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Tensed Belief

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ABSTRACT

TENSED BELIEF

by

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Human beings seem to capture time and the temporal properties of events and things in thought by having beliefs usually expressed with statements using tense, or notions such as ‘now’, ‘past’ or ‘future’. Tensed beliefs like these seem indispensable for correct reasoning and timely action. For instance, my belief that my root canal is over seems inexpressible with a statement that does not use tense or a temporal indexical. However, the dominant view on the nature of time is that it forms, with space, a four-dimensional continuum where time does not encompass private perspectives or an absolute, fixed present. This ‘tenseless’ theory of time encounters a challenge in integrating tensed belief, because it cannot easily explain what constitutes a tensed belief in a tenseless world and how such a belief works inside our cognitive network to bring about the actions it does. Providing such an account is the main goal of this dissertation.

I argue here that the correct way to proceed would be to utilize philosophical theories dealing with indexicality, as the puzzling features of tensed belief are shared with beliefs expressed by first-person or spatial indexicals. In chapters II and III I expand the dominant theories about indexicality (Lewis, Perry, Kaplan) and apply them to tensed belief. I show that each is in certain respects incomplete or inadequate.

My preferred account critiques the preceding theories as misattributing the indexicality involved to a fully *conceptual* element in the way people think about time. I argue that we should instead connect tensed belief to not fully conceptual elements in the vein of T. Burge. For support I turn to work in perceptual psychology that connects beliefs about space to perceptions of spatial features. In chapter IV I develop an analogous argument about temporal thought and discuss how mental representations involved in perceptions are constitutively related to the formation and preservation of tensed beliefs. Combining this story with a tenseless theory of time should give us a complete, metaphysically uncontroversial, account of the way a tensed belief functions in reasoning and produces timely action.

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CHAPTER 1
TENSED BELIEF IN A TENSELESS WORLD

This first chapter of my dissertation attempts to set the stage for a constructive analysis of the nature and function of tensed beliefs. First, I attempt a nominal characterization of what a tensed belief is, by presenting examples of what I take to be tensed beliefs (1.0). Then I examine various ways to provide a more complete definition of the category of tensed beliefs (1.1), concluding with a working definition incorporating temporal indexical statements (1.2). Section 1.3 presents some methodological constraints on the dissertation, as well as a clear statement of its goal. It is followed by an A-theoretic account of the nature of tensed beliefs (1.4). I argue that such an account would have problems with its metaphysics (1.5.1), as well as problems in describing how the tensed belief is connected to tensed facts, or giving an error theory for failing to connect to such facts (1.5.2). I think therefore that one should look for a B-theoretic account of tensed beliefs, keeping in mind the strong tension between a B-theory and the private temporal perspective captured by essentially tensed beliefs (1.6). The chapter ends with Mellor's tenseless account of tensed beliefs (1.7). I argue that it is a good B-theoretic start but does not really explain the function of a tensed belief in reasoning.

1.0 Encountering Tensed Beliefs

During each moment of my waking life, I have a wide variety of beliefs. As I write this dissertation for instance, I am having the beliefs that I am currently writing, that it is cold in my office, that I shaved in the morning before going to class, that writing a chapter of my dissertation in the next two weeks will be extremely difficult, that the Lakers will win the NBA championship. But these are not the only kinds of beliefs I have right now. As would be evidenced by positive answers to an inquisitive interlocutor, I also believe that Athens is a Greek city, that water is H2O, that the date of Napoleon's birth is before the year 2045, that bachelors are unmarried, that roses smell nice, or that it is not polite to shout at one's own mother.

Undoubtedly these beliefs do not in the least exhaust the kinds of beliefs I might have at any instant of my conscious being. But in an intuitive first way of looking at the collection of my beliefs,

it seems that there is something fundamentally different between beliefs of the first sort and beliefs of the second sort. Faced with a demand to pinpoint this exact difference, an intuitive answer would be that the first kind of beliefs involves *time* or *tense* in some way that is different from the second set of beliefs. In this dissertation I attempt to draw the line between the two types of belief in a more substantial way; in what follows I call the first kind of beliefs *tensed beliefs*, while the second kind could be described antithetically as *tenseless beliefs* – or more simply non-tensed beliefs. It is my starting viewpoint that this difference is real and, if illuminated properly, might yield useful results regarding the way people think and how they behave in result of those thoughts.

For the benefit of pinpointing the category it might be useful to look at one paradigm case:

> [CLASS]:
> I am an absent-minded graduate student who wakes up relatively late for class one Monday morning. I think the thought I would express by saying: 'My class is starting now'. Consequently, I decide to run faster to catch the bus and the last part of the class. During that whole debacle, however, as well as during the day before, I keep having the belief that my Monday class starts at 10.30 am.

The two beliefs held by me in this paradigmatic case seem to differ in their features. At the moment in time described in this example for instance, the first belief will make me run faster every time I have it, while the second will not make me run faster at least in one case: when I am not sure what day or time it is. I therefore propose to put them in two distinct categories. As a working nominal definition of the categories we could say at this point that a *tensed* belief is a thought that resembles the first thought described in [CLASS]; while a *tenseless* belief resembles the last belief described in [CLASS]. If we need an even more detailed nominal definition, here are the groups I proposed above:

Tensed Belief Expressions:	Tenseless Belief Expressions:
My class is now starting.	Athens is a Greek city.
I am currently writing.	Water is H2O.
It is cold in my office.	Bachelors are unmarried.
I shaved in the morning before going to class.	The date of Napoleon's birth is before the year 2045.
Writing a dissertation chapter in the next two weeks will be extremely difficult.	It is not polite to shout at one's own mother.
	Roses smell nice.

1.1 Possible distinguishing features of tensed beliefs

In order to start a substantial examination of the peculiar creatures I decided to call 'tensed beliefs', it would be advisable to see if there is an obvious way to describe the category so it would be easier to categorize every belief I currently hold in these two separate camps. One first approach would be to try to describe the features of the two groups of beliefs above. For instance, if we look at the first group of beliefs, a *tensed belief* seems to be one involved in descriptions of myself -or the world- that use *tense* in a certain way. My current belief that I am writing a dissertation seems to essentially involve the present tense; my belief that I shaved in the morning essentially involves the past tense; and my belief that it will be extremely difficult to finish writing on time involves a future tense. Similarly-tensed beliefs would be the belief that 'Seinfeld' starts in 5 minutes, the belief that the weather was cold yesterday, or the belief –if I have it- that fifty years from now everyone will be wearing yellow jumpsuits at work. In contrast, the belief that water is H2O, or that Athens is a Greek city, or even that roses smell nice do not seem to essentially involve the past, the present or the future. Similarly tenseless beliefs would be my belief that copper is ductile, my belief that 2 + 2 equals 4, or my belief that the year 1984AD is before the year 2034AD.

