people are benevolent. Here John believes (*de dicto*) the ‘boring’ (due to Egan’s terminology (Egan, 2006: 107)) centered proposition:

- i. $p_c = \{ \langle x, w \rangle : \text{such that someone is benevolent in } w \}$.

If John believes (*de se*) that he himself is benevolent, then on this account he believes the ‘interesting’ centered proposition:

¹³ A logical space in the Lewisian account is a space where all possible worlds reside. In this sense, the actual world along with other possible worlds is a resident of both logical space and ordinary space and time. In set-theoretic approaches, the term is construed as a *field of sets*, namely “an ordered pair whose first member is a nonempty set and whose second member is a family of subsets over that set which is closed under (finite) unions, (finite) intersections, and complements” (See. Bricker, Phillip. (1983), *Worlds and Propositions: The Structure and Ontology of Logical Space*. Dissertation, Princeton University, p.39).

$$\text{ii. } p_c = \{\langle x, w \rangle: x \text{ is benevolent in } w\}$$

Thereby, he self-ascribes the corresponding property of being an inhabitant of a world in which he himself is benevolent. Thus, what happens when one believes a proposition in the Lewisian account is that one locates oneself in a region of logical space, where the proposition holds. The agent's locating herself in a region of logical space is nothing more than self-ascribing a property corresponding to a centered-interesting proposition. For Lewis, John's *de dicto* believing in (i) and *de se* believing in (ii) are both *de se* attitudes though they are different *de se* attitudes because in both cases he has a belief about himself: namely, in both he thinks that he inhabits one of the worlds where either (i) or (ii) holds. He thinks that whether *de re* or *de dicto*, all belief can be reduced to the *de se* which cannot be reduced to anything else; hence in the Lewisian account, all beliefs are irreducibly *de se*.

However, various problems leap to the eye in the Lewisian centered-world account. One is that this account does not seem to be coherent with Lewis' own idea that the *de se* subsumes the *de dicto*. If a general account of belief *de dicto* were to be an account of belief *de se*, then this would imply that all boring-centered propositions could be reduced to interesting ones. This sounds implausible; for it blurs the line between the *de se* and the *de dicto* (Magidor, 2015: 265). Another problem is that Lewisian-centered worlds, according to Stalnaker (1981: 145-7; 2008: 50-51), have unwanted philosophical consequences for the communication of *de se* contents across agents. Since believing a proposition is self-ascribing a property, an audience who believes the content a speaker has asserted would self-ascribe the property to himself, not ascribe it to the speaker. This puts a question mark on the transition of

information between them. Consider the following possible utterance of Perry to Lewis:

1. Perry to Lewis: I am making a mess now.

Suppose (1) is true and Perry believes in 1, so he self-ascribes the property of being an inhabitant of a world in which he himself (Perry) is making a mess. When Perry-the-shopper meets Lewis-the-shopper in the supermarket and utters (1), for Lewis to believe Perry is to accept the content Perry expresses, but accepting it amounts to self-ascribing it. That means that Lewis, in accepting Perry's assertion, ascribes to himself the property of making a mess (See. Pagin 2016). But it must be Perry who has the property, not Lewis. The only plausible property that Lewis can have in this scenario is the property of inhabiting a world in which Perry is making a mess at the time of his utterance; not the property of inhabiting a world in which Lewis himself is making a mess at the time of the utterance. This shows that Lewis' property account is no more helpful either.

CHAPTER 4

OTHER SOLUTIONS TO THE PROBLEM

In this chapter I am going to expose certain recent solutions offered for the problem of communication of *de se* thoughts. Each solution is unique in the sense that each is based on a particular distinct account of content and attitude. First, we will see Recanati's solution for the problem, which he bases on his mental file theory. I will argue that Recanati's solution for the problem – though it has a lot of insights in explaining the mechanism of first-person communication- nevertheless is not successful in all contexts. Second, I will consider Kölbel's ersatz solution which is a modified account of the centered-world account of content in a Fregean spirit. I will argue that Kölbel's solution too is not successful either.

4.1. Recanati's Solution in the Mental File Framework

Recanati starts with his account of content framed by his Mental File Theory by exposing two arguments concerning mental indexicality. The first argument simply states that thought itself cannot not be indexical (or ambiguous). Both ambiguity and indexicality can only be the property of the sentences rather than the thoughts those sentences express. In so far as the argument goes, indexicality and ambiguity relate to how our sentences connect to our thoughts. These properties belong to the linguistic expression, not the thoughts themselves. For the proponents of this argument, asking if a thought is indexical is a category mistake (2016: 141).

Like indexicality, ambiguity arises when one sentence expresses multiple thoughts. But a thought in isolation isn't ambiguous; it's a single thought. Fodor (2003: 56) noted that while sentences can be ambiguous between thoughts, there's no

internal mechanism within thought for such ambiguity. Similarly, indexicality means a sentence expresses different thoughts in different contexts and has no context-free meaning. Once we consider the thought alone, detached from the sentence and its context, indexicality ceases to be applicable. Thus, indexicality like ambiguity can only be applicable to expressions and must be considered in the realm of expressibility of sentences and assertions instead of the proposition they express. So, in this account since thoughts don't express anything but they are what we express by sentences, indexicality cannot be found in thoughts but in sentences.

The second argument which we may call the argument for mental indexicality is against the first argument. According to Recanati, mental indexicality stems from the monumental works of Prior, Castañeda, Perry, Kaplan, and Lewis against the idea that indexicality is just a property of language, and of language exclusively. For Recanati, the discovery of “the essential indexical” shattered the foundations of the traditional idea that thought itself cannot not be indexical (any more than it can be ambiguous). He thinks that Perry’s essential indexical shows that removing the indexicals from a sentence changes the nature of the thought that is expressed.¹⁴ Hence, Recanati mistakenly thinks that the essential indexical “seems to establish that the thought expressed by uttering an indexical sentence is itself indexical” (ibid.).

¹⁴Similarly, Stalnaker (1981, p.133) also thinks that “there seems to be no way to eliminate the indexical element in the expression or report of the attitude without distorting the content”. Like Recanati, he also thinks that the important lesson we can draw from Perry’s essential indexical is that indexicality is an essential property of the thought expressed. We have seen that this idea is utterly mistaken for Perry. As Perry completely rejects such a view in his recent work (2020), he complains that the conclusions of his papers have often received much less attention than the examples he used to motivate them. He explicitly claims that the main moral we can draw from his previous papers is that neither propositions (contents) themselves can be indexical, nor the sentences expressing them since mental indexicality is just the property of the way one accesses to propositions. Thus, according to Perry, we should locate indexicality in the specific way of forming the mental state whose content is accessed through that fundamental way. Thanks to Genoveva Marti for pointing out this common mistake in one of our correspondences. Further thanks go to John Perry for elaborating his recent views on this matter, published in his (2020: *Revisiting the Essential Indexical*. Centre for the Study of Language et Information Publications).

The first argument, according to Recanati (2016: 142), engages in circular reasoning by assuming a particular view of thought as inherently tied to absolute conditions for truth. While it claims that indexical sentences (e.g., "I am making a mess") convey distinct thoughts in different contexts due to shifts in their truth conditions, this variability in truth-conditions alone does not prove that such sentences express different thoughts. This conclusion only holds if one already accepts the Fregean framework, which defines thoughts as absolutely truth-evaluable. Hence to refrain from this circularity, Recanati appeals to an alternative conception of thought that Hintikka ascribes to Aristotle and the Stoics according to which indexical thoughts may be characterized as thoughts whose (absolute) truth conditions are not fixed once and for all but depend upon the context (ibid.).

In this alternative conception of thought, the sentence "it is raining" at time t is true if and only if it is actually raining at t . If we consider the same statement at a later time t' , its truth depends on whether it is raining at t' . This mirrors Lewis's analysis of beliefs *de se*, as outlined in his 1979a work. Lewis applies this to Perry's example of Heimson and Hume: both think the thought expressed by "I am Hume." Though they entertain the same proposition, its absolute truth-conditions shift based on who is thinking it. When Hume thinks "I am Hume," it is true (since Hume is Hume), but when Heimson thinks it, it becomes false (since Heimson is not Hume). Similarly, "it is raining" is true at time t if it rains at t , but false at t' if it does not. In both cases, the truth of the thought is not fixed—it depends on the context (e.g., the thinker or the time), much like how indexical claims rely on situational factors for their truth-value. Thus, instead of Fregean absolute truth-conditions, we have here *truth-at-conditions*. Therefore, the proposition expressed by "I am Hume" is true *at Hume* but not *at Heimson*. Recanati motivates this truth-at-conditions instead of the

Fregean absolute truth-conditions by employing Austinian propositions (developed by Barwise 1989; Barwise and Etchemendy 1987; and Recanati, 1996, 1997, 2000 and 2007). This framework distinguishes two interconnected components:

Relativized Proposition: A context-dependent content with "truth-at-conditions", modeled in possible worlds semantics as a set of centered worlds (*à la* Lewis). For example, the proposition "one is Hume" is true when evaluated at the index (or "center") corresponding to Hume, but false at Heimson's index.

Index: The specific context or perspective (e.g., a person, time, or location) against which the relativized proposition is assessed.

Combining these, an Austinian proposition pairs the relativized proposition with its relevant index, yielding absolute truth conditions as follows:

- <Hume, the relativized proposition that one is Hume>
- <Heimson, the relativized proposition that one is Hume>

Relativized propositions here represent subjective content—it is only true or false relative to a context (e.g., true at Hume, false at Heimson). This captures the internal, psychological dimension of meaning whereas Austinian proposition represents complete content—it has an absolute truth value (true/false) once anchored to a specific index. This reflects the external, objective dimension.

We have seen that the argument against mental indexicality claims that indexicality is not inherent to thoughts themselves but arises from how sentences relate to thoughts. If we focus purely on thoughts, straying from their linguistic

expression, the argument asserts that indexicality vanishes, as there is no longer a “relational” link between language and mental content.

However, by rejecting Frege’s assumption that thoughts must have fixed, absolute truth-conditions (as Hintikka and Lewis do), we can challenge this view. Instead, we can ground mental indexicality in the relationship between a thought and its *truth-at-conditions*. For example: The thought “It is raining” has different truth-conditions when entertained at time t (if it rains then) versus time t' (if it does not). Similarly, in Lewis’s analysis, the thought “I am Hume” is true when Hume thinks it (since he is Hume) but false when Heimson thinks it (since Heimson is not Hume). Here, the truth of the thought depends on the context (e.g., who thinks it or when), allowing indexicality to apply to mental content. Crucially, this framework can coexist with Frege’s view of thoughts as complete, truth-evaluable propositions. Frege insists that a genuine thought must be absolutely true or false—it cannot be true in one context and false in another. For instance, “It is raining” would not qualify as a “complete thought” for Frege, since its truth varies with the time of utterance. To reconcile these perspectives, we can distinguish two factors shaping a thought’s content:

Internal: The core cognitive state (e.g., the attitude or belief about rain), which remains consistent across contexts.

External: The contextual details (e.g., time, speaker) required to determine a Fregean “complete thought.”

While Frege’s framework demands external context to fix a thought’s truth-conditions, the internal component captures what is shared among all instances of

thinking “It is raining” across different contexts. This dual structure shows that Fregean completeness and context-sensitive mental indexicality are not mutually exclusive—they simply operate at different levels of analysis. In short, mental indexicality emerges not from language alone but from how thoughts interact with their truth-determining contexts, even within a broadly Fregean framework.

As we have seen before, Perry argues that indexicality does not reside in the content of a belief but in the belief state—the cognitive mode through which the content is accessed. More precisely, it arises from the relationship between the belief state and its content. For example, Hume and Heimson both think “I am Hume,” sharing the same belief state (a first-person mode of presentation), but their belief contents differ: the content of Hume’s belief is “Hume is Hume” (true), while that of Heimson’s is “Heimson is Hume” (false). Conversely, the same content can be grasped through different belief states, as in Kaplan’s case where “My pants are on fire” (said by me) and “His pants are on fire” (said about me) express the same proposition but through distinct modes of presentation. For Perry, indexicality of the way of believing enables these possibilities: identical states with different contents, or differing states with identical contents.

However, neo-Fregeans like McDowell and Evans in the 1970s opposed this “two-component model,” by arguing that the “internal” aspect (e.g., modes of presentation) is not part of the content itself but merely the vehicle (or medium) by which content is conveyed. Stalnaker similarly supports this critique. While Perry treats belief states as having internal structure, Stalnaker insists that concepts, senses, or linguistic structures are tools for determining content, not elements within the content. He accuses Perry’s framework of conflating the content of a belief with the means by which that content is represented—blurring the line between what is

believed and how it is believed. Elsewhere, Stalnaker pointed out this issue as follows:

[Perry's] way of distinguishing content of belief from manner of believing distorts the phenomena, locating an aspect of Ralph's conception of what the world is like on the wrong side of the line. Ralph's way of representing Ortcutt is essential to the way he takes the world to be like, and not just to the manner in which he represents the world. (Stalnaker, 2006: 287)

Again, we have previously seen that Perry's distinction between the content of belief and the way it is believed is inspired from Kaplan's character/content distinction, but according to Stalnaker this analogy is misleading, Stalnaker argues:

The motivation for the distinction, in Kaplan's theory, as I understand it, is something like this: we need to distinguish the information conveyed or represented from the means by which it is conveyed or represented. The information conveyed in an utterance—what is said—is of course dependent on the meaning of the sentence uttered, but one cannot identify content with meaning since what is said may depend on other things as well; specifically, what is said may depend on information available in the environment of the utterance. Perry describes his distinction between objects of belief and belief states in a similar way as a distinction between what is believed and the way it is believed. But the point of Perry's distinction must be different, since the lesson of the examples of essentially indexical belief—the examples that motivate Perry's account—is that indexicals are essential to the information itself and are not just part of the means used to represent it. (Stalnaker 1981: 148)

Recanati acknowledges that psychological states function as vehicles (cognitive mechanisms) distinct from the content they convey. He concurs with Stalnaker that indexicality must pertain to content in some form, as reducing it solely to vehicles would render discussions of “essential indexicality” incoherent. However, he maintains that Perry's framework remains viable: vehicles play functional roles in cognition, generating internal content through their contextual use. These roles depend on specific conditions being met in the environment where the vehicles operate. Thus, vehicles inherently carry presuppositional content—their deployment

implies that the context fulfills the conditions necessary for their proper function. This presuppositional aspect is context-independent, unlike truth-conditional content, which relies on external factors (e.g., time, location).¹⁵

For example, referential expressions (e.g., “this,” “that”) correspond to mental files (Recanati, 2012)—cognitive structures acting as content vehicles. A mental file serves as a representation that, under ideal circumstances, refers to an object via epistemically rewarding (ER) relations (e.g., perceptual tracking). When deployed, the file presupposes both the existence of the object and the ER relation (e.g., “I am tracking something perceptually”). Even if the context fails to meet these conditions (e.g., if the tracked object is illusory), the file’s use still presupposes their fulfillment. This presupposition explains behavior (e.g., reaching for a nonexistent object), independent of whether reference succeeds. In essence, mental files blend internal presuppositions (context-independent cognitive roles) with external determination (context-dependent reference), reconciling Perry’s emphasis on cognitive states with Stalnaker’s focus on content.