This feature might create to a linguistically inclined reader the suspicion that the categorization has something to do with the verbs used to express the belief. It seems clear for instance that my descriptions of the exemplary *tenseless* beliefs do not use verbs in the past tense or the future tense. So one might think that the categorization could be done by examining the **verbs used** to express each belief. However, this approach stumbles into a first obstacle: it would not be conducive to analyzing tensed beliefs whose expressions encode the tense involved (present, past or future) in a different grammatical morpheme. Problematic examples for the latter case would include for instance beliefs usually expressed in statements involving temporal adjectives [present]/[former]/[future], or adverbs like [yesterday], [presently], and [previously]; these beliefs are usually tensed independently of the verbal morpheme used[1]. The problems would be even worse if we were trying to categorize the

[1] I do not mean here that **any** statement including those words will express a tensed belief. For instance 'Former wives should not talk to present wives' might be an example of a statement expressing a tenseless belief. I just wished to capture the intuition that the tense encoded in temporal adverbs and adjectives is normally paramount (see Salmon (2003)).

beliefs of a Chinese person in terms of the verbs she would use to express it, since the Chinese language does not provide grammaticalised tense forms, optionally locating the time of events by means of adverbials and not verbs[2]. As a matter of fact, this difficulty is a paradigmatic symptom of analyzing *beliefs* (that are in the level of thought) solely in terms of their linguistic *expressions* (that are in the level of language); this method can easily lead to mistakes because it is possible that the extent of English sentences does not exhaust -or does not adequately individuate- the thoughts one can have. As a final point against this view, we could consider the paradigm [CLASS], where the two expressions of the two beliefs both employ present tense verbs; so in a pure linguistic categorization they would have to be included in the same category[3]. I conclude that attempting to define a tensed belief in terms of the verbal tense used to express it will not carve out the category of tensed beliefs as clearly as intended. In section 1.3 I will form this point as a requirement on the correct analysis of tensed belief. However, since we are still in the feature-describing case of our analysis, we could mention that typically, in English speakers, the expression of a tensed belief makes use of a tensed verb.

A second feature that seems to be there in the first group of beliefs -and not in the second- would be a greater amount of involved personal stake – 'I' and 'my' seem to feature extensively in the tensed beliefs of page 3. I think that this is *typically* the case, but including it in a definition of tensed belief is misguided in the same way that including the use of verbs in the definition of tensed belief is misguided. This is obvious when we consider the difference between my belief that it is not polite to shout at one's mother, in contrast to my existent belief that it is cold now in Alaska. Assuming that I will not be magically transported to Alaska without my coat in the next week, it looks like the former belief involves me, my intentions and my actions, more personally than the latter. For instance having the former belief will influence my weekly actions in a more direct way as I talk to my mother at least

[2] Hickmann (2003: 16). An example from ibid. p. 55: **(3.6)** Ta1 pao3 le (3p run LE) translates ('He ran.'). **(3.7)** Ta1 pao3 zhe (3p run IMP) translates ('He is running.') and **(3.8)** Ta1 zai4 pao3 (3p IMP run) translates ('He was running.') – note that the verb remains the same (pao3 – to run) in all three constructs.

[3] It would be even more misguided to propose that the English **present progressive** tense encodes tensed belief while the simple present tense encodes tenseless belief. For then how could we explain me saying, on seeing my good friend John smiling "John is happy" (simple present)? Or how can we categorize the present perfect tense ("I have eaten breakfast") which grammatically belongs to the present tenses, while intuitively refers to the past?

once a week; and this happens even though in the other cases of tensed belief I mentioned (that it is cold in this office, that I will not finish writing this chapter on time), the belief is usually more directly connected to my actions than a tenseless belief.

A third feature of tensed beliefs that might jump out to a more philosophically inclined reader is that they appear to be about contingent facts, while some tenseless beliefs look to be closer to necessary facts or maybe relate to a priori sentences. Again, this is typically the case, but not always. Some tenseless beliefs like my belief that 2 plus 2 equals 4, or my belief that bachelors are unmarried, are plausibly not contingent (nor do they seem a posteriori). At the same time, the status of other beliefs -like my belief that it is not polite to shout at one's own mother- is more contested; it is an open question at best if they can be called 'a priori' or even 'necessary'. But consider the two beliefs I hold in [CLASS]. It seems that they both share *the exact same features* regarding the necessity or a-priority of the corresponding sentences I would use to express them. If the first belief (that my class is starting now) is contingent, so is the second belief (that my Monday classes start at 10.30 am); and if the second is not a priori, neither will be the first. I conclude that necessity or a-priority would not be a distinguishing feature to define the category we are interested in.

Assuming that my philosophically inclined reader will accept the point of the previous paragraph, she might want to instead nominate as the distinguishing factor a related feature: the fact that my tensed belief examples seem to change their truth-value over time, while the tenseless beliefs do not seem to do that. This feature comes closer to carving out the categories we are interested in. In an intuitive common sense account of the truth-values of beliefs, my *belief* that I am currently writing seems to change its truth value over time. It is true right now, but would have been false if I was holding it half an hour ago when watching Seinfeld on TV. Similar comments apply on my belief that I shaved yesterday or the belief that my class is now starting. On the other hand, it seems that some of my tenseless belief examples do not change their truth value over time; my belief that 2 + 2 equals 4 is either true or false no matter when I am having it. Similar comments apply to my belief that water is H2O or my belief that the year 1984 is before the year 2045. However, there are cases where the feature will not help us in categorizing our respective beliefs. Consider here my (admittedly complex)

belief that either I was bald sometime in the past, or I am now bald, or I will be bald in the future[4]. This belief's truth-value does not change over time: it is either true or false, regardless of when I am having it. However, I think that intuitively one would put it in the category of tensed, rather than tenseless, beliefs. It seems to resemble more in nature my belief that my class starts now than my belief that my Fall 09 classes start at 10.00 am, or my belief that roses smell nice. In similarity with my previous conclusions, we could say that tensed beliefs typically tend to change their truth value over time, but the demarkating line dividing them from tenseless beliefs should be investigated elsewhere.

As a parenthesis here, I should point out that this is not the only reason the previous approach should be rejected. If we follow this line of thought in a bigger philosophical depth, we would have great difficulty in the project of *individuating* beliefs - distinguishing one belief from another. This is so because the usual way of individuating beliefs is to look at the belief's truth-conditions; in this vein it seems counter-productive to posit that the *same* belief can change truth-values **over time**, in the same manner that it is counter-productive to posit that the same belief can change value **over a place** or **over a believer**. Loosely speaking of course, it is not wrong to say that a belief such as the belief that I am cold or that this city is ugly changes its truth value depending on the person expressing it or the place the believer is at. When I am in Santa Barbara for instance, we could say that both beliefs are false, while they are true when I am in Columbus, OH in the winter. But it is strenuous at best to assume that it is the *exact same* belief that I am having in both places that just happens to be true in Ohio and false in California. I have more to say about this point in the later sections and chapters (1.3, 2.4, 3.1.3, 3.1.4), but for the moment I think this explanation suffices.

To summarize the results so far: A tensed belief is one resembling my belief that the class is starting now, one that seems to involve time or tense in a very specific way, that is typically expressed in English by statements using tensed verbs, and one whose truth value can be seen as changing over time. In contrast, a tenseless belief is one resembling my belief that Fall 09 classes start at 10.30am,

[4] David Sanson (p.c.).

one that usually does not change its truth value over time, a belief that does not seem to use the concepts of the past, the present or the future in an essential way. What is remarkable is that so far we have not made concrete headway into the *essential* properties of a tensed belief that no tenseless belief would share; it looks like an alternative approach is required.

1.2 Temporal Indexicals and Tensed Beliefs

Since the search of obvious distinguishing features of tensed beliefs did not give us a great definition of the category of tensed beliefs, maybe it will be useful to examine [CLASS] in a different way. I propose that we could make better headway into the issue by looking at the following case:

> [MESS]:
> Perry's case of the amnesiac professor[5], modified: As I push a supermarket cart I hear "Vasilis is making a mess" without necessarily apprehending that I am making a mess. If I believe that the announcer is truthful, I might easily believe that Vasilis is making a mess. However, only at the point I realize they are talking about *me*, do I form the belief that *I* am making a mess. Consequently I check my supermarket cart.

[MESS] inherently resembles [CLASS]: I have two different sorts of beliefs, whose obvious difference is that having the first kind of belief (that Vasilis is making a mess) will not make me act in every situation with the urgency involved in having the second kind of belief. For example, having the first belief will not result in the action of checking my cart if I do not remember my name. I think that the difference adequately mirrors the belief difference in [CLASS], where the two described beliefs have two different action profiles. So if there is a way to define which sentences fall into the two categories in [MESS], there might be a way to do that for tensed and tenseless beliefs as well.

There is most probably a way to accomplish this feat: as J. Perry and others have shown in detail, one obvious difference in describing the beliefs of [MESS] is the use of the first person indexical 'I'. It seems that the sentence I would use in expressing my belief that I am making a mess will need to involve the use of the first person pronoun (or derivatives thereof, like *my* cart is leaking) to express the belief in full detail. The indexical used in the belief's expression is therefore *essential*. In contrast, this is not the case with my belief that Vasilis is making a mess. This belief's expression does not utilize the first person indexical. Now this strategy could initially carve out two categories of beliefs:

[5] From Perry (1979)

those whose expression essentially involves the first person indexical (that **I** am making a mess, that **I** am bald, that **my** room is cold) and beliefs that do not have this feature (that Kevin is tall, that Vasilis shaves every day, that copper is ductile)[6].

If [CLASS] and [MESS] were exactly analogous, maybe we could indeed provide a working definition of the category of tensed beliefs in the terms described above. Going with our paradigm case [CLASS], the belief's expression ("my class is starting now") does not use a personal indexical, but it *does* use a temporal one ('now'). The definition then would look something like this.

(1): A tensed belief is one the believer expresses with sentences using a temporal indexical.

Definition (1) clearly categorizes my [CLASS] belief (that my class is starting now) as a tensed belief. It also gives us the results we want for possible beliefs whose expression would use temporal indexical terms like 'yesterday', 'at present', 'in the future', 'currently', and related indexical terms. Moreover, it clearly does not cover my belief that copper is ductile, because at least at first glance we do not seem to be using a temporal indexical to express it. Actually, all of the beliefs involved in group 2 of section 1.0 would be correctly categorized as tenseless (or non-tensed) beliefs, since they are not using temporal indexicals. Nevertheless, definition (1) stumbles into a new obstacle. As I described some of my group 1 beliefs, e.g. my belief that the Lakers will win the NBA championship, they also do not seem to be using a temporal indexical in their expression. So definition (1) is not sharp enough to draw the line we are trying to draw between beliefs.

Notice, however, that I *could* express my group 1 beliefs involving a temporal indexical. For instance, my belief that my office is cold could be expressed by the statement "my office is now cold". Similarly, my belief that I shaved in the morning could be expressed by saying "I shaved *today* in the morning"; and my belief that the Lakers will win the NBA championship could be expressed by saying "The Lakers will win the NBA championship *in the future*". In contrast, something perplexing happens when I say "copper is *now* ductile" or "2 + 2 will equal 4 *in the future*": it sounds like I am

[6] When I say "two categories" or "two sorts" of beliefs, I do not wish to assume anything yet about the correct way to individuate beliefs. For instance I would be initially open to a Perry-like way of characterizing the issue thusly: my two beliefs have the same belief object, say proposition p, but they exhibit two different ways to believe p. In one sense this can be taken to mean that there is *one* belief but *two* distinct belief states. But I think that we can still use the term 'categories of belief' or 'sorts of beliefs' to refer directly to Perry's 'belief states' without much confusion. I will expand on this point in chapter 3 that tries to apply Perry's (and Kaplan's (1977) similar) theory to form a specific account for tensed beliefs.

expressing a totally different belief. In short, it seems that a tenseless belief cannot be expressed by using temporal indexicals.