If a subject associates two expressions (or two instances of the same expression) with distinct mental files that both refer to the same object *o*, they might rationally believe contradictory claims about *o* (e.g., “*o* is F” and “*o* is not F”). This occurs because the files are not assumed to co-refer. Conversely, if both expressions are tied to the same mental file, such contradictions become irrational as the co-reference is presupposed. Here, mental files function like Fregean senses: they govern rational behavior through their presuppositional content while also determining reference based on external factors.

¹⁵ See also García-Carpintero, Manuel (2016). ‘Token-reflexive presuppositions and the de se’. In *Manuel García-Carpintero & Stephan Torre, About Oneself: De Se Thought and Communication*. Oxford: Oxford University Press.

This framework, thus, introduces an internal/external distinction:

Internal Component: The specific mental file used (e.g., a cognitive "mode of presentation") explains the subject's rationality and behavior.

External Component: The actual object linked to the file via epistemically rewarding (ER) relations (e.g., perceptual or causal connections) determines reference.

While the internal component is a vehicle (a mental file), it carries two layers of content:

Presuppositional: The context-independent conditions assumed by deploying the file (e.g., "I'm tracking something").

Referential: The object the file picks out if contextual conditions (e.g., ER relations) are met.

This reflects Perry's distinction between what is believed (referential content) and how it is believed (the cognitive significance of the belief state). Similarly, just as Kaplan's "character" maps linguistic expressions to content across contexts, Perry's "roles" for belief states act as functions linking cognitive modes to content. These roles—akin to Fregean senses—explain how agents act rationally, even as reference remains anchored to external reality.

For the aforementioned reasons, Recanati takes indexical thoughts—such as "I am making a mess" or "now it is raining"—to be defined by their inherent

dependence on context, as highlighted by Burge (1979: 430) and Heck (2002: 12).

These thoughts, for Recanati, merge two elements:

Subjective Content: The internal, perspectival aspect.

Objective Truth-Conditions: The factual requirements for the thought to be true.

These components only come into a complete, truth-evaluable thought within a specific context. For example, the subjective content “I am cold” becomes fully meaningful only when anchored to a particular person (the thinker) and time. In a different context, the same subjective content (“I am cold”) would yield distinct truth-conditions (e.g., true for person A in winter, false for person B in summer).

Perry argues that this context-dependency creates a “benign limited accessibility”: the complete thought (combining subjective and objective aspects) is only graspable by those situated in the relevant context. This limitation is not a flaw or a deficiency but a natural feature of indexicality. In his framework, the subjective content acts as a mode of presentation, while the objective truth-conditions depend on external context—ensuring that indexical thoughts remain both perspectivally rooted and factually anchored. He emphasizes this limited accessibility as follows:

Anyone at any time can have access to any proposition. But not in any way. Anyone can believe of John Perry that he is making a mess. And anyone can be in the belief state classified by the sentence ‘I am making a mess’. But only I can have that belief by being in that state. (1979: 43)

This context-dependent nature of indexical thoughts poses a challenge for communication. If a speaker expresses a thought like “I am thirsty,” the hearer might

interpret it by adopting the same subjective content (e.g., mentally thinking “I am thirsty”). However, this would shift the truth-conditions to the hearer’s own context, mistakenly attributing thirst to themselves rather than the speaker which is also unwanted consequences of Lewis’ property account of proposition. Such a mismatch would undermine communication entirely, as the speaker’s intended meaning (their own thirst) would be lost.

To preserve the original truth-conditions across contexts, Frege argues that the internal content of the thought must be adjusted when the context changes—much like how linguistic indexicals (e.g., “I” becoming “you” in dialogue) adapt to different perspectives. For instance, the hearer reinterprets “I am thirsty” as “he who is speaking to me at this moment is thirsty,” aligning the subjective content with the speaker’s context. This solution of Frege denying the communication of the original thought content appears to hold that what is communicated in such cases is not the original content held by the thinker but the ersatz content that is different from the original one in the sense of the term ‘I’ and the description ‘he who is speaking to me at this moment’ but is same in its reference (Pagin, 2016: 272). We previously have shown that this ersatz solution of Frege does not work. To show why this is so, we can say that it is because from the speaker’s belief in the proposition that ‘he who is speaking to you (the hearer) at this moment is thirsty’, it does not follow that the speaker believes in the proposition expressed by the sentence that ‘I am thirsty’. A speaker might believe in the content expressed by the sentence ‘he who is speaking to you (the hearer) at this moment is thirsty without believing in the content expressed by the sentence ‘I am thirsty’. There can be a third party in the conversation who is speaking to the same audience and is thirsty. Or even worse, one might see his reflection on the mirror as if a third party is speaking to his audience

without realizing or being in a position to know both that the reflection is himself and he himself is thirsty. Another problem that we did not mention before is that perhaps we mistakenly assume that the Naïve Conception of Communication may be under a negative effect of internal content.

For Recanati, the necessity to modify internal content (i.e., whatever is represented by the mode of presentation) can expose a flaw in the Naïve Conception of Communication, which assumes thoughts can be transmitted intact between minds. Instead, successful communication requires context-sensitive transformations, ensuring shared understanding despite the perspectival nature of indexicality. The Naïve Conception of Communication assumes that successful communication involves the exact replication of thoughts - that the hearer comes to entertain precisely the same thought the speaker expressed. However, this model breaks down when dealing with indexical expressions. In these cases, preserving the original truth-conditions requires not replication, but systematic transformation of the thought's internal content to account for the shift between speaker and hearer perspectives.

As Davies observed decades ago (1982: 293), the simple notion that communication transfers identical thought contents between minds becomes untenable when dealing with context-dependent expressions. The fundamental flaw in the Naïve Conception may lie in its assumption that complete thoughts (including both their internal components and contextual truth-conditions) can be directly communicated. Instead, what we actually share in communication might be just the truth-conditional content - the objective propositional core that remains stable across different contexts. This insight aligns with Perry's argument that singular propositions serve precisely this function: they capture what we aim to preserve when communicating across different contextual perspectives (Perry 1988: 4).

Frege's proposal suggests that in communication, what gets transmitted is not the speaker's original first-person thought (which remains private) but a different, appropriately related thought (the ersatz content). This view maintains that replication occurs in communication, but what gets replicated is not the speaker's subjective first-person perspective.

Does this "substitution" approach save the Naïve Conception of Communication? Recanati argues that it doesn't. The Naïve Conception contains two core principles (termed by Weber as the "mind-to-speech principle" and "speech-to-mind principle"):

1. Mind-to-speech: The speaker's thought = the thought expressed by the utterance.
2. Speech-to-mind: The hearer's thought = the thought expressed by the utterance.

Frege's approach abandons the first principle by distinguishing between the speaker's private first-person thought which is incommunicable and the semantic content actually expressed in language which is what is shared between the participants of a conversation. Other philosophers take different approaches: Dummett (1981) maintains the first principle but modifies the second - he argues the hearer merely needs to recognize the speaker's thought without necessarily adopting it as their own. Gibbard (2012) and Weber (2013) propose that the hearer's understanding involves a "Transform-and-Recenter" operation on the speaker's thought. Kölbel (2013) distinguishes between a sentence's semantic content and

what actually gets communicated in conversation (another version of Frege's ersatz content).

Recanati's earlier work (1993, 1995, 2012) offers a different interpretation inspired by Frege, based on distinguishing between:

- Linguistic modes of presentation (the information encoded in words themselves - e.g., "I" always means "the speaker")
- Psychological modes of presentation (how individuals actually conceive of references)

This distinction becomes clear in cases where speaker and hearer necessarily think differently about the same reference (e.g., the speaker thinks of themselves as "I" while the hearer thinks of them differently). A single person can rationally hold contradictory beliefs about the same referent when using demonstratives (e.g., "That is *F* but that is not *F*"), suggesting multiple psychological perspectives can exist for one linguistic reference. These examples demonstrate that linguistic and psychological modes of presentation must be distinct, since linguistic meaning remains constant while psychological understanding varies between individuals and contexts. This framework, according to Recanati (2010: 153), helps explain how communication works despite the private nature of first-person experience.

In Recanati's conceptual framework, psychological modes of presentation are understood as mental files - cognitive structures that organize and store information about entities. The self-concept in particular relies on a unique epistemically rewarding (ER) relation, specifically the relation of identity that each individual bears exclusively to themselves. When a speaker engages in first-person thinking,

they activate this specialized self-file, which accumulates all information they have acquired about themselves through first-person experience. Crucially, because the speaker is consciously aware of being the speaker during communication, the linguistic meaning encoded by the first-person pronoun 'I' (indicating 'the current speaker') finds direct representation within this self-file as a specific piece of self-knowledge.

Simultaneously, the hearer maintains their own distinct mental file about the speaker, which similarly incorporates the knowledge that this individual is currently speaking. This creates an important overlap - while the speaker's self-file and the hearer's speaker-file are fundamentally different types of cognitive structures, they share certain informational content because of the constraints imposed by linguistic meaning. The linguistic mode of presentation (the conventional meaning of 'I') thus serves as a coordinating mechanism that aligns these separate mental representations across different minds.

This interpretation reveals that linguistic modes of presentation should not be mistaken for direct components of thought itself. Rather than being constitutive elements of mental content, they function as external constraints that shape and coordinate the psychological modes of presentation (the mental files) which do constitute thought. This framework in Recanati's account necessarily leads to a reconceptualization of communication - not as exact replication of thoughts between individuals, but as a process of establishing coordinated alignment between distinct mental representations. This coordination dynamic becomes particularly evident in situations involving joint attention during demonstrative reference, where speaker and hearer may have different perceptual perspectives on an object but nevertheless achieve referential alignment through coordinated attentional focus.

The implications of this view necessitate rejecting both fundamental tenets of the Naïve Conception of Communication. The very premise of this conception posits the existence of some singular 'thought expressed by the utterance' that mediates between speaker and hearer. However, since the speaker's and hearer's thoughts are different in cases of indexical reference, this presupposition becomes problematic. Recanati's framework in this sense suggests that rather than trying to identify the 'expressed thought' with either the speaker's or hearer's perspective (as existing theories attempt), we need to move beyond this dichotomy entirely and recognize communication as involving coordinated but distinct mental representations across interlocutors.

A potential objection of this approach might question its apparent arbitrariness in selecting which perspective to prioritize. While privileging the speaker's viewpoint seems instinctively reasonable, compelling arguments also exist for favoring the hearer's perspective. As Evans has argued, the crucial factor in determining semantic content is what constitutes accurate comprehension of an utterance - a process fundamentally tied to the hearer's interpretive task (Evans 1982: 92, 143n, 171; Recanati 1995: 98).

To avoid charges of arbitrariness, Recanati proposes abandoning the foundational assumption underlying the Naïve Conception (and consequently both of its key principles, namely mind-to-speech and speech-to-mind communication). He thinks that we should discard the notion of "the thought expressed by the utterance" altogether. In reality, communication involves only two essential elements: the speaker's original thought and the thought constructed by the hearer upon successful interpretation (Bezuidenhout 1997). No additional intermediary "expressed thought" need be postulated. But this view creates a gap between the content of the speaker's

belief and that of the hearer because it is the content of the speaker's utterance on which the hearer bases her belief about the content of the beliefs the speaker wishes to convey. Once we dismiss this intermediary "expressed thought" of the utterance, on what the hearer bases her beliefs remains unknown.

I think giving up both the Naïve Conception and the notion of "the thought expressed by the utterance" is utterly mistaken because (i) the Naïve Conception of Communication captures the causal order of communication which cannot be eliminated unless thought-tokens and speech-tokens are transformable in a reciprocal way and secondly because discarding the notion of "the thought expressed by the utterance" will eventually lead us to abandon the idea that the content of beliefs need not be expressible by assertions or sincere utterances which itself is a bold claim requiring to abandon our well established theories of mind and language. Since we know that the speaker's utterance transforms his mental content into the mental content of the hearer whom we assume correctly understand the speaker, the causal order of communication is not something that we can eliminate easily. Since "the thought expressed by the utterance" is the only objective entity as its content between the speaker and the hearer, its denial would make the problem of communication even more problematic. Abandoning both the Naïve Conception and the notion of "the thought expressed by the utterance" is like killing a fly with a cannon. Thus, this cannot be an effective solution for the problem of how to get rid of the fly but instead creates a bigger one that denies the foundations of successful communication.

4.2. Kölbel's Ersatz Solution

Given Lewis's property and centered-world account of content, we encounter an incompatibility between the framework of centered-worlds propositions and self-ascription on one hand, and the conventional understanding of communication as content transmission on the other. The traditional transmission model (i.e., the Naïve Conception of Communication) holds that communication succeeds precisely when the hearer's acquired content matches or sufficiently resembles the speaker's original content.