I believe that there is a way to analyze and explain this phenomenon, as well as other phenomena involving tensed and tenseless beliefs. In order to do that I would need to delve deeper into the cognitive nature of a tensed belief, the way it is formed and the way it is connected to statements -in English and other languages- that we use to express it. At this point however I think I can nominate the following definition as the way to categorize beliefs in tensed and tenseless groups, and thereby a good starting point for analyzing tensed belief in a deeper manner:

(DF) A tensed belief is one the believer could and would normally express by using a temporal indexical.

Antithetically, a tenseless belief is a belief that is not tensed.

1.3 Aims and methodology of an analysis of tensed belief

The previous sections have given us a first way to separate our every-day beliefs into two camps. But definition (DF) is not nearly enough to satisfy the aims of this dissertation. My primary intention is to give an account of the *nature* of tensed belief. I aim to explain what a tensed belief is, what differentiates it in thought from a non-tensed belief, and ultimately exactly how it works inside a network of beliefs to bring about the actions it normally brings about in a normally behaving rational person. In the process I hope to shed enough light to issues intrinsically related to these aims, as for instance the way a tensed belief is formed, its connection to experience, its connection to a person's conceptual scheme, even its connection to the world via the belief's truth-conditions. In summary, this dissertation is looking for a good account of the nature of a tensed belief.

One reason that (DF) is very far from satisfying these goals is that it is very closely tied to the linguistic expression of a belief, and as such it does not give us a guarantee that it will illuminate the fundamental differences between two possibly very different ways of thinking. For this reason, this dissertation is not primarily interested in analyzing tensed language or tensed statements as the

ultimate guide for revealing the content of a tensed belief. It might be tempting to see the project in this light, especially since the analysis of tensed belief is usually tied to questions about the correct metaphysics of time, and such questions are traditionally examined by looking at sentences and their truth-conditions. It is also true that language is extremely important as it points to (or gives data for) the underlying mental structures. But it would be a mistake to change the subject from the outset and start talking about tensed *statements* or tensed *language*. Another clear reason for taking this approach is that tenseless languages are extremely rare in a natural setting[7]. This would mean that, by taking as our guide the English language statements used to express a belief, *all* our beliefs turn out to be tensed (even the group 2 ones). A different reason is that grammatical verb morphemes like the Simple Present verb morpheme of the English language are indeed parts of a *natural* language. As such they end up indicating far more information than temporal position. For instance they can encode aspect, modalities, *Aktionsarten*, as well as pragmatic features of the language used[8]. So an analysis focusing on linguistic tense would complicate the project unnecessarily. Finally, any data from a linguistic analysis is bound to encounter the question if it really gives us conclusive data for the underlying mental happenings: as one can have thoughts without expressing them in her language or even without being able to express them in her language.

Before I explain the methodology I propose in more detail, let us see an avenue that this project will not be able to traverse. Related to my comments in the previous paragraph, this avenue would be an attempt to explain a tensed belief via explaining the exact *linguistic meaning* of the tensed

[7] This is actually why we were having so much difficulty before to separate the two belief groups in terms of their expression; it would have been an easy task if I could say in English that 2+2 EQUALS 4 (tense-lessly). Recent linguistics literature claims the existence of 'tenseless' natural languages (Guaraní in Tanhauser (2009), Chinese in Ogihara (1996) & Hickmann (2003)), and the effect of this fact will be noted in various points of this dissertation.

[8] See Reichenbach (1947). To illustrate, here is how linguists usually define what I call 'linguistic tense': "The linguistic category of tense typically relates the time of a denoted situation to the time of the immediate speech situation or to some other temporal point established in discourse." (Hickmann 2003: 15). The first part of Hickmann's description might correspond to my definition (DF), since temporal indexicals used in speech typically relate to the time of the immediate speech situation. The second part however cannot be used in explaining all instances of tensed beliefs, since it is grounded on linguistic discourse facts – facts that will be typically absent in an unuttered tensed thought like the thought (n) that my class is starting now appearing in [CLASS].

statement used to express it. I have in mind something like J. J. C. Smart's[9] following meaning equivalence statement:

> **Token Reflexivity:** An utterance *u* of 'now' *means* 'the time of this utterance', and an utterance of "e is happening now" *means*: 'e HAPPENS[10] at the time of this utterance'. Similarly for all tensed statements.

Pertaining to language or utterances, Token Reflexivity might be a true statement. But this is neither here nor there for our purposes, since we would need an additional layer of explanation to deal with tensed *beliefs* (whose possible expression –as [DF] notes- might involve the word 'now'). The problem is not only that Smart does not give us such an explanation; it is that when the belief remains unuttered, Token Reflexivity cannot provide *any* such explanation for an action that might result from having said belief, such as my running in [CLASS]. I think that this point, taken together with well-noted modality problems[11], point to a clear requirement for this dissertation.

> **Untranslatability**:
>
> The account should not be sentence-relative or utterance-relative; as a subject might not utter anything and still have a tensed belief[12]. Translatability or meaning equivalence claims should therefore be avoided.

Nevertheless, some approaches from the field of language analysis are not beyond this dissertation. For instance sometimes sentences corresponding to tensed beliefs are clearly differentiated from those corresponding to tenseless beliefs in semantics or formal linguistics[13]. In those cases some issues about tensed belief run parallel to issues encountered in analyzing 'irreducibly tensed sentences'; these parallels will be noted and commented upon when possible and when they are clearly related to the question at hand. Some attempts from semantic theories explicitly attempting to connect language

[9] Smart (1963)

[10] Verbs in capitals here are used to indicate tenseless-ness.

[11] In token-reflexivity, statement A: "If the class is starting, then it STARTS (tenselessly) at the time of this utterance" comes out as necessary, which is implausible or at least not what the speaker uttering A intended to express.

[12] This is why for instance Reichenbach (1947) is also not great for the purposes of this dissertation

[13] See for instance Salmon (2003) who calls the first type of sentences 'elliptical', and Kamp & Schiehlen (2002) who separate it from 'temporally anaphoric' ones.

and thought (but abide by this Untranslatability Requirement) will also be examined for completeness purposes in section 3.3.

If we combine the above comments with my 1.1 position that the account should not just rely on explaining the *verb morpheme* utilized in linguistic expressions of the belief in English, we could also nominate:

Cross-linguistic Variation:

The explanation of tensed belief should not be tied to a particular language.

In this dissertation I am looking for an account of what it is to believe or think in a tensed way, not just to state something using verbal tenses. It is therefore necessary to account somehow for tensed beliefs expressed in different languages –even those that use a surface form other than tensed verbs to express it. At the outset it seems arrogant and implausible to assume that such subjects could not have tensed beliefs[14].

Other than these initial methodological suspicions towards some results of the field of linguistic analysis or semantics, the dissertation has only one more overarching constraint: it aims to explain the difference in resulting behavior between tensed and tenseless beliefs with some difference *in the level of thought*. This would cover a wide range of terms from views on belief, such as 'content', 'belief object', 'belief token', 'belief state' or just 'way to believe'[15]. An example of what the term does not intend to cover is a possible theory according to which the difference in resulting behavior between tensed and tenseless beliefs is *merely* a difference in the location of the physical realization of a belief. Let us imagine, for instance, that one claims to explain the difference by pointing to two neural facts hypothetically discovered: A: [tensed beliefs are realized near the human ear], and B: [tenseless beliefs are realized near my hippocampus]. Even if this is in fact correct, it would not on its own be an

[14] To illustrate this in a different belief category, one needs only to think of first-person beliefs, which are necessarily expressed in English by using the pronoun 'I' and its derivatives. In *pro-drop* languages however like Spanish or Greek, the same belief is expressed without an overt pronoun: "Estóy comiendo una manzana" translates "I am eating an apple". So if we focus on the overt pronoun to categorize first-person beliefs then Spanish speakers incorrectly turn out not to have first-person beliefs!

[15] Hence it is meant, in this dissertation, to cover theorists such as Kaplan, Perry, Mellor, Higginbotham, Salmon, Lewis, Burge, and even explicitly externalist views of belief or 'wide' contents.

adequate *explanation* for the tensed/tenseless belief difference of the sort I am seeking. In the best case, this possible account could be utilized to explain differences *in causal role* only if coupled with a complete neural description of the realization of all beliefs, desires and intentions playing a part in one's cognitive network when they decide to act in a timely way (e.g. when I decide to run to catch the bus in [CLASS]). But even then, the account would not be able to explain how the subject becomes aware[16] of the difference between tensed and tenseless beliefs, since none of us can immediately 'see' where exactly the belief is localized in our brain. If my section 1.0 comments are correct, one intuitively and immediately knows the difference between the two categories; for instance in [CLASS] it would seem rational for me to run after a tensed belief, but irrational to run after a tenseless belief when I do not know what day or time it is. Moreover, this reasoning can be immediately understood by an interlocutor; if a rational roommate believes that what I say is true and understands my reasoning, he should justify my running in the former case, but might not in the latter. If the difference between tensed and tenseless belief was only a matter of physical realization, then we would either have to rule out rational thought and successful communication between non-neuroscientists, or explain the rationality involved in a totally novel way. I would be extremely surprised if we can do that based just on the fact that the two kinds of beliefs have a distinct physical realization[17].

The previous paragraph implores me to nominate a new requirement for the ideal account:

Level of Thought:

The account should explain the difference in resulting behavior between tensed and tenseless beliefs with some difference in the level of thought.

(**Awareness Ability**) the subject should be somehow aware of the difference (he should be able to 'think' or 'grasp' or 'be attuned to' it) – or just *be able to* become aware of it.

[16] I am trying to use 'to become aware of x' here as an unloaded term, meaning 'for x to enter in my cognitive activity' or 'for x to have a cognitive role' or alternatively 'to be attuned to x' and 'to grasp x'.

[17] I will return to this topic in more detail in chapter 3.

Requirement 9 also implores us to not be satisfied with an account of tensed vs. tenseless belief that would explain the difference based on a *random* fact specific to one particular case we might be analyzing, such as the subject's nationality, gender, or even the day of the thought:

Non-randomness:

the difference should not be a random fact specific to the description of the case.

Randomness here pertains to the absence of a way to explicitly connect this fact's relevance to the content of a tensed belief or the way it is believed. I will be working with the assumption that men and women, Greeks and Americans[18], Monday thinkers and Tuesday thinkers[19], can share some of their tensed beliefs in communication, or have the same tensed beliefs. This would be impossible if the beliefs differ due to a random fact that does not somehow carry over to the belief's nature:

In what follows I will also work with some minimal assumptions about tensed belief that I think follow from a first pre-theoretic common-sense account of belief in general. So, until proven otherwise, I will assume that there is such a thing as a belief, that my tensed beliefs can be true (and often are true), as well as that these beliefs do have a causal role that is evident in descriptions of episodes like [CLASS][20].

Moreover, even though my paradigm [CLASS] tensed belief (my class is starting now) involves a first person indexical term ('*my* class'), I will try to bracket this feature off my analysis, since other tensed beliefs do not *seem* to involve such a direct connection to the person. The following three tensed beliefs for instance seem to not be related directly to a first person indexical: my belief (Pr) that Obama is President, my belief (Pr_p) that George Bush was president, and my belief (Pr_F) that Jeb

[18] I do not mean to say that differences in one's native language might not result somehow to differences in belief contents; it might very well be that Kevin's belief that Columbus is pretty is different than the belief I would express by saying "To Κολόμπους είναι όμορφο". However, I do find it unsupported to claim that this is a straightforward way to *show* differences in the belief level. My relatively simple tensed belief that I am now writing *could* be the same as the belief I would express in Greek by saying "Τώρα γράφω", even though I use a different language in expressing it.

[19] This is only pertaining to the name conventionally used to describe the day of the thought (e.g. 'Monday'), not the fact that the thought happens in a different day; the latter fact might be essential to belief individuation, but the former is not.

[20] Due to length constraints I do not explicitly argue for these assumptions. However Mellor (1998b) has argued for them in the following manner: as I am having a perceptual experience I truthfully have a tensed belief about what I am currently seeing; so at least those tensed beliefs are true. And the fact that they have a causal role is shown when one considers that in [CLASS] I will not run if I do not have the tensed belief that my class is starting now.