One might argue that this does not pose a problem for Lewis's framework, since Lewis himself explicitly rejected the Naïve Conception of Communication as the transmission model of communication given his conversational scorekeeping in a language game.¹⁶ One might contend that semantic analysis establishes truth conditions for utterances relative to specific contexts. Utilizing these semantic rules, one can infer the necessary characteristics of the context that would render the speaker's statement veridical. To illustrate, when Perry says "I am making a mess," Lewis employs semantic principles to conclude that the assertion's truth depends entirely on Perry actually creating the mess, which prompts Lewis to personally attribute the characteristic of existing in a reality where Perry is making the mess. This reasoning process demonstrates Lewis's explicit departure from conventional transmission-based models of communication.

While I find no fault with this objection, it doesn't follow that abandoning the Naïve Conception of Communication automatically resolves the underlying issue. The crucial unanswered question remains: How does this alternative model actually function? This presents two distinct challenges:

¹⁶ See Lewis, David (1979). 'Scorekeeping in a language game'. *Journal of Philosophical Logic* 8 (1):339--359.

First, we must develop a coherent account that successfully integrates semantics, centered-worlds propositions, self-ascription, and communication within a unified framework. Second, there exists a genuine problem of whether this integration proves difficult or impossible to achieve - a possibility that currently remains uncertain.

In this section, after exposing Kölbel's ersatz model of a modified centered content, I contend that his theory of centered-worlds propositions indeed faces this second, more fundamental problem of potential incompatibility with a workable model of communication. The difficulty lies not merely in rejecting the transmission model, but in demonstrating how communication can effectively operate within this alternative framework. Proponents of centered-worlds propositions have responded to this challenge by developing two distinct approaches to address the communication problem within Lewis's framework:

First, certain theorists (such as Moss (2012); Torre (2010); and Kölbel (2013)) have put forward an alternative solution where they maintain a distinction between the speaker's cognitive content and what gets communicated (akin to Frege's ersatz content). In their view, while the speaker may entertain a centered-worlds proposition (akin to Lewis's solution), the actual communicated content becomes a similarly related but non-centered proposition.

Second, a different approach has been developed by Gibbard (2012) and Weber (2013), who propose that communication involves an active transformation process. According to this view, the hearer performs a cognitive operation on the centered content asserted by the speaker, adjusting it in a way that makes it suitable for the hearer to self-ascribe. We have already shown that Recanati assimilates Gibbard's solution within his mental file framework. So, I think we do not need to

focus on this solution for now for the problems in Recanati's account pertain to Gibbard's.

Each of these two strategies represents a distinct methodological approach to solving the same fundamental problem of how centered-worlds propositions can function effectively in communicative contexts. The first distinguishes between thought and communication content, while the second emphasizes the hearer's transformative role in the communicative process. In this section, I will focus on the first alternative solution put forwarded by Kölbel because his account presents a combined and improved version of both Frege's ersatz solution and Lewis' centered-world account, both of which we previously undermined individually.

Kölbel (2013) explores the concept that communication can employ substitute non-*de se* contents to transmit information. As we will demonstrate, his approach bears significant resemblance to Frege's framework. Kölbel employs the abstract notion of a "*location*" which serves the function of the center in centered worlds, without committing to any specific version of centered content. In outlining his general theories about content and information, I will initially use this location concept before transitioning to the conventional individual-time pair representation while omitting the temporal component.

Kölbel formally defines the concepts of *portable contents* and *locally portable contents* (or portable relative to a class C of locations) (2013: 100-102) using the following notation where W represents possible worlds, L denotes locations, and P^C stands for centered-worlds propositions:

(P) For all $p \in P^C$: p is *portable* iff for all $w \in W$ and for all $l_1, l_2 \in L$ ($\langle l_1, w \rangle \in p$ iff $\langle l_2, w \rangle \in p$).

(RP) For all $p \in P^C$: p is *portable relative to a class* $C \subseteq L$ iff for all $w \in W$ and for all $l_1, l_2 \in C$ ($\langle l_1, w \rangle \in p$ iff $\langle l_2, w \rangle \in p$).

These formal conditions examine locations across all possible worlds, raising questions about whether locations universally exist in every possible world. Concrete individuals do not exist in all worlds, and if space-time locations are relative, then they too do not exist universally across all possible worlds. Specifically, an Earth-based spatial location would not exist in worlds where Earth itself does not exist.

This leads to two possible interpretations:

The world-restricted interpretation: $\langle l, w \rangle$ exists only if l exists in w , requiring restricted quantification in (P) and (RP) to worlds where both l_1 and l_2 exist.

The world-unrestricted interpretation: $\langle l, w \rangle$ exists even if l doesn't exist in w , but such pairs are excluded from propositions p whose truth depends on the center.

The significance of local portability lies in how some *de se* contents do not need full portability but may hold true for all participants in a particular conversation (similarly in Egan 2007). However, the world-quantification strengthens this to requiring necessary truth for all or none in the conversation, particularly stringent without world restrictions where all participants exist.

Kölbel later introduces the concept of "*portable surrogates*" as ersatz contents, defined through *belief correctness* (2013, p.103):

(C) For all $w \in \mathcal{W}$, for all $p \in \mathcal{P}^C$ and for all $l \in L$: it is correct to believe p at l in w iff $\langle l, w \rangle \in p$.

The portable surrogate is then formally defined (2013, 104):

(PS) For all $p, q \in \mathcal{P}^C$ and $l \in L$, q is a *portable surrogate* of p at l iff: for all $w \in \mathcal{W}$, it is correct at w to believe p at l iff for all $l^* \in L$ it is correct at w to believe q at l^* .

Similarly, *the locally portable surrogate* is defined (2013, p. 107):

(LPS) For all $p, q \in \mathcal{P}^C$, for all $l \in L$ and all $C \subseteq L$, q is a *portable surrogate* of p at l relative to C iff: for all $w \in \mathcal{W}$, it is correct at w to believe p at l iff for all $l^* \in C$ it is correct at w to believe q at l^* .

Transitioning to individual centers as locations, we can illustrate portable surrogates with:

- (1) a. *I am angry.*
b. *K is angry.*

Assuming (a) is believed by K , the contents relate as:

- (2) It is correct of K in w to believe *de se* that he is angry iff it is correct of anyone in w to believe that K is angry.

Kölbel provides a formal derivation (2013, p.7) demonstrating this general equivalence. Schematically, for (1) we have:

- (3) a. $\{ \langle x, w \rangle : A(x, w) \}$
 b. $\{ \langle x, w \rangle : A(K, w) \}$

where A represents 'is angry'. The intersection of (3a) and (3b) includes:

- (4) c. $\{ \langle x, w \rangle : x = K \& A(x, w) \}$

and would include $\langle J, w \rangle$ if both J and K are angry in w . Crucially:

- (5) For all w : for all x ($\langle x, w \rangle \in \{ \langle x, w \rangle : A(K, w) \}$) iff $\langle K, w \rangle \in \{ \langle x, w \rangle : x = K \& A(x, w) \}$ iff $\langle K, w \rangle \in \{ \langle x, w \rangle : A(x, w) \}$.

Thus, incorporating belief correctness represents a somewhat circular approach. Kölbel's method differs from Moss's by not trying to generate *de dicto* or *portable surrogate* contents that match *de se* contents in restricted domains. Instead, the crucial aspect for portable surrogates is maintaining the correct set of worlds, which can be derived from the *de se* contents (3b) and (4c).

Kölbel maintains that only portable contents facilitate information transfer as follows:

Successful information transfer occurs when, as a result of witnessing the linguistic act, a recipient comes to believe a surrogate of the content believed by the source at the source's location (Kölbel 2013, 105-6).

This formulation raises a fundamental theoretical question: If the portable surrogate ultimately depends solely on its associated classical proposition, what purpose do centered contents actually serve? The inquiry challenges the necessity of maintaining centered content frameworks when their essential communicative function appears reducible to traditional propositional forms. This tension between the theoretical apparatus and its practical application in communication demands careful examination of whether centered contents provide any indispensable explanatory value beyond what classical propositions can offer. Kölbel considers this:

First, proponents of a framework of purely portable contents (e.g. Frege, Perry, and many others) will object that something like the surrogate contents I am mentioning can and should figure as the contents of beliefs (and assertions) in the first place. Then we would not need a theory of portable surrogates, and could simply stick to the familiar model in which information transfer is simply content transfer. Therefore, a theory of non-portable contents that postulates informationally equivalent portable surrogates must be inferior to a theory that avoids nonportable contents in the first place. Not so. Centered contents were introduced to do a certain job, and they still need to do that job, even if, when explaining information transfer, we resort to portable surrogates (Kölbel 2013, 106).

This analysis admits two possible interpretations. The first suggests that centered *de se* contents are necessary for belief contents, while only portable surrogates (or classical propositions) function in communication. Alternatively, one might argue that centered *de se* contents remain relevant to communication despite the fact that it requires surrogates to explain information transfer. While the second position makes a stronger claim, it appears fundamentally flawed to me.

If communication only involves surrogates, then semantics - to the extent it relates to communication - need only concern itself with surrogates. This raises the

question of whether *de se* contents (whether non-portable or locally portable) ever function as legitimate semantic values.

In later parts, Kölbel examines how sentences express surrogates to facilitate linguistic information transfer. He distinguishes between a sentence's Semantic Value (SV) and its Conversational Content (CC) (2013: 14). While presented as separate from semantics, CC might better be understood as an additional semantic function within a broader system encompassing both SV and CC as distinct meaning types.

He illustrates this distinction with:

- (6) a. $\{ \langle x, w \rangle : x = \text{Lauben} \}$
b. $\{ \langle x, w \rangle : \text{the speaker of utterance } u = \text{Lauben} \}$

Here, u represents the speaker's utterance, potentially specified using "this utterance" as a complex demonstrative. (6b) is not *de se*, but any world where Lauben produces this utterance appears in both (6b) (with any center) and (6a) (with Lauben as center).

Kölbel's framework holds that CC matches SV unless the sentence contains a "CC-modifying expression." When SV is non-portable, CC becomes a locally portable surrogate that may diverge from SV in certain contexts. Following Stalnaker's conversational model, it's the CC-value that updates the common ground and facilitates communication (2013, p.15). This raises two key questions: whether non-portable values ever prove relevant, and whether locally (but not globally) portable contents ever matter. He identifies pure indexicals as CC-modifying

expressions. While he doesn't fully specify the modification mechanism, he seems to adopt a token-reflexive interpretation where:

- (7) a. I am Lauben.
- b. The speaker of this utterance is Lauben.

Consequently, (7a)'s communicated content becomes (6b) rather than (6a).

This interpretation does not clearly demonstrate modification - it simply presents CC as token-reflexive interpretation (7b), communication's relevant interpretation regardless of semantic classification. If this were complete, we'd conclude centered contents play no communicative role in Kölbel's framework, despite their importance for attitudes and their correctness conditions.

However, the story continues for two reasons: some sentences receive non-portable CC interpretations, and CC surrogates need only be locally portable.

Regarding the first point, Kölbel offers these examples (2013, p.116):

- (8) a. It's raining.
 - b. It's raining *here*.
-
- (9) a. The "living statue" at Ramblas' end is moving.
 - b. The "living statue" at Ramblas' end is moving *now*.

According to him, (a)-sentences are non-portable or locally portable depending on whether participants share location (8a) or temporal context (9a), while (b)-sentences guarantee local portability. For (9), the (a)-(b) distinction parallels

Kaplan's semantics (excluding local/global portability differences), relating to temporal *propositionalism* - a topic too extensive to address here. Regarding (8a), I find implausible its use to assert non-portable centered-worlds propositions where: a) Max in Barcelona asserts truth at t because it's raining there; b) Aran in Istanbul understands and believes it at t ; c) Aran's belief proves false since it's not raining in Istanbul. This would represent the centered-worlds content if spatial locations are center elements (as in Lewis' model), yet no sentence is ever used this way.

One might counter that such centered content uses can fail as described, but should be restricted to same-location contexts. However, "It is raining" faces no such restriction in actual usage, frequently appearing in conversations between differently located participants. Considering locally portable "I" uses: when Max tells Aran

(1a) "I am angry"

and both Max and Aran hold *de se* belief

(3a) $\{ \langle x, w \rangle : A(x, w) \}$,

both beliefs are correct if both are angry. This does not satisfy local portability under definition (RP), which requires Max and Aran to be centers in identical centered worlds within (3a) - impossible given independent anger states.

We can construct satisfying examples using the necessity of origin thesis: in all worlds where human A exists, A's parents exist (world-restricted interpretation). If siblings Max and Aran hear

(10) Alex is my mother

Aran should conclude Alex is his mother, since “my” becomes locally portable when the “Alex’s offspring” property is shared in all worlds where both exist. Yet this interpretation is clearly unavailable.

Another difficulty in Kölbel’s accounts is given by Pagin as follows: Under world-unrestricted interpretation, (10) fails as a counterexample since worlds exist where Max exists without Aran. However, consider

(11) I am a member of the Max-Aran pair.

Whether spoken by Max or Aran, it’s only true in worlds where both exist, making it locally portable relative to {Max, Aran}. Thus, Max’s utterance should lead Aran to believe that he is in the duo - again counterintuitive. Moreover, the pronoun interpretation’s dependence on the ascribed property seems highly counterintuitive. Ultimately, those aspects of Kölbel’s theory granting centered contents communicative roles (beyond motivating communication through attitudes) prove intuitively unacceptable.