Bush will be president. These three beliefs should be categorized as 'tensed' following my 1.2 definition (DF): they could be expressed with statements (PrS) "Obama is now President", (Pr_PS) "George Bush was president in the past", and (Pr_FS) "Jeb Bush will be president in the future". This implies the following requirement:

Uncontroversial Simple Contents

A complete account of the nature and function of tensed belief should be able to describe the nature and function of tensed beliefs (Pr), (Pr_P) and (Pr_F).

Two additional requirements on this dissertation surface if we think again of the section 1.2 analogy between the [CLASS] and [MESS] 'essential indexicals' and Perry's (1979) work on this phenomenon. The first is:

Non-descriptivism:

The account should avoid a particular type of descriptivism.

This requirement can be seen as an extension of the Untranslatability Requirement. It is clear in the Perry case [MESS] that any description of the statement *that does not itself use indexical terms* will not suffice to capture the required cognitive role of belief (I). For instance, I will not necessarily check my cart if I think that the Greek person born in 8/9/1977 is making a mess. Analogously, the subject in [CLASS] will not run to catch the bus if he thinks that the class starts at time *x*, where x is any description of the time (in our example 10.30am) not involving some kind of temporal indexical or demonstrative. This is because, similarly to Perry (1979), the subject could still think that x is not the current time, in which case he will not run[21].

The second requirement surfaces if we consider the following similar case:

[ABDUCTION]:
I am abducted from my house in Santa Barbara and end up, unbeknownst to me, in a house in Beverly Hills with no windows. Thankfully, I have Google Earth and plenty of time, so I spend my time learning all the spatial facts about the L.A. area. Let's say that at this point I might be having belief

(h*) that my house is just a few miles north from Beverly Hills.

[21] One could see the failure of the 'date-theoretic B-theory of time' (Mellor 1981a and Smith 1987a arguing against it) as further support for this point. No date-theoretic description of the time in question will lead to timely action.

This does not help me when I escape though. It is only after I notice the Beverly Hills sign that I think the thought I would express by saying: 'Thank goodness, my house is just a few miles north'. Similarly to the two other cases, I am assuming that this thought involves the belief

(h): that my house is just a few miles north from here.

What is pertinent in [ABDUCTION] is that one could describe the situation as the subject believing a 'perspectival proposition', one that changes truth-value according to the location of the context. Belief (h) in this analysis would have as its only object a 'here' proposition that the subject apprehends and brings relief. But 'here' propositions, in contrast with tensed propositions, are almost universally despised as direct belief objects. The main reason is that it is implausible to assume that each person's private spatial perspective (the spatial 'point of view' of the belief subject) would turn out to have any metaphysical importance. If we accept such a theory, as Perry (1979:16) puts it, "we end up with a universe that has, in addition to our common world, myriads of private [spatial] perspectives". I conclude that the following requirement is needed:

Uncontroversial 'here'-Belief Contents:

The account should not posit foundational 'here' semantic values as belief objects.

Of course, this is not to mean that the account should be silent on issues plausibly characterized as 'perspectival'. It is obvious from the comments so far and the initial description of tensed belief in section 1.1 that a big part of this dissertation will be concerned with *exactly what makes the subject run* in [CLASS]. Definition (DF) makes obvious that this is constantly related to indexicality – and indexicality definitely is a phenomenon that has to do with perspectives. At a first glance, without explaining the private perspective involved in a tensed belief we do not have any means to describe the belief's connection to timely action[22]. One can see this dissertation main aim as trying to bring out how exactly is the private temporal perspective captured in tensed belief and what is the best way to describe it. The possible answers to the dissertation question I will examine in sections 1.4, 1.7, and

[22] Here is an alternative way of putting the same point: Carnap's (1963) autobiography mentions that *"Einstein said that the problem of the Now worried him seriously. He explained that the experience of the Now means something special for man, something essentially different from the past and the future, but that this important ... experience cannot be grasped by science.*" Carnap's reply was that Psychology is the Science that can describe it. But psychological facts are also part of the world facts: they are exactly the facts that are relevant to an analysis of tensed beliefs, since only tensed beliefs result in timely actions, and actions are essential world facts. This is why a tensed belief's truth-conditions need to capture the private perspective of the believer; without it we do not have a complete explanation of the phenomenon with which I am concerned.

chapters 2-4 all purport to capture the subject's perspectival point of view without being committed to any metaphysically suspect 'here'-facts. If the theories succeed on this point or not will be an important part of their explanatory power or, in some cases, their ultimate failure.

The last methodological requirement I wish to nominate might have been already evident from my discussion of the pre-theoretic intuition that tensed beliefs are beliefs that change their truth-value over time (section 1.1). I wish to remain at least neutral over the ever-expanding debate on the eternality of propositions. My personal view on the matter is that one could straightforwardly talk about tensed *sentences* changing their value over time; but in the level of propositions such talk is misleading[23]. I follow Frege, Russell, Evans (and more recently Salmon and Richard) in thinking that the proposition ^the tree is covered with green leaves^ is the same proposition as ^the tree is now covered with green leaves^: an eternal proposition with a definite truth-value depending on the time of uttering the statement expressing the proposition, or the time of believing the proposition. Since however I do not wish at this point to beg the question by taking a strict position on the exact metaphysical nature of the entities called propositions, or their exact connection to beliefs, I will be content to nominate:

Proposition Neutrality:

The account should allow eternal propositions as the bearers of truth-value.

1.4 An A-theoretic account of a tensed belief

In this section I will attempt to form an account of the nature of tensed belief that actually follows pretty naturally from taking the comments from section 1.2 at heart and thinking of a tensed belief as closely related to the truth-conditions of the statements I would use to express said belief. I will call this account 'A-theoretic' because it will make heavy use of A-theoretic metaphysics to describe the content of a tensed belief. I think that such an account has clear advantages that one might want to keep, but will not be a conclusive, or philosophically unproblematic, account of tensed belief.

[23] I agree for instance with Evans (1985) that asserting a proposition aims at truth and not truth as evaluated at different contexts.

The most important component of such a theory would be a metaphysical view of the world as containing A-properties or A-events. According to McTaggart's early description of these notions:

> Positions in time, as time appears to us prima facie, are distinguished in two ways. Each position is Earlier than some and Later than some of the other positions. … In the second place, each position is either Past, Present, or Future. The distinctions of the former class are permanent, while those of the latter are not. If *M* is ever earlier than *N*, it is always earlier. But an event, which is now present, was future and will be past[24].