CHAPTER 5

ALMOST-IMPOSSIBLE AND ALMOST-NECESSARY PROPOSITIONS

The semantic mainstream about the notion of semantic content is that the truth and falsity of sentences in contexts are a somewhat reasonable criterion for their semantic content (Hawthorne and Manley, 2012: 35). Elsewhere (Arslan, 2016: 358), I motivate this idea by the fact that if two sentences have the same content (i.e., the same meaning), then it cannot be the case that one is false, and the other is true in the same context of utterance as well as the same context of evaluation. Here, I will keep following this mainstream for the following reasons: First, it is widely accepted that a semantics for a given language L assigns semantic contents to sentences in contexts. Second this widely held consensus in turn helps in determining the two fundamental features of a theory of proposition (i.e., a theory of content), namely the conditions under which the utterance of a sentence of L would be true and the entailment relations between the propositions expressed by sentences that constitute the logical truth and logical consequence (See e.g., Lewis 1970; Kaplan 1977; Barwise & Perry 1983; Chalmers 2006; Predelli 2006; Stanley 2007; Partee 2010; Kölbel 2013). A semantic analysis of attitude ascriptions and their contents for a given language L has been done by the philosophers who endorse a particular theory of reference for singular terms found in such attitudes and contents. For that purpose, they use different theoretical tools as theoretically primitive entities in their semantic framework such as those we see in truth-conditional, possible (centered or not)-world, situation-based or two-dimensional semantics. We see that many philosophers (see. Hintikka 1969; Kripke 1980; Stalnaker 1976; Magidor 2015) standardly employ a coarse-grained account of attitude and content in terms of possible worlds as they

take such worlds as theoretically primitive in their semantic framework.¹⁷ In addition, we also see that such a coarse-grained account of attitude and content in terms of possible worlds does not help us to solve the problem of communication. Moreover, we see that Lewis's modified property-based-centered content account against the Modal view is no more helpful either. The crucial reason why Lewis's modified property-based-centered content fails is that on Lewis's picture the center does not play a role in determining the content, but rather in determining the truth value of the content. Can there be an account of content which is in the spirit of Lewisian centered worlds and at the same time which can determine the content? I think the answer is a "yes" if some conditions hold. So what conditions are needed for such a theory? First, we need a particular theory of reference which claims that it plays a constitutive role in the determination of the content. I believe theory of Direct Reference (also endorsed by Kaplan and Perry) is the most plausible candidate for this purpose because according to theory of Direct Reference, singular terms including indexicals and demonstratives just stand for individuals and consequently, the semantic contribution of a singular term to the meaning of a sentence of which it is a part is its reference. Second, though theory of Direct Reference is necessary for the account I defend here, it is not sufficient. We also need a proper mental account of reference in its relation to beliefs. Burge's mental account of reference is a perfect candidate for this purpose because according to Burge's account, reference is a certain subtype of representation (Burge: 2010: 31) within general representations

¹⁷ I am aware that taking possible worlds (centered or not-centered) as theoretically primitive entities in a semantic framework is objected to by some (See. Barwise & Perry, 1983; Cresswell, 1988; Inan, 2022). Still, I agree with Carpintero (2016: 182) that "it is perfectly OK, ..., to use them as a semantic tool, and not just for instrumental reasons". Nonetheless, as opposed to ordinary possible worlds, it is the goal of this thesis to put forward a finer-grained account of content in terms of radically modified Lewisian-centered worlds to the extent that it embraces the context of use constituting the perspective of the thinker as part of the logical form of contents.

(i.e., beliefs) whose contents are propositionally structured by such subtypes. Thus, in what follows, I will combine Lewis's centered-world account of content with the theory of direct reference and Burge's account of reference, which in turn allows us to have an account of centered content that not only determines the truth-value of the content but also the content itself. After that, we will appeal to the metaphysical framework of Lewis' counterpart theory to avoid certain difficulties we face in both modal discourse (e.g., the problem of Transworld Identity) and relativism (e.g., the problem of accounting disagreement between conflicting propositions).

Based on Lewis' counterpart theory, I make an *ad hoc* modification to his account of centered worlds by introducing two new semantic items, namely *almost-impossible* and *almost-necessary propositions*. Based on the modification, I hope to show the reader that all *de se* contents can be described as almost-impossible propositions which in turn help us in understanding the underlying mechanism of communicating first-person thoughts and consequently provide a solution to the problem at which we are currently aiming here. According to the account I defend, almost-impossible propositions are true only in the actual world as each being the singleton set in which they are true but at the same time false in the rest of the worlds. Since *de se* content is described as the singleton set of the actual world in which only that proposition is true but false in the remaining worlds, I basically characterize *de se* contents as the singleton sets whose only member is the pair, $\langle C, W_{@} \rangle$, of a particular center, C and the actual world, $W_{@}$. Following the Lewisian tradition, I will also take a center C either as a space-time point, i.e., an ordered pair $\langle l, t \rangle$ of a location l and a time t ; or a pair $\langle x, t \rangle$ of an individual x , and a time t and then I argue that the proposition expressed by the sentence '*I am making a mess now*' is the singleton set: $\{ \langle \langle x, t_{now} \rangle, W_{@} \rangle : x \text{ is making a mess at } t_{now} \text{ in } W_{@} \}$. Unlike Lewis,

supplemented by the theory of direct reference and Burge’s representationalist account of reference, I further characterize contents as the singleton set whose only member is the pair of a quadruple and a world such that $\{\langle\langle x, t, \mathcal{R}_{subj}, \mathcal{R}_{pred} \rangle, w \rangle\}$, where additionally \mathcal{R}_{subj} , and \mathcal{R}_{pred} are particular representational functions, which map from the subject term to its referent and from the predicate term to a property. respectively. Thus, I argue that the proposition expressed by the sentence ‘*I am making a mess now*’ is the singleton set: $\{(x, t_{now}, \mathcal{R}_{subj} (“I” \rightarrow^{REF} x), \mathcal{R}_{pred} (“making a mess” \rightarrow^{IND} F)), W_{@}: x \mathcal{R}_{subj} \text{ is_making_a_mess } \mathcal{R}_{pred} \text{ at } t_{now} \text{ in } W_{@}\}$.

Lewis’s account of centered content may motivate some types of relativism since he takes centered-world proposition as a function from centered worlds to truth-values by taking a truth-value only relative to a center in addition to a possible world. But in fact, as Stalnaker rightly observes it (2014, p.195), this is not what most relativists have in mind. Relativists typically expect a theory of proposition to explain a phenomenon called ‘disagreement’ between conflicting propositions. I think the account I propose can be used for this purpose by the relativist because unlike Lewis who takes centered-world proposition as a function from centered worlds to truth-values, the singleton set of the centered world I suggest can be taken as the domain of an injective communicative function, f , that maps from the center of the actual world in which the proposition is true to the rest of the worlds in which it is false. Ultimately, I hope to show the reader that the challenging problem I discuss here is solvable by this modification I make.

5.1. Metaphysical Framework of Counterpart Theory

Let us start with the metaphysical framework of Lewis's counterpart theory on which we base almost-impossible and almost-necessary propositions as the singleton sets.

Lewis developed his counterpart theory in his well-known paper titled 'Counterpart Theory and Quantified Modal Logic' in 1968. At the time, Lewis observed that sentences with modal operators can be analyzed in terms of quantification over possible worlds. For instance, 'It is possible that there are pink elephants' can be analyzed as 'There are possible worlds in which there are pink elephants.' He also observed that we do not need to formalize our modal discourse by means of modal operators if we can have the required theoretical tools like appropriate predicates and a domain of quantification suited to the topic of modality which makes us able to translate every sentence of the language of quantified modal logic into an extensional first-order language with quantifiers ranging over possible worlds and possible objects. To develop such a translation model, he introduces four primitive predicates to establish eight postulates, all of which generate the metaphysical framework in which we introduce almost-impossible and almost-necessary propositions. We can state Lewis's four primitive predicates and eight postulates based on these predicates as follows^{18,19}:

¹⁸ For now, I will ignore the notational differences between Lewis's usage and other formalized usages.

¹⁹ See. Lewis, David (1968) 'Counterpart Theory and Quantified Modal Logic'. *Journal of Philosophy* 65 (5):113-126.

Table 1. The Primitive Predicates and the Postulates of Counterpart Theory

<i>The Primitive Predicates of Counterpart Theory</i>	<i>The Postulates of Counterpart Theory</i>
1. Wx : (x is a possible world) 2. Ixy : (x is in possible world y) 3. Ax : (x is actual) 4. Cxy : (x is a counterpart of y)	P1: $\forall x \forall y (Ixy \supset Wy)$ (Nothing is in anything except a world) P2: $\forall x \forall y \forall z (Ixy \ \& \ Ixz \ \supset \ y = z)$ (Nothing is in two worlds) P3: $\forall x \forall y (Cxy \supset \exists z Ixz)$ (Whatever is a counterpart is in a world) P4: $\forall x \forall y (Cxy \supset \exists z Iyz)$ (Whatever has a counterpart is in a world) P5: $\forall x \forall y \forall z (Ixy \ \& \ Izy \ \& \ Cxz \ \supset \ x = z)$ (Nothing is a counterpart of anything else in its world) P6: $\forall x \forall y (Ixy \supset Cxx)$ (Anything in a world is a counterpart of itself) P7: $\exists x (Wx \ \& \ \forall y (Iyx \equiv \exists Ay))$ (Some world contains all and only actual things) P8: $\exists x Ax$ (Something is actual)

Counterparthood is a relation of similarity or resemblance. According to Lewis, for some objects x and y and for some worlds w_1 and w_2 , x in a world w_1 is a counterpart of y in a world w_2 if and only if x resembles y closely in content and context in important respects (i.e., x resembles y more closely than do the other things in w_1). Although Lewis in his 1968 gives some examples showing what the relevant respects of resemblance might be, he did not provide a definition for this notion; nor did he provide any formal understanding of it. By acknowledging the vagueness and ambiguity about the notion, he explains this relation of similarity as follows:

The counterpart relation is a relation of similarity. So, it is problematic in the way all relations of similarity are: it is the resultant of similarities and dissimilarities in a multitude of respects, weighted by the importances of the various respects and by the degrees of the similarities. (Lewis 1968, p.115)

It is somewhat up to us to put forward the standards of the relation of similarity. Thus, the higher the standards we set, the smaller number of counterparts

in all possible worlds would be. Now we can describe the metaphysical framework of Lewis's counterpart theory on which we base almost-impossible and almost-necessary propositions.

5.2. Supplementary Accounts of Reference as Representation

As we have claimed before, two theories of reference (one constitutes linguistic meaning of sentences and the other constitutes the cognitive aspect of the content) will be assumed to be correct. The first one is theory of direct reference and the second is Burge's mental account of reference. In what follows, I will start with the first one and then expose the second.

The direct reference theory, as advocated by Kaplan, claims that singular terms function as "purely" or "directly" referential expressions. This means their semantic contribution to an utterance's propositional content consists exclusively of their reference, without any additional descriptive or conceptual mediation. In other words, these terms contribute nothing more to meaning than the actual object they denote. Kaplan famously motivates direct reference as follows:

And I became more and more intrigued with problems centering on what I would like to call the semantics of direct reference. By this I mean theories of meaning according to which certain singular terms refer directly without the mediation of a Fregean Sinn as meaning. If there are such terms, then the proposition expressed by a sentence containing such a term would involve individuals directly rather than by way of the "individual concepts" or "manners of presentation" I had been taught to expect. Let us call such putative singular terms (if there are any) directly referential terms and such putative propositions (if there are any) singular propositions" (Kaplan: 483)

According to Kaplan all singular terms (including indexicals and demonstratives) are directly referential, meaning that the semantic contribution they make to the propositional content of the utterance in which they occur is constituted

by nothing other than their reference. One of the advantages of this account is that it allows us to equate the cognitive content of beliefs with linguistic meaning, which eventually underlines the mechanism of communication of first-person thoughts.

Recanati summarizes this advantage as follows:

The distinction between the meaning of a sentence and what is said (the proposition expressed) by an utterance of the sentence is commonly recognized to be necessary when one deals with indexical sentences; but there is also a third term—the cognitive content of the utterance—whose irreducibility to either the proposition expressed or the meaning of the sentence (or a mixture of both) has not been properly appreciated. Thus, Fregeans do not feel compelled to distinguish between the proposition expressed by an utterance and the cognitive content of the latter, while direct-reference theorists such as Kaplan and Perry, who make this distinction, have been prone to equate cognitive content with linguistic meaning. (Recanati, 1990: 697)

Such equation of the proposition expressed by an utterance with the cognitive content of beliefs rules out the possibility of a gap between what is thought and what is said. Although the transformational features of what is thought and what is said can vary, direct reference by equating these makes the conversational structure of propositions (if not heteromorphically) isomorphically constant.

Unlike the traditional account of representation which holds that “representations are the immediate objects of the perceptual reference” (Burge, 2010: 30), Burge considers the term “representation” quite differently. It is not just because he considers reference in a broad sense (i.e., not just at perceptual level) but also because he distinguishes indication from reference in the way that former has a functional application which he calls attribution. In other words, this application constitutively functions to attribute a certain property (e.g., the representational content of what representational states indicates) to something as it is having that property. To understand profoundly in what sense Burge uses the term

“representation”, it is better to explicate some aforementioned relevant key terms beforehand. The first term I shall take is “reference”.²⁰ According to Burge, reference is a certain type of representation (2010: 31). A reference occurs from two aspects. It is both a relation and a function. It can be a relation to an entity in a subject matter or it can be a function of a state or event to construct a reference relation. For example, one can refer to herself when she says the phrase “I am the closest planet to Earth”. Some reference relation occurs between the individual and Mars. However, even if she does not have a reference relation such as above, reference may still hold but this time it holds as a function whose states or events “have constitutive representational function of connecting to a subject matter”. This connection is what the relation is.²¹ (2010: 31) Moreover, for instance, when she says “that planet Vulcan is somewhere” there is no reference relation between her and the entity such as the planet Vulcan which is an empty name since there is no any planet named Vulcan; in this sense reference occurs functionally not relational. This is called *referential function*. These two aspects of reference (reference relation requiring the existence of the referent and referential function which does not require the existence of the referent) do not occur in a reciprocal way. As seen above, (i) a reference relation entails a state, an event or an activity with a referential function but (ii) not all of the states, events or activities with a referential function establish a referential relation. (2010: 31) The former claim (i) of Burge suggests that the reference relation between the individual and Mars entails a mental state with a referential function which establishes the reference relation between the individual and Mars. On the other hand, the latter (ii) suggests that there can be a psychological mode of a representational state, such as

²⁰ By ‘reference’ here, Burge considers the singular reference. (See. Burge 2010: 32)

²¹ Burge considers such a relation as reference which is a successfully fulfilled function.

the belief that “the planet Vulcan exists” whereas there is no reference relation established between “the planet Vulcan” and any entity.

The second term I shall take in the Burgean account is *indication*. Indication differs from reference in the sense that it has a further constitutive representational function of attribution or functional application (2010: 32). In this sense for instance, predicates and concept terms indicate entities and they do not refer to anything. Moreover, representational function of a predicate and a concept term is attribution (ibid.). For instance, the predicate “is square” or the concept term “square” indicates the property of being square or the property of squareness (respectively) and they function to attribute what they indicate to what the subject phrase refers to. For example, when I say that *that stone is square*, the predicate “is square” functions to attribute what it indicates [in this case the property of being square] to what ‘*that stone*’ refers to.

Above, we have mentioned that Burge considers representation quite different from the traditional representationalist account. Now we can talk about it in detail. According to Burge, representation includes reference and indication as subtypes (2010: 34). There are different types of representations for an individual and this differentiation occurs through how one refers to something or what one indicates. For instance, take the locution “one refers to Lionel Messi” but this locution by itself does not show us how one refers to Messi. One surely refers to Messi in some way but the locution itself does not show us in what way they refer to; nor it indicates that one refers to Messi as Messi or as the best football player in the world or as the best football player in the history of FC Barcelona. Hence, we can have different types of representations depending on the way of referring. Burge mentions about this variety of representations as following:

An individual—or an individual’s perception, thought, other type of psychological state, representational content, or piece of language—represents something as such and such if and only if it represents something by way of a such and-such type of representation” (2010: 35)

Representation of something as such and such varies according to which type of representation (e.g., reference or indication) is being processed in which way of representing is used. The main reason why representations vary is not only because of having a different representational content derived from reference or indication but also because we may be in a different psychological mode. Representational contents and psychological modes are important for the representational states in the sense in which our representations and consequently our representational mental states vary according to both *representational content* and *psychological mode* in question. The link between the terms indicated by italics can be explicated in this way: Representational states are partly type-individuated in terms of representational content and psychological mode. “Partly type-individuated” means to mark the representational state partly in terms of its content and mode (2010: 73).²² For example, the belief that I am not making a mess is represented and partly type-individuated in terms of

²² Burge mentions marking and type-individuation in a way that they are some factors in our natures. (2010: 37, fn.11) and our mental states are partly type-individuated in terms of representational content and psychological mode because representational content and its structural element (shared also by the mental states) are part of the nature of those states. For example, the structure of the representational content of a belief that today is sunny and the structure of the mental state [belief state] -type-individuated by that content-, are “the part of what it is to be that mental state” (Burge: 2010 p.67 and the footnotes num.7,8 and 9).

- a) Being a belief (a psychological mode)
- b) Being different ways of representing (its representational content) like
 - as myself (Aran)
 - as not making a mess²³

Both this belief -the mode of representational/psychological state- and representational contents comes together into a propositional thought content which reveals through reasoning. We know that traditional accounts of propositions (e.g., Fregeans and Possible-world-theorists) share a common conception about propositional attitudes and their contents by using different sets of theoretical tools we see in truth-conditional and possible world semantics. According to this common conception, propositional attitudes are uniformly analyzed and individuated in terms of their representational contents identified with propositions. We have previously seen that the seminal works of Castañeda (1966; 1968), Perry (1977; 1979; 2020), and Lewis (1979a) (i.e., ‘*the revisionists*’) pose certain notable challenges to that shared conception through a special category of singular thoughts, namely *de se* attitudes, or *self-locating* attitudes. They challenge the traditionalists by arguing that the object (the content) of a *de se* attitude cannot be given by a proposition as understood traditionally, hence the individuation of the attitude in terms of its propositional content is not well founded. Burge’s claim that representational states are partly type-individuated in terms of representational content and psychological mode now makes sense even for the traditionalists because the individuation also

²³ “making a mess” in this example is indicated but not attributed, the predicate “am not making a mess” functions to attribute what it indicates i.e. the property of being not making a mess to what “I” refers to i.e. the entity which is represented as of myself.

partly depends on external factors including the context in which the content is constituted as well as the content and the mode in question.

According to Burge, psychological modes play two important roles in type-individuation of representational states. The first role is to differentiate representational states that have the same representational content. These modes help to distinguish the representational states for instance, whether I believe that I am not making a mess or I imagine that I am not making a mess or I hope that I am not making a mess ...etc. Although the representational content (i.e., *I am not making a mess*) is shared in common among these three states, each of them is a different aspect of the nature of psychological states; in other words, they are different in representational/psychological kinds -different in kinds as being a belief, an image or being a hope.

As previously noted, representational/psychological states are partially individuated through both psychological modes and their representational content. Having clarified the former concept (i.e., psychological modes), we now examine representational content. For Burge, representational content serves as an abstract concept fulfilling three distinct functions within his broader anti-individualist framework (2010: 37). First, it constitutes the mode of presentation of a representational state. The mode of presentation is the cognitive perspective the individual has on the subject matter its representational state is about.²⁴ For example,

²⁴We should not confuse a *psychological mode* with a *mode of representation*. A psychological mode can be a belief, a hope or a desire (I might believe that *P* or I might hope that *P* or I might want that *P*...etc.) whereas a mode of representation is a way of representation of referring, indicating, attributing and functionally applying. As far as I understood, the difference could be shown in this way: When I believe that *that woman is not stupid*; in the representational content (in italics), firstly there is a reference relation between me and the woman (when I use the phrase 'that woman'), secondly in this example, the property of stupidity or being stupid is indicated but not attributed. So, 1- the content constitutes modes of representation of referring, indicating but not attributing and 2- psychological mode here specifies the representational state (that I *believe* such and such is case) through the content. Hence, the content plays an intermediate role between them and shows us how different they are in their natures.

there is a big difference in perspective in Oedipus's thinking of Jocasta as the queen or as his mother. Such differences in perspective can figure in explanations of behavior and rationality of an individual. Similarly, there is a big difference in perspective in Perry's thinking of the messy shopper as the himself or as someone else. Such differences in perspective can figure in explanations of behavior and rationality of an individual as we saw in the messy shopper example. We can think of the behavior of rearranging the torn sack in this respect and conclude that Perry's perspective in thinking himself as the messy shopper or someone else making the mess can be grounded due to the role of his respective mental content which ultimately involves reference as a subtype of representation of his attitude.

Such differences do not have to be so dramatic as in the case of Oedipus. A slight difference in cognitive perspective on a subject matter may already result by a slight difference in perspective (in the literal sense of the word) as it is the case in perception. Second, content "helps constitutively mark, or type-individuate, psychological [...] states, capacities, acts, events." (2010: 38). Representational states that share their (generic) psychological modes can be distinguished by their representational contents. The belief that Vaduz is the capitol of Lichtenstein is distinct from the belief that some tree is beautiful in virtue of its representational content. Further, the representational content marks also psychological capacities or abilities of an individual. Someone who is able to hold the belief above is able to represent a tree conceptually. Third, content constitutes the veridicality conditions of the representational state. The content of a belief specifies its truth-conditions, the content of a perception specifies its correctness or accuracy conditions. These

conditions have to be met for the belief's being true or the perception's being accurate.²⁵

5.3. Almost-Impossible and Almost-Necessary Propositions

Before defining our two new semantic primitives, namely the notions of *an almost-impossible* and *almost-necessary proposition*, let us bother ourselves with four plausible questions that motivate these two notions. These questions may be seen as posing mere possibilities rather than actualities but given the metaphysical framework of counterpart theory such possibilities remain plausible:

- a) Are there propositions that are true in one world but false in all others?
- b) Are there propositions that are true only in the actual world but false in all other possible worlds?
- c) Are there propositions that are false in one world but true in all others?
- d) Are there propositions that are false only in the actual world but true in all other possible worlds?

Within the ordinary modal discourse, affirmative responses of the first two questions motivate almost-impossible propositions whereas those of the last two motivate almost-necessary propositions. Answering the question b) affirmatively is comparatively less epistemically demanding than answering the question a) because to answer the question b) affirmatively, we first need to find a true proposition in the actual world and then attempt to demonstrate that it is false in the remaining worlds.

²⁵See Burge (2010: pp.37-40) for his statement of the explanatory functions and further elucidations. It shall be clear that Burge's notion of content is more fine-grained than the one Russellians or possible-world semanticists invoke.

Likewise, answering the question d) affirmatively is comparatively less epistemically demanding than answering the question c) because to answer the question d) affirmatively, we first need to find a false proposition in the actual world and then attempt to demonstrate that it is true in the remaining worlds. In the ordinary modal discourse, we could not possibly know which propositions are false in other possible worlds but the actual world (except those that are the negations of necessarily true propositions since they all are false in every possible world). Since prevailing intuitions regarding truth-assignment are mostly shaped within the actual world (if we can ignore necessarily true and necessarily false propositions for now), we intuitively think that there must be some other world in which a true proposition of the actual world can be false. But can't there be a world in which all of its propositions are false? Or can't there be a world in which all are true? I do not have a definitive resolution to these inquiries. I have no idea if such questions even make sense at all because I am not sure about the presupposition that propositions can be parts of the worlds in which they are true or false.

Now consider the proposition expressed by the sentence 'Erkan Ogur is the president of Switzerland'. It surely is false in the actual world but can't there be a world in which it is true? Or what if it is true in all of worlds but the actual world? We perhaps can say that it is not likely that 'Erkan Ogur is the president of Switzerland' is true in all of the remaining worlds given that there are infinitely many worlds. But 'likelihood' does not destroy the pessimism one might have about the truth of that sentence. Given the Lewisian metaphysical framework I outlined above, we save the optimism because there can't be a world in which Erkan Ogur is the president of Switzerland unless that world is the actual world in which he will become a citizen of Switzerland and fulfill all the conditions that are necessary and

sufficient to be the candidate for presidency of Switzerland and be elected by the majority of the Swiss people. Because in the framework of counterpart theory nothing is allowed to be in several worlds by the postulate P2, Erkan Ogur is allowed only to be in the actual world; and even though his counterparts in other worlds can be the president of the counterparts of Switzerland in such worlds, Erkan Ogur of the actual world cannot be the president of Switzerland of the actual world unless some conditions hold in the actual world.

Lewis was a systematic metaphysician in the sense in which he aimed at establishing a consistent system of world theory in which no contradictions can be derived from its axioms and postulates. For this reason, accepting his modal realism, thus, indeed helps one to grasp the metaphysical framework of his counterpart theory but it is not required as a prerequisite in grasping our account. If quantifying over possible worlds is problematic for some readers, then so must be the reference to them. Since reference is a relational concept, meaning that it holds between an expression and an entity in so far as both of its relata exist, successful reference to possible worlds presupposes their existence. Although I do not know whether such reference is possible, I will assume it is. Thankfully the reader has no obligation as such.

Having said that, now we can introduce our notions. Let W be the set of all possible worlds, O be the set of all possible objects (i.e., individuals) and T be the set of moments. Furthermore, let C be the set of ordered pairs $\langle I, t \rangle$ of an individual I and a time t , such that $I \in O$ and $t \in T$. Lastly, let P_C be the set of all centered contents $\{\langle \langle I, t \rangle, w \rangle\}$, where $w \in W$. Thus, we can now define our notions as follows:

Def1: For all $p \in P_C$, p is *almost-impossible* iff $\forall w \in W \forall I \in O \forall t \in T \exists w_1 \in W \exists I_1 \in O \exists t_1 \in T: (\langle \langle I_1, t_1 \rangle, w_1 \rangle \in p \text{ iff } (\langle \langle I, t \rangle, w \rangle \notin p) \ \& \ w_1 \neq w \ \& \ I_1 \neq I \ \& \ t_1 \neq t)$ ²⁶

To put Def1 informally, we can say that a proposition is *almost-impossible* if and only if it is true in a single world just in case it is false in the rest of the worlds. Likewise,

Def2: For all $p \in P_C$, p is *almost-necessary* iff $\forall w \in W \forall I \in O \forall t \in T \exists w_1 \in W \exists I_1 \in O \exists t_1 \in T: (\langle \langle I_1, t_1 \rangle, w_1 \rangle \notin p \text{ iff } (\langle \langle I, t \rangle, w \rangle \in p) \ \& \ w_1 \neq w \ \& \ I_1 \neq I \ \& \ t_1 \neq t)$

To put Def2 informally, we can say that a proposition is almost-necessary if and only if it is false in a single world just in case it is true in the rest of the worlds.