McTaggart was the first person to recognize these two very different kinds of temporal positions that events (or times or objects, here forth called ETTs) can be said to occupy. The naming convention is that the latter possible series of ETTs, a series given by the descriptions "past", "present" and "future", is called an A-series, while a series given strictly in terms of the relational concepts "earlier than", "later than", and "simultaneous with", is called a B-series. Accordingly, the possible event properties *being past*, *being present* and *being future* are called A-properties, while the possible relational properties *being earlier than 2009*, *being later than 1900* and *being simultaneous with the Battle of Waterloo* are called B-properties.

There are many theories in metaphysics that claim to be "A-theories of time[25]". Even if their details sometimes differ in great extent, they all share a commitment to the following positions:

Time-Realism: Time is real.

A-series-Realism: At least one A-series of events (or times, or things) is real.

A-property-realism:

There are genuine A-properties, possessed by events, times, or things.

A-Irreducibility:

Facts about these A-properties are irreducible to facts about B-relations.

Tense-realism:

Tensed language describes genuine A-properties or facts about them.

Flux: Facts about A-properties are constantly changing; events, times or things that were future will be present and then will be past.

[24] McTaggart (1927), pp. 9-10

[25] Some representative theories are found in Craig (2000), Prior (1967), Q. Smith (1987a), D. Zimmerman (2007).

Keeping in mind the methodological requirements I outlined in section 1.3, here is how an A-theory would purport to make headway in explaining the nature of a tensed belief: According to such a theory, tense relates directly to an A-property (Tense-realism); and a tensed belief's content can be captured by looking at the corresponding A-properties the belief is describing. If A-property-realism is true, then an event like Obama's presidency *does* possess the property of *being present*. Therefore, my 1.3 belief (Pr) that Obama is President is a belief capturing the genuine fact that Obama's presidency *is present*. Similarly, my belief (Pr_p) is about the genuine fact that George Bush's presidency *is past*, and my (n) belief in [CLASS], when true, is about the genuine fact that my class's start-time *is present.*

Regarding the belief's truth-conditions, the situation also seems straightforward: my beliefs will be true if they correspond to the real world facts at the time of my having said beliefs. So my belief (Pr) is true if, at the time of the belief, Obama's presidency *is present*. Luckily for me the world right now contains this fact, so my tensed belief (Pr) is true. Even more luckily, the world contains the fact that George Bush's presidency *is past*, so my tensed belief (Pr_p) is true. In contrast, my class's start-time at this instance *is not present*; hence my luck continues and the [CLASS] belief is actually false. Regarding my belief (Pr_F) that Jeb Bush will be president the situation gets more complicated. However, if the A-theorist assumes that belief (Pr_F) can be true, then it can only be true due to the real A-fact that Jeb Bush's presidency *is future*. If there is no such fact of course, my belief (Pr_F) is false.

Such an A-theoretic account of a tensed belief seems to be a very simple realistic account of the content of a tensed belief. It fulfils some of the requirements I outlined before: it describes many tensed beliefs as true, it gives us a clear way to account for their truth conditions, and it is not eliminative towards the whole category of belief. It could actually be seen as an inference to the simplest explanation, since it takes the linguistic expressions of a tensed belief and ties them to world properties in a straightforward manner: if they contain the past tense, they are about events/times/things (ETTs) being *past*; if they contain the present tense they are about ETTs *being present*, and if they contain the future tense they are about ETTs *being future*. This explanation is simple, because it follows a one-to-one correspondence between beliefs, statements, and world facts,

that seems to be utilized in an explanation of *all* beliefs: note for instance that the belief that copper is ductile (that I categorized as tenseless) corresponds to my statement "copper is ductile" and the real world fact that copper has the property *being ductile*. It now looks straightforward to say that my concept of 'ductile-ness' corresponds somehow to the real object property; similarly it is at least desirable to be able to say that A-concepts in the mind ('past', 'present', 'future') naturally correspond to A-properties in the world ('past-ness', 'present-ness', 'future-ness').

Is that all an A-theoretic account could say about the content of a tensed belief? Probably not. Depending on the theorist's favorite semantic theory, she could also say that a tensed belief is a belief in a *tensed proposition*, which would give one additional step to connect the belief to the world. In this view believing the proposition ^Obama is president^ is analogous to believing the proposition ^copper is ductile^ or ^Athens is a Greek city^. In all cases the *object* of the belief is uniform (a proposition) and presumably the way we grasp the content of a tensed belief does not need specific explanation because it is the same way we grasp the content of all beliefs: by looking at the proposition believed. One such simple story could be that one grasps a tensed proposition by grasping the senses of (i) the object or event involved (say 'the class' in [CLASS]) and (ii) its claimed property (say 'present-ness'). Again, the argument would be an inference to the simplest explanation since we do not need to posit different belief objects in the tensed and tenseless belief cases, or different mechanisms of belief acquisition.

This sameness of belief object however does not mean than an A-account does not have any means to differentiate between tensed and tenseless beliefs. The belief object type (a proposition) and the acquisition mechanism of both kinds of belief are the same, but they might differ in nature *exactly because* the propositions are about different things: in a tensed belief case the proposition involves A-properties of the event described, while in a tenseless belief case the proposition is not about A-properties at all. Then, the A-theorist could maybe describe the typical difference we encounter between tensed and tenseless beliefs' truth-conditions. The mechanisms involved are the same: the beliefs are true just in case the propositions they are about are true. However, since (Flux) is correct and facts about A-properties constantly change, a tensed belief's truth-conditions are inherently more

'unstable' than a tenseless belief's truth-conditions. We seem to have an intuitive way to differentiate between tensed and non-tensed beliefs – though an explanation of the beliefs' different causal properties has not yet been given.

1.5 Problems with an A-theoretic account of Tensed Belief

1.5.1 Issues with Metaphysics

Even if an A-theoretic account of Tensed Belief is possibly a good simple way to explain basic features of the tensed belief, it has a serious drawback as far as this dissertation is concerned. This is the account's over-reliance to A-theoretic metaphysics of time, which since McTaggart's original article has come under constant criticism. Actually McTaggart's original argument was directly against A-series-Realism, since he posited claims:

(**M1**) an A-series of times is essential to describe time and

(**M2**) an A-series of times is *impossible*, because its assumption leads to a contradiction.