Are there such propositions then? As I argue below, all *de se* contents are almost-impossible propositions because they are true only in their respective actual worlds just in case they are false in the rest of the worlds. But this does not mean that a non-*de se* proposition cannot be an almost-impossible proposition. For instance, a non-*de se* proposition like ‘There is nothing in the world’ expresses an almost-impossible proposition because it is true only in a single world, namely the empty world, where there is no any object or whatsoever, just in case it is false in the rest of worlds including the actual world, where there is at least something (e.g., in the actual world, *the Cartesian Ego*). Because given the metaphysical framework of counterpart theory every possible world is unique, so is the empty world, which means that in all possible worlds except the empty world, ‘There is nothing in the

²⁶ We can define almost-impossible propositions in a simpler way: A proposition $p \in P_C$ is almost-impossible iff there exists a unique centered world $w_c \in CW$ (where CW is the set of all centered worlds) such that $p = \{w_c\}$. A similar straightforward definition can be provided for almost-necessary propositions as well such that (e.g., $p = CW \setminus \{w_c\}$).

world' expresses a false proposition. Likewise, 'There is at least something in the world' would be an almost-necessary proposition because it is false only in a single world, namely in the empty world just in case it is true in the rest of worlds including the actual world.²⁷ Note that the negation of an almost-impossible proposition is logically equivalent to an almost-necessary proposition. Now consider Perry's messy-shopper case and recall what Perry utters to Lewis by the following proposition:

a) Perry to Lewis: I am making a mess now

Given our account, both Perry and Lewis are unique entities in the actual world which is a unique world due to counterpart theory. Given Def1, then a) is equivalent to the singleton set

b) $\{\langle\langle I, t_{now} \rangle, W_{@}\rangle : I \text{ is making a mess at } t_{now} \text{ in } W_{@}\}$

b) is a singleton set because its only member is a single pair $\langle\langle I, t_{now} \rangle, W_{@}\rangle$ of a particular center (which is itself a pair $\langle I, t_{now} \rangle$ of a particular person ('Perry') and a particular time 'now') and a particular world, namely the actual world (' $W_{@}$ '). Assuming that Perry is telling the truth to Lewis, a) is only true of Perry and of the moment of his utterance and of the actual world. But is a) false in the rest of the worlds? This is where counterpart theory comes into play. Given the metaphysical framework of counterpart theory, any sentence about Perry can only be true in the actual world where Perry is inhabiting. Because the counterparts of Perry living in other worlds is not Perry himself (just like the actual world is not one of the

²⁷ I owe this example to Beşir Özgür Nayır.

remaining worlds), any sentence about Perry will be false in those worlds but can be true for his counterpart in question. Hence a) will be false in the rest of the worlds because it cannot be true of any counterpart of Perry and of any counterpart moment of t_{now} , and of the remaining worlds.

5.4. Objections and Refinements

But we might have a problem with our account. Suppose for the sake of the argument that Perry believes in the content expressed by the sentence ‘Perry is making a mess now’ without realizing or knowing or believing he himself is Perry. We know from the-messy-shopper example that merely believing in the content of ‘Perry is making a mess now’ is insufficient to make Perry change his behavior and lead him to rearrange the torn sack in the cart.

c) Perry is making a mess now

Then c) is equivalent to the singleton set:

d) $\{\langle \langle I, t_{now} \rangle, W_{@} \rangle : \text{Perry is making a mess at } t_{now} \text{ in } W_{@}\}$

Given Def1, c) is also an almost-impossible proposition for it is true only in the actual world and false in the remaining ones. It seems that both a) and c) are the same singleton sets, thus express the same proposition. If so, it seems that we come back to the very problem we have at the beginning, namely we lose the grounds on which we explain Perry’s behavior. For Perry, this is not surprising at all because he thinks that all this time, we have only one content but two different ways of accessing it. The problem here is due to our oversimplification of one of the

members of the center pair, namely the individual in question. We previously took a center, C as a pair $\langle I, t \rangle$ of an individual, I , and a time, t . However, an individual is the sum of his body and his total mental states such that individual can be construed as a pair $\langle B_I, S_I \rangle$ of a body, B_I , and a total mental state, S_I . Stalnaker in “Context” very much in the same line considers the context not only as something that includes a person, a time and a location but also something that includes “the beliefs, plans and purposes of the participants [individuals]” (2014: 15). The notion of a total mental state can be seen up in the air though. But if we can stick on Lewis’s definition of the notion, we might come down to earth. According to Lewis’s definition, “the content of a total mental state is the system of belief and desire that best rationalizes the behavior to which that state would tend to dispose one”.²⁸ By this, it won’t take for one to come up with a more fine-grained way that could specify the center in question. Thus, a qualified account of centered-content can be given as follows:

A centered content is such that it is the pair, $\langle C, W \rangle$, of a particular center, C and the actual world, W , where a center C either as a space-time point, i.e., an ordered pair $\langle l, t \rangle$ of a location l , a time t and, or a pair $\langle \langle B, S \rangle, t \rangle$ of a pair $\langle B, S \rangle$ (construed as the individual, I) of a body, B , and a total mental state, S of an individual on the one hand and a time t on the other. Then we can argue that the proposition expressed by the sentence ‘I am making a mess now’ is the following singleton set:

e) ‘I am making a mess now’ = $\{ \langle \langle B, S \rangle, t_{now} \rangle, W \}: I$ is making a mess at t_{now} in W .

²⁸ See. Lewis, David (1986). "Probabilities of Conditionals and Conditional Probabilities II", *Philosophical Review* 95, 581-589

By this refinement, we no longer have the problem we previously bothered ourselves. Now, we can claim that both a) and c) are not the same singleton sets because the content of Perry's total mental state before it dawned on Perry that he himself is making a mess at a time is not the same content after it dawned on Perry that he himself is making a mess at a time. Contrary to Perry, we can claim that we have two different contents in this occasion. The missing link that connects these contents is the belief in the proposition expressed by the sentence "I am the person who is making a mess now." But Perry cannot construct that link by getting any *de dicto* or *de re* knowledge or belief about himself just like in the example of the lost amnesiac Rudolf Lingens. That link can only be constructed perceptually. It dawned on Perry that he himself is making a mess at a time because of the information Perry got from his perceptions. He saw (perceived) that the trail of sugar on the supermarket floor became thicker and thicker as he pushing his cart down the aisle. He saw (perceived) that the reflections on the mirror is his. And then he comes to believe that he himself is the person who is making a mess at the time.

Since the singleton sets as the centered contents of a) and c) are not the same, they express different propositions. Therefore, we do not have one single content but two. This also explains why the ways Perry accesses to those contents are not the same. In other words, this explains why we have two ways of believing here. Thus, with our finer grained account of content, we may specify the centered contents of a) and c) as follows:

$$a^*. \quad \text{'I am making a mess now'} = \\ \{ \langle \langle B_I, S_I \rangle, t_{now} \rangle, W_{@} \}: I \text{ is making a mess at } t_{now} \text{ in } W_{@} \}$$

c*. 'Perry is making a mess now' =

$\{\langle\langle B_I, S_I^* \rangle, t_{now} \rangle, W_{@}\}: Perry \text{ is making a mess at } t_{now} \text{ in } W_{@}\}$

Here, the only relevant difference in explaining Perry's behaviour (assuming his desires remain constant) is in the content of Perry's total mental state. $S_I \neq S_I^*$ because S_I includes the belief that "I am the one who is making a mess now" (call this proposition 'X') while that belief is not included in the content of the total mental state, S_I^* . In addition, we assume that the physical structure or spatial properties of Perry's body is not changing. So, the body member, B_I stays constant. Of course, for instance, if Perry's arm were chopped off due to a tragic accident in the market, we would have to change that member too in the representation of the content because such a drastic change in the spatial properties of his body would have changed the context in that case. Now if one of the roles of the mental content in explaining the nature of mental states is to set or constitute the veridicality conditions of the mental state in question as we have seen in the third role of the representation content in Burge's account, then we can securely argue that the source of indexicality is the content rather than the state itself, the cognitive significance of which is originated in its content.

However, one can still object to this qualified version of content. Consider a case where Perry believes both in a* and c* without knowing or believing in X (i.e., the proposition expressed by the sentence "I am Perry who is making a mess now"). We have just seen above that the inclusion of X to Perry's total mental state makes a* and c* different. But as the objection goes, since we cannot include X in the total mental states of Perry, now we won't have different propositions expressed by a* and

c* because S_I and S_I^* will be the same. Then if S_I and S_I^* are the same just as the body part of Perry is the same in both of the utterances, how come we could explain the difference in Perry's behavior? Here I will answer this legitimate question by refining further the mental contents in question.

Suppose at t_1 Perry believes that

1. Perry is making a mess at t_1 ,

which can be construed as the singleton set

2. $\{\langle \langle B_I, S_I \rangle, t_1 \rangle, W_{@}\rangle: \text{Perry is making a mess at } t_1 \text{ in } W_{@}\}$

3.

Again, suppose also that at t_2 Perry believes both of the following:

3. Perry is making a mess at t_2

4. I am making a mess at t_2 ,

Both of which can be construed below respectively as the singleton sets

- 3*. $\{\langle \langle B_I, S_I \rangle, t_2 \rangle, W_{@}\rangle: \text{Perry is making a mess at } t_2 \text{ in } W_{@}\}$

- 4*. $\{\langle \langle B_I, S_I \rangle, t_2 \rangle, W_{@}\rangle: \text{I is making a mess at } t_2 \text{ in } W_{@}\}$

Since both at t_1 and t_2 Perry does not believe in X , there won't be a difference in his total mental state. Because at t_2 Perry still does not know that the name 'Perry' refers to himself but knows that the term 'I' refers to himself (because every competent speaker should know how to use the term 'I' by knowing that it refers to the speaker himself/herself), Perry does not know or believe in X . It is clear that the content represented by 2 is not the same content represented by both 3* and 4* because the time components involved in the contents are different. It is also clear that the content represented by 3* is not the same content represented by 4* because 3* is the content of a *de re* attitude while 4* is the content of a *de se* attitude. So, to justify my account, we find the desired difference between 3* and 4*. The difference lies in the mental component of the center in question. However, given the objection, the proposition expressed by "I am Perry who is making a mess now" is not included (i.e., believed) in both components of 3* and 4*, namely Perry's total mental state at t_2 . So, we could not say that the difference in the total mental state at t_2 is the belief in X . It seems that we could not find a difference between 3* and 4* but we know that merely believing 3* does not result in a certain action but 4* does! So, we know that there MUST be difference between 3* and 4* in their relation to motivating the action. So where does the difference lie?

One important difference we know is that 3* is not indexical, which means it is not a *de se* content but 4* is! So, in order to explain that difference, we need to specify a relation between the content of a thought and the object (in our case Perry's body at t) the thought is about. The relation is a combination relation (R) of reference and indication as a subtype of an intentional representation that constitutes *aboutness* (we can call this relation R 'an intentional relation'). Thus, we can add that relation (R) as the essential part of the center in question. That relation, R , is an intentional

relation between Perry's body which happens to be the object of his thought and Perry's total mental state. Thus, R is a relation between the components of the individual part of the center in question. Therefore, the center can be construed as the singleton set of a triple rather than a pair as follows:

$$\S. \{ \langle \langle B_I, S_I \rangle, t, R(B_I, S_I) \rangle, W \}$$

Now contrary to objection, we have a difference between 3^* and 4^* . Because

3^* now becomes 3^{**} :

3^{**} : 'Perry is making a mess at t_2 ' =

$$\{ \langle \langle B_I, S_I \rangle, t_2, R_1(B_I, S_I) \rangle, W_{@} \}: Perry \text{ is making a mess at } t_2 \text{ in } W_{@} \}$$

and 4^* becomes 4^{**} as follows:

4^{**} : 'I am making a mess at t_2 ' =

$$\{ \langle \langle B_I, S_I \rangle, t_2, R_2(B_I, S_I) \rangle, W_{@} \}: I \text{ is making a mess at } t_2 \text{ in } W_{@} \}$$

We now know that R_1 is not the same as R_2 because when Perry believes in 3^{**} , R_1 amounts to a reference relation between Perry's body at t_2 and as a particular reference relation, the mental representation *about* SOMEONE called *Perry* who is the referent of name 'Perry' and R_2 amounts to a relation between Perry's body at t_2 and the mental state *about* HIMSELF who is the referent of term 'I'. Given that Perry does not know or believe in X, one can legitimately ask why R_1 is distinct from R_2 since both R_1 and R_2 are the same relations between the same body (B_I) and the

same total mental state (S_i). First of all, the fact that relata of a relation is the same with that of another relation does not entail that both relations are the same. For instance, fatherhood is a relation consisting in me and my father as relata just like sonhood is a relation consisting in me and my father but fatherhood and sonhood are not the same relation even though both relations can share the same relata. Second, given both the theory of direct reference and Burge's representational account of reference, representational content constitutes the mode of presentation of the representational state. Recall that the mode of presentation is the cognitive perspective the individual has on the subject matter its representational state is *about*. Since the intentional reference relation between 'Perry' and Perry is not the same relation between the first-person pronoun 'I' and Perry, the cognitive perspective Perry has on the subject matter that its representational state is *about* differs. Consequently, in 3** the total mental state of Perry is *about* someone as 'Perry' (Perry need not know that he himself is Perry) whereas in 4** the same total mental state of Perry is *about* Perry himself as 'himself', thus R_1 and R_2 are not the same relation. Therefore 3** and 4** express distinct mental contents.

However, another objection is given by Voss as follows²⁹:

Now consider the content of the two sentences at the center Perry, t_2 , R_1 and R_2 which are each his belief state about his body at that time. So $R_1 = R_2$, and the content of each sentence at that center is the same:

$$e) \quad \{ \langle \langle \text{Perry}, t_2, R_2 \rangle, W_{@} \rangle \}$$

²⁹ This objection is given by Stephen Voss in one of our correspondences. Thus, I am grateful to him for bringing this puzzle on the table.

Voss thinks that $R_1 = R_2$ because each of Perry's belief states is about his body at that time. Because of this, 5 will also be the content of 'I am a philosopher' at the same center for the Burgian referential relation between 'I' and Perry are the same. So, according to Voss, this approach doesn't seem to solve the problem of separating the contents of 3** and 4**. To reply this, I can say that given Lewis's property account, the property ascribed to Perry when he believes in the proposition 'I am a philosopher' is not the same property when he believes in the proposition 'I am making a mess'. The first property is the one of inhabiting a world where Perry is a philosopher whereas the second property is the one of inhabiting a world where he is making a mess. However, Voss has stumbled on an important problem. Now according to Voss, this question is still legitimate: How do we differentiate the content of 'I am a philosopher' from the content of 'I am a making mess' without appealing to Lewis' property account which itself is problematic in accounting the communication problem? If the intentional reference relations between an object and the total mental state are the same in both cases, does not it seem that both the contents of 'I am a philosopher' and of 'I am a making mess' amounts to the same set?

To solve this further problem, Voss suggests that we can identify a sentence's content at a center with the propositional object of a hypothetical belief. Suppose we specify the contents of 'I am a philosopher' and 'I am a making mess' at Perry, t_2 in terms of the different mental states Perry would be in if he believed one of them at that time. Such counter-factual beliefs as being the propositional object of a hypothetical belief is worth considering. Berto in a similar fashion also suggests us to understand the general account of beliefs and content in terms of counter-factual

ways of believing which he simply takes it to be a form of imagining a possible scenario. He says the following:

Representational mental states are modelled as restricted (agent-indexed) quantifiers over worlds. Cognitive agent x \textcircled{R} 's that p , \textcircled{R} being the relevant representational mental state (knows, believes, is informed that), when p holds throughout a set of worlds compatible with x 's evidence, overall beliefs, etc. Accessibility relations single out the scenarios x entertains. Let R be one such accessibility: ' wRw_1 ' means "World w_1 is an epistemic alternative for world w ". Read " $\textcircled{R}p$ " as "It is represented [believed, known, etc.] that p ". Then the (non-agent-indexed) truth conditions for \textcircled{R} are:
' $\textcircled{R}p$ ' is true at w iff p is true at all w_1 , such that wRw_1 . (Berto, 2017)

Suppose Perry believes in both propositions below:

p . I am a philosopher

q . I am making a mess

Given Berto's account, $\textcircled{R}p$ (e.g., "Perry believes that p " or 'It is believed (by Perry) that p ') is true at w iff p is true in all worlds w_1 such that wRw_1 ; where R is Perry's epistemic accessibility relation. Note that worlds w_1 and w are epistemic alternatives compatible with Perry's evidence/beliefs. Now Let us integrate our modified centered content within Berto's framework.

Let the propositions p = "I am a philosopher" and q = "I am making a mess" be modeled as the centered content: as follows:

$$a) p = \{ \langle \langle B_I, S_I \rangle, t_2, R_2(B_I, S_I) \rangle, W_{@} \}$$

$$b) q = \{ \langle \langle B_I, S_I \rangle, t_2, R_2(B_I, S_I) \rangle, W_{@} \}$$

Hence, the truth-condition for p and q would be

- i. p is true at a world $W@$ iff $R_2(B_I, S_I)$ holds in $W@$ at time t
- ii. q is true at a world $W@$ iff $R_2(B_I, S_I)$ holds in $W@$ at time t .

This means Perry's body B_I and mental state S_I , at t , stand in the relation R_2 that constitutes both "being a philosopher" and "making a mess" in $W@$.

Now the truth conditions for the following beliefs ascriptions (e.g., Bp and Bq , where read both as "*It is believed by Perry that p* " and "*It is believed by Perry that q* " respectively) can be modelled in Berto's framework as follows:

- A. Bp is true at $W@ \leftrightarrow \forall w_1(wRw_1 \rightarrow p$ is true at $w_1)$
- B. Bq is true at $W@ \leftrightarrow \forall w_1(wRw_1 \rightarrow q$ is true at $w_1)$

However, q 's truth at w_1 requires that in w_1 , at time t , $R_2(B_{I,w_1}, S_{I,w_1})$ holds. (Note that B_{I,w_1} and S_{I,w_1} denote Perry's body/mental state in w_1). Thus, the main reason why p and q differ is that p 's truth is invariant across Perry's accessible worlds because it relies on stable facts about his identity, namely the stable fact that he is a philosopher. The accessibility relation R filters out worlds inconsistent with his long-term evidence (e.g., worlds where he's not a philosopher). In the case of q , q 's truth is highly context-sensitive in comparison to that of p and its truth varies across accessible worlds. The accessibility relation R includes worlds where the conditions for q (e.g., spilling coffee, dropping sugar on the floor, or standing still)

do *not* hold. Therefore, the formal contrast between ‘I am a philosopher’ and ‘I am making a mess’ can be shown as follows:

Table 2. The Proposition, its Truth and Universal Quantification

Proposition	Truth in w_I	Universal Quantification
p : I am a philosopher	Stable across w_I , p holds if Perry’s identity persists	$\forall w_I (wRw_I \rightarrow p)$: True
q : I am making a mess	Contingent on B_{I,w_I}, S_{I,w_I}, t : q may fail in some w_I .	$\exists w_I (wRw_I \wedge \neg q)$: False

If it is correct that we can identify a sentence’s content at a center with the propositional object of a hypothetical belief (i.e., counter-factual beliefs), the counter-factual belief in the situation that Perry is not a philosopher requires Perry to exert more epistemic force than the counter-factual belief in the situation that Perry is not making a mess or making a mess through different ways.

However, construing an individual as a pair of a body and total mental state can be seen suspicious for those who are prone to think that the proposition in question is centered in the entire individual, in the exact time and location instead of the components of such context-makers. Thus, the Burgean intentional reference relation is not between the body part as the object of the thought and the total mental state. We can refine our Centered-Content Model by integrating Burge’s Reference/Indication Distinction with the two Burgean intentional reference relation, first of which is between the object of thought as the referent of the subject term and the subject term itself and the second of which is between the property indicated by the predicate term and the predicate term itself. Thus, we can refine the *de se* content as follows:

$$\delta. \quad \{\langle\langle x, t, \mathcal{R}_{subj}, \mathcal{R}_{pred} \rangle, w \rangle\},$$

where x is the agent, t is time, and w is possible world. Here, \mathcal{R}_{subj} is the representational reference relation between the object of thought as the referent of the subject term and the subject term itself and \mathcal{R}_{pred} is the representational indication relation between the property indicated by the predicate term and the predicate term itself. The function of \mathcal{R}_{subj} is to map the content of linguistic/mental subject terms to their referents. Thus, the representational reference relation binds the content of the subject term to x as being the referent of the first-person pronoun “I”. The function of \mathcal{R}_{pred} on the other hand is to map the content of the predicate term to properties. Thus, the representational indication relation binds the predicate term to the property of making a mess.

Now consider again the propositions p and q ,

$p.$ I am a philosopher now

$q.$ I am making a mess now

Then given our last refinement in δ , p and q will be the singleton sets

A. $\{\langle x, t_{now}, \mathcal{R}_{subj}(\text{“I”} \rightarrow^{\text{REF}} x), \mathcal{R}_{pred}(\text{“being a philosopher”} \rightarrow^{\text{IND}} F) \rangle, W_{@}\}$

B. $\{\langle x, t_{now}, \mathcal{R}_{subj}(\text{“I”} \rightarrow^{\text{REF}} x), \mathcal{R}_{pred}(\text{“making a mess”} \rightarrow^{\text{IND}} G) \rangle, W_{@}\}$

Here, in both formulations “(“I” \rightarrow^{REF} x)” specifies the reference relation between the first-person pronoun “I” as the subject of the proposition and the object of the thought which happens to be one of the centers in question, namely x and “ \rightarrow^{REF} ” represents the referential function such that $f(I) = x$; whereas (“ Φ ” \rightarrow^{IND} F) specifies the representational indication relation between the predicate term and the property it indicates and “ \rightarrow^{IND} ” is representational function of attribution such that $g(\Phi) = F$.³⁰ In this formulation the proposition expressed by ‘Perry is making a mess now’ will be the following singleton set:

- C. $\{ \langle \langle x, t_{\text{now}}, \mathcal{R}_{\text{subj}}(\text{“Perry”} \rightarrow^{\text{REF}} \text{Perry}), \mathcal{R}_{\text{pred}}(\text{“making a mess”} \rightarrow^{\text{IND}} G) \rangle, W_{@} \rangle : \text{Perry}_{\mathcal{R}_{\text{subj}}} \text{is_making_a_mess}_{\mathcal{R}_{\text{pred}}} \text{at } t_{\text{now}} \text{ in } W_{@} \}$

Since the representational indication relations in both A and B, which are expressed by the sentences ‘I am a philosopher’ and ‘I am making a mess now’ respectively, are not the same (even though both contents are almost-impossible propositions), the contents of A and B are different. Similarly, since the representational reference relations in the sentences ‘I am making a mess now’ and ‘Perry is making a mess now’ are not the same (even though both contents are almost-impossible propositions), the contents of B and C are different. Hence, we can say that we keep the desired difference between those different propositions. Because (i) $\mathcal{R}_{\text{subj}}$ and $\mathcal{R}_{\text{pred}}$ are representational features of the content and (ii) they constitute the mode of presentation of a representational state where the mode of presentation is the cognitive perspective that the individual has on the subject matter its representational state is about, the contents expressed by those sentences not only

³⁰ “ Φ ” stands for the predicate term; “ F ” stands for property of being a philosopher while “ G ” stands for the property of making a mess.

are centered in the individual, time and location but also in the way of referring and indicating features of the semantic components of the content.

5.5 The Solution to the Problem

Let us turn back to our communication problem and see if this modified account can help us in solving the problem. We see that both in Frege's ersatz solution and in Lewis' property-based centered contents, we fail to solve the problem. Since believing a proposition is self-ascribing a property, an audience who believes the content a speaker has asserted would self-ascribe the property to himself, not ascribe it to the speaker. This was the difficulty of the Lewisian account. For Frege's ersatz solution, the issue is more dramatic. We have also seen that both Recanati's and Kölbel's solution have their own problems in solving the problem. With our modified account, we argue that problems inheriting in those account are no longer the case because the set of centered-world in which the proposition a speaker has asserted is true is the singleton set. This means that there is only one unique property corresponding to that centered-world. The property in question would be the property of being an inhabitant of a world in which the pair of the body and the total mental state is making a mess at the time. Since the property the audience that he ascribes himself is not the property of being an inhabitant of a world in which the pair of the body of the audience and the total mental state of the audience is making a mess at a time but the property of being an inhabitant of a world in which the pair of the body of the speaker and the total mental state of the speaker is making a mess at a time, the communication between them is secured. The same applies to the case of Dr. Lauben. But before going in detail to show how our account can solve the problem, it is better to recall some existing models for communication of thoughts across the

participants of a conversation. Without modelling how communication occurs one cannot test the theory of content one develops to show the underlying mechanism of communication.

Let's start with The Naïve Conception and recall that it contains two core principles (termed by Weber as the "mind-to-speech principle" and "speech-to-mind principle"):

1. Mind-to-speech: The speaker's thought = the thought expressed by the utterance.
2. Speech-to-mind: The hearer's thought = the thought expressed by the utterance.

This is the most typical model of communication. Now let us look at the Recentring model Weber puts forwards against The Naïve Conception (Weber 2013: 212). The Recentring model involves four main steps:

- i. The hearer perceives an utterance "u". [Perceiving]
- ii. The hearer believes that the expressed content of "u" is true of the speaker. [Centering]
- iii. The hearer believes that she is R-related to the speaker. [Locating]
- iv. The hearer infers information about herself from 2. and 3. [Recentring]³¹

³¹ In one of our correspondences, Lucas Thorpe offered a similar adjustment that we see in the Recentring step. According to Thorpe, the self-ascribed property does not have to be a first order property but rather it can be a second-order property. For instance, when Perry tells Lewis in the market the proposition that 'I am making a mess', in successful communication Lewis need not self-ascribe the property of making a mess but he can self-ascribe the proper of inhabiting a World where

Weber also claims that the Centering step shown in 2 has two more components, which he calls *Understanding* and *Trusting*. He says:

Firstly, to gain information from an utterance, the hearer has to understand it. For us this means that she has to know what the expressed content of “u” is. Secondly, in the standard case of communication, the hearer will trust the speaker, i.e. she will believe that the speaker has made a true utterance. . . . To trust the speaker is to believe that the utterance correctly characterizes the speaker’s context. Putting the Understanding and the Trusting step together, we get the Centering step: the hearer believes that the expressed content of “u” is true of the speaker’s context. (2013: 212)

I think this model is not correct for the reason that I shared with Pagin. Pagin (2013) objects to Weber’s model for assuming a false premise: that a hearer *must believe the speaker* to understand their utterance. Pagin also argues that Trusting cannot be a universal requirement, as it would render exchanges like the following nonsensical (ibid.):

A: You have Groat’s disease.

B: I don’t believe that/That’s not true.

In ordinary communication, hearers typically first *understand* the content of an utterance and later *evaluate its truth* relative to the actual circumstances. However, Pagin notes aforementioned problem with centered-content models like Lewis’s: such frameworks lack a way to represent a centered content that is entertained but not believed by the hearer. Indeed, hearers do not always have to believe whatever is said by speakers to them in order to understand the speakers.

Lewis has the property of inhabiting a World where Perry is making a mess. In centered content discourse this amounts to the recentered the content by self-ascribing a second-order property.

Furthermore, we have seen that on Lewis's account, centered contents involve self-ascription—a property is predicated of the subject *only* when the subject self-ascribes the content. The property itself is not part of the content; it arises solely through the act of self-ascription, which parallels ordinary belief. This creates an issue according to Pagin (*ibid.*) without shifting to non-centered contents (where the subject is explicitly represented in the content), a hearer cannot grasp a property being predicated of them without also believing it. While this limitation is unproblematic for modeling belief alone, it fails to account for communication, where hearers routinely encounter contents that they may accept or reject. For instance, in the above dialogue, B understands A's centered content ("You have Groat's disease") but does not believe it—a distinction the ordinary centered-content framework struggles to capture.