The original defense of (M2) posits that it would be a contradiction to assume that a time *t* has all three properties of being past, present and future. However, assuming that an A-series of times exists,

(**A-contradiction**) a time *t* paradoxically has all of these properties, since

(**Triple-A**) it was future, it is present and it will be past.

In order to resolve this contradiction, McTaggart says, one could argue that Triple-A is not about one time, but three different ones, say t_1, t_2, and t_3. But attempting to place these three newly invoked time points in our A-series will yield the same problem that *t* has, namely that they also possess all three contradicting A-properties. Attempting to resolve *these* three contradictions, we would have to invoke nine new times $t_1..t_9$, and so on and so on *ad infinitum*[26]. Therefore, the argument goes, assuming the existence of an A-series leads to an un-resolvable contradiction, which is usually a bad result for a claim about how the world really is. Hence the A-series is not real.

Admittedly, there is something perplexing about McTaggart's argument for the impossibility of an A-series, and I think it has to rest on the puzzling quality of premise (A-contradiction). It looks

[26] For a discussion of this point see Falvey (2010).

here that (A-contradiction) is attempting to use the verb form 'has' in a way that does not point to a specific time –'has' seems to be used as a tenseless verb. The A-theorist therefore has the avenue for claiming that this way of talking is impossible, and (A-contradiction) is unintelligible. Traditionally, this line of defense uses the view stated as

> **Taking Tense Seriously**: the verbal tenses of ordinary language cannot be reduced to any tenseless terms[27].

A proponent of Taking Tense Seriously (we could call her a 'Serious Tenser') can now argue that McTaggart has to specify the time involved in stating his (A-contradiction). Whenever that time is, say t_A, it will not be true that t has all three A-properties **at t_A**: it has exactly one, depending on the relation between t and t_A. So (A-contradiction) is either false or unintelligible[28].

I think that this reply to McTaggart is not as bad as some philosophers have thought[29]. Unfortunately for the A-theorist however, I do not think that it is conclusive. One reason is that the move from Taking Tense Seriously to the falseness of (A-contradiction) is not at all straightforward. As might have been evidenced by my rejection of Token Reflexivity in section 1.3, it is true that most attempts to analyze away the meaning of verbal tenses of English in tenseless terms have failed in the past, so Taking Tense Seriously might be correct. But this does not mean that every fact in the world should be captured by a grammatical sentence of the English natural language. It might very well be that stating the properties of times can be done without essentially involving verbal tenses. It seems for instance like we can express the fact that the year 1923AD is later than the year 1900 AD in a non-verbal mathematical-type language that does not involve tense, like {1923AD>1900AD}. This does not seem unintelligible, any more than 3>2 (that also does not involve tense) is unintelligible. If we can therefore state (A-contradiction) in such terms[30], then it will not essentially involve a specific time

[27] D. Zimmerman (2005)

[28] Many authors have taken this position, see for instance Q. Smith (1987a; 1987b).

[29] The usual response (e.g. in Le Poidevin 1998) is that McTaggart has exactly anticipated this move and has offered the infinite regress argument described above as a response. My view is that McTaggart had *not* anticipated the exact objection I am offering; and his original response is actually not very plausible. But a full explanation of this point would unnecessarily strain the length of this section.

[30] B: {Past(t) & Future(t) & Present (t)} seems initially to be such a statement, especially if we take A-theory at its word and t's A-property is just as real and factual as copper's property of being ductile –compare B with Ductile(*copper*). But

(as the Serious Tenser wants), so it will not be false or unintelligible. I take it as a result that the A-theorist will need a stronger argument than Taking Tense Seriously to argue against A-contradiction and thus evade (M2).

Moreover, the A-theorist has a long way to go to persuade us of the ontological superiority of A-theoretic metaphysics, for McTaggart is not the only one charging against it. If he was, it would be a problem for this dissertation, since at least at the outset I would like to keep a realist metaphysics of time as the driver behind the project's wheel, while McTaggart's argument implausibly goes against Time-realism. I say 'implausibly' because I find McTaggart's assertion that time is unreal far more paradoxical than his A-contradiction.

Fortunately, denying the reality of time and being an A-theorist are not the only two options in the field. There is also the B-theory of time. Here is its main thesis:

> **The B-thesis**: There are no genuine A-properties; talk that appears to be about the possession of A-properties by times, events or things can be correctly analyzed in terms of B-relations among those entities.

A B-theory of time programmatically attempts to go against (M1) and the A-theory in one fell swoop, by denying that an A-series is real or essential to our understanding of time. The B-theorist denies that tense is a fundamental feature of the world. Just as I do not confer any special ontological status on Santa Barbara, California for being here, the B-theorist claims that I should not confer any special ontological status on Saturday October 17th for being now; my temporal location lacks any irreducibly tensed property of *being-present*. However, this does not mean that time is not real. The B-theorist also supports Time-realism, this time by explaining that you can describe the temporal locations of ETTs with at least one B-series, depicting the {before} and {after} relations between all the ETTs. This keeps the reality of time and the temporal order of things in the world intact without the need to circumvent (M2) or similar arguments charging against Time-Realism.

Today the B-theory of time, like scientific realism or Fregeanism, simply looks more plausible in most circles of analytic philosophy. The reasons behind this fact are multi-fold, but I think that the

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statement B does not use any tensed verbs, so it is not about any specific time. If (A-contradiction) is encoded by B, it is perfectly intelligible.

main philosophical motivation has to do with the perceived incompatibility between the A-theory and the world picture described in modern physics -especially Einstein's special theory of relativity. According to the traditional interpretation of this theory, by definition there can be no special (privileged) frame of reference, from which you could possibly assert which events are objectively present or past. This is because judging if two events, happening at a spatial distance, are *simultaneous* depends on the observer's frame of reference: a position which is usually called the "denial of absolute simultaneity" (DAS)[31]. For the A-theory to be correct, it must be possible to say that an event –let's say the start of my class- at some point has a metaphysically robust property such as *being present*, a property that should not depend on an event observer's point of view. But if DAS is correct, the event cannot have this property in an objective way: at most it can have the relational property of *being present according to observer x's frame of reference*, while *being past* (or *future*) according to a different frame of reference spatially distant from the place of the observer. And if physics is a decent guide to metaphysics, as the dominant view of scientific