Since both of those models of communication have their own problem, I suggest a third model of communication which can be seen as a combined version of both models. Now consider Perry's messy-shopper case and recall what Perry utters to Lewis by the following proposition:

- a) Perry to Lewis: I am making a mess now

I think that by the utterance of a), Perry conveys two distinct information to Lewis. The first information (I_1) consists in the content of Perry's utterance which we characterize as the singleton set $\{\langle x, t, \mathcal{R}_{subj}, \mathcal{R}_{pred} \rangle, w\}$: x is making a mess at t_{now} in $W@$. The second information (I_2) consists in the content of a belief ascribed by Lewis to Perry such that Perry believes that he is making a mess now. We can revise I_2 if Lewis does not know Perry nor his name as such: The person talking to

me believes that he is making a mess now. In every utterance we make daily, we convey not only the content's information but also information that allows our audience to ascribe a certain mental state to us. Here Lewis does not have to believe that the expressed content of Perry's utterance is true of Perry for Perry may not be making the mess.³² Thus, we escape from the criticism that emerges in Weber's centering step. Now the theory assumes hearers can infer the speaker's reference via \mathcal{R}_{subj} but does not detail how this inference is pragmatically constrained. To relieve this worry, we introduce the following indexical rule that allows the hearer maps "I" to the speaker's mental file via \mathcal{R}_{subj} :

Indexical Rule: "I" refers to the agent whose mental file is causally linked to the utterance in the current context.

By the application of this rule the hearer can now avoid miscommunication by relying on mechanisms that prioritize the speaker's perspective over their own. This is achieved through a salience hierarchy embedded in the conversational context, where the speaker's mental file—containing properties like their identity, role, and immediate actions—is treated as the default referent for first-person indexical "I". When Perry says "I am making a mess now," Lewis instinctively privileges Perry's mental file over his own because Perry's role as the speaker makes him the attentional focus of the interaction. This focus is reinforced by joint attention, a tacit agreement that the speaker's intentions and self-ascriptions are the primary subject of the exchange. Lewis further verifies this inference through counterfactual reasoning: he asks, "If 'I' referred to me, would this utterance align

³² Indeed, we occasionally may lie to our audiences and in such a successful case of lying, our audiences ascribe a mistaken belief to ourselves that we believe that p , where p is in fact false but the success of lie implies the success of communication and understanding. No one can lie to anyone who does not understand them.

with the context?” Since Lewis observes no mess caused by himself, he rejects self-ascription and attributes the property of “making a mess” exclusively to Perry. This threefold process—salience, joint attention, and counterfactual validation—ensures that the hearer resolves reference accurately without conflating their own perspective with the speaker’s.

Since two distinct information is conveyed by a single utterance as in I_1 and I_2 , we can secure the successful communication between Perry and Lewis By I_1, I_2 , and the indexical rule connecting I_1 and I_2 , we rule out the possibility that an audience who believes the content a speaker has asserted would self-ascribe the property to himself, not ascribe it to the speaker because the content of the utterance is a singleton set and consequently it posits a unique property that only the speaker can have. When Perry utters the proposition expressed by ‘I am making a mess now’, he conveys the information that can be represented as follows:

D. $\{ \langle x, t_{now}, \mathcal{R}_{subj} (“I” \rightarrow^{REF} x), \mathcal{R}_{pred} (“making a mess” \rightarrow^{IND} G) \rangle, W_{@} \}$

Lewis as the hearer will ascribe Perry the belief that he^{*33} is making a mess and by the two distinct information conveyed by Perry’s utterance and the inference rule, Lewis interprets that "I" refers to Perry, not himself. This allows him to replace Perry’s $\mathcal{R}_{subj} (“I” \rightarrow^{REF} x)$ with a third-person reference relation:

$\mathcal{R}_{subj} (“he*” \rightarrow^{REF} Perry)$

³³ “he*” can be replaced here by various expressions that help the hearer to recognize or identify the speaker like ‘Perry’, ‘he’, ‘the person in front of me’, ‘the person who is making mess’, ‘this person’ or ‘the bearded man’...etc.

This retains the referent (x) but shifts the mode of access from first- to third-person. Meanwhile Lewis preserves the indication relation:

$$\mathcal{R}_{pred}(\text{"making a mess"} \rightarrow^{\text{IND}} G)$$

The property G remains invariant across perspectives. Thus, we can construct the content Lewis as the hearer believes as follows:

$$E. \{ \langle \langle x, t_{now}, \mathcal{R}_{subj}(\text{"he*"} \rightarrow^{\text{REF}} Perry), \mathcal{R}_{pred}(\text{"making a mess"} \rightarrow^{\text{IND}} G) \rangle, W_{@} \}$$

Now given all these points we can model the successful communication between Perry and Lewis as follows:

i. *Perceptual Anchoring of the Utterance:*

Lewis perceives Perry producing the utterance "I am making a mess now" through auditory and visual cues (e.g., Perry's voice, his position in the supermarket aisle...etc.). This anchors the utterance to Perry as the *source* of the speech act.

ii. *Common Ground Activation:*

Lewis leverages the shared contextual knowledge such as that both are in a supermarket, that Perry is pushing the cart, that Lewis sees a trail of sugar coming from the cart Perry is pushing...etc

iii. *Mental File Alignment*

Lewis retrieves his mental file for Perry which includes properties like 'the speaker of the current utterance', 'the agent pushing the cart', 'the subject of my visual attention' ...etc. This file then is updated with the new predicate: 'making a mess'

iv. *Reference Resolution via \mathcal{R}_{subj}*

Here Lewis applies the indexical rule that “I” refers to the agent whose mental file is causally linked to the utterance in the current context. By the rule Lewis transforms $\mathcal{R}_{subj}(\text{“I”} \rightarrow^{\text{REF}} x)$ into $\mathcal{R}_{subj}(\text{“he*”} \rightarrow^{\text{REF}} \textit{Perry})$ that maps to Perry, as Perry is the speaker and the subject of Lewis’s mental file.

v. *Predicate Anchoring via \mathcal{R}_{pred}*

Lewis resolves $\mathcal{R}_{pred}(\text{“making a mess”} \rightarrow^{\text{IND}} G)$ by connecting it to observable evidence such as that the sugar trail correlates with Perry’s movements or that Perry’s cart has a torn sack, confirming the source of the mess...etc.

vi. *Salience Hierarchy*

Perry’s mental file is prioritized over Lewis’s because (i) Perry is the active participant producing the utterance and (ii): Lewis is visually tracking Perry’s actions.

vii. *Joint Attention*

Both agents share a perceptual focus on Perry’s cart and the sugar trail. Lewis infers Perry’s intent to communicate his own mess-making, not Lewis’s as a result of the previous steps.

viii. *Counterfactual Validation*

Lewis can perform a reality check by asking the question: “if ‘I’ referred to me, would this utterance make sense?” Since Lewis observes himself as being stationary, holding no cart or torn sack, he can conclude that self-ascription is invalid; the predicate applies only to Perry.

ix. *Belief Formation*

Lewis integrates the resolved content into his belief system as the singleton set:

$$\{\langle x, t_{now}, \mathcal{R}_{subj}(\text{“he*”} \rightarrow^{REF} Perry), \mathcal{R}_{pred}(\text{“making a mess”} \rightarrow^{IND} G), W_{@}\rangle\}$$

Therefore, given the model we describe above, when a speaker communicates a *de se* thought like “I am making a mess now” the hearer reinterprets the speaker’s first-person reference $\mathcal{R}_{subj}(\text{“I”} \rightarrow \text{self})$ as a third-person attribution $\mathcal{R}_{subj}(\text{“the speaker”} \rightarrow \text{the referent of the term picking out the speaker})$. This preserves the speaker’s subjective motivation and avoids mis-centering, which eventually ensures the hearer attributes the relevant property to the speaker, not themselves. By anchoring content to structured relations—reference and indication—the model resolves how self-locating thoughts retain their peculiarity yet become shareable, bridging individual perspective and intersubjective understanding.

CHAPTER 6

CONCLUSION

In this dissertation, I have developed an account of propositional attitudes and their contents that seeks to resolve the problem of communication in *de se* thought. By introducing two novel semantic primitives—almost-impossible and almost-necessary propositions—within a modified Lewisian-centered framework, I have aimed to reconcile the distinctive features of self-locating attitudes with the demands of a systematic theory of content. The central thesis is that *de se* contents, or self-locating thoughts, are best characterized as almost-impossible propositions: singleton sets of centered worlds that are true only in the actual world and false in all others. This account preserves the metaphysical commitments of Lewisian counterpart theory while addressing the challenges posed by the communication of first-person thoughts across conversational participants.

The problem of communication, as articulated through Frege's example of Dr. Lauben and Perry's messy-shopper case, arises from the apparent tension between the privacy of first-person modes of presentation and the public nature of linguistic exchange. Traditional accounts, whether Fregean or possible-worlds-based, falter by either positing incommunicable private contents or oversimplifying the individuation of propositions in terms of ordinary possible worlds. Frege's ersatz solution, which substitutes private *de se* contents with public descriptive counterparts, fails because it severs the connection between the speaker's original thought and the communicated content. Similarly, Lewis's centered-worlds framework, while recognizing the irreducibility of *de se* attitudes, struggles to explain how hearers avoid mis-ascribing self-locating properties to themselves when interpreting assertions like "I am making a mess."

By contrast, the proposed account grounds *de se* contents in almost-impossible propositions—structured as singleton sets of centered worlds—thereby capturing their unique epistemic and metaphysical profile. These propositions are “almost-impossible” in the sense that they are true only at a single center-world pair (e.g., the actual world and the speaker’s perspective) but remain contingent in the broader logical space. This modification integrates Burge’s theory of reference as a representational relation and Kaplan’s direct reference framework, ensuring that the cognitive significance of *de se* thoughts arises from their content rather than being relegated to mere belief states. The result is a theory that respects the third dogma of folk psychology—propositional attitudes as relations to uniformly structured contents—while accommodating the essential indexicality of self-locating thoughts.

Critically, this framework resolves the communication problem by distinguishing between the informational content conveyed by an utterance and the cognitive significance it holds for the speaker and hearer. When Perry asserts “I am making a mess,” the semantic content of his utterance is the almost-impossible proposition $\{\langle\langle I, t_{now} \rangle, W_{@} \rangle\}$, which uniquely identifies Perry as the messy shopper in the actual world. The hearer, Lewis, does not self-ascribe this property but instead infers a related, publicly shareable content: that the speaker (Perry) inhabits a world where Perry is making a mess. This inference relies on the hearer’s ability to map the speaker’s centered content onto a descriptively enriched proposition achieved through a combination of direct reference, counterpart-theoretic semantics, and pragmatic coordination.

The account also addresses objections to earlier solutions. Recanati’s mental file theory, while insightful in emphasizing the role of cognitive modes of

presentation, conflates vehicles of thought with their contents and fails to explain how communication preserves truth-conditions across differing perspectives. Kölbel's portable surrogates, though formally elegant, ultimately reduce *de se* contents to classical propositions, undermining their distinctive role in explaining action and rationality. By contrast, the almost-impossible propositions framework retains the explanatory power of centered contents while providing a mechanism for their translation into communicable, context-invariant information.

A key strength of this approach lies in its compatibility with the broader metaphysics of counterpart theory. By treating individuals as unique across worlds and centers as pairs of bodies and total mental states, the account ensures that *de se* contents are both fine-grained and ontologically robust. The integration of intentional reference relations into the relevant center further refines the distinction between believing that Perry is making a mess and believing that I am making a mess, even when the propositions share the same truth-conditions.

In conclusion, this thesis demonstrates that the communication of *de se* thoughts is not only possible but fundamentally structured by the interplay between singular centered contents and their pragmatic enrichment in conversational contexts. By reimagining Lewisian centered worlds through the lens of almost-impossible propositions, the account bridges the gap between subjective self-location and objective communication, offering a unified solution to one of the most persistent challenges in the philosophy of mind and language. The result is a theory that respects the insights of both Fregean and Lewisian traditions while charting a new course for understanding the nature of indexicality, propositional attitudes, and the metaphysics of content.

APPENDIX
REFUTATIONS IN COUNTERPART THEORY

(1) *Counterpart relation is transitive.*

Counterpart relation is *not* transitive. It is not plausible to postulate (1) within Lewis' system by the postulate P5, this means that no counterpart can be replaced by another; thus (1) formalized as $\forall x \forall y \forall z (Ixy \wedge Iyz \wedge Cxy \wedge Cyz \rightarrow Ixz \wedge Cxz)$ is not licensed

(2) *Counterpart relation is symmetric.*

Counterpart relation is *not* symmetric. It is not plausible to postulate (2) within Lewis' system by the postulate P5, this means that (2*) $\forall x \forall y (Ixy \wedge Cxy \rightarrow Iyx \wedge Cyx)$ is not licensed.

(3) *Nothing in any world had more than one counterpart in any other world.*

By the postulate P1, (3) becomes (3*) ' $\forall x \forall y (Iyx \rightarrow \neg \exists z (Cxy \wedge Wz \wedge z \neq y))$ ' Since it is not plausible to postulate (3) within Lewis' system, this means that (3*) is not licensed.

(4) *No two things in any world had a common counterpart in any other world.*

By the postulates P1, P2 and P5, (4) becomes

(4*) $\forall x \forall y \forall z (Ixy \wedge Ixz \wedge x \neq y \rightarrow \neg (Cxy \wedge Cyz \wedge Wz \wedge \neg Ixz \wedge \neg Iyz))$

Since it is not plausible to postulate (4) within Lewis' system, this means that (4*) is not licensed.

(5) *For any two worlds, anything in one was a counterpart of something in the other*

By the postulates P1, P2, P3 and P4, (5) becomes

(5*) $\forall x \forall y (Wx \wedge Wy \wedge x \neq y \rightarrow \exists z (Ixz \wedge Cyz))$. Since it is not plausible to postulate (5) within Lewis' system, this means that (5*) is not licensed.

(6) *For any two worlds, anything in one had some counterpart in the other*

By the postulates P1, P2, P3, P4 and P6, (6) becomes

(6*) $\forall x \forall y (Wx \wedge Wy \wedge x \neq y \rightarrow \exists z (Ixz \wedge (Cyz \vee \neg Cyz)))$. Since it is not plausible to postulate (6) within Lewis' system, this means that (6*) is not licensed.

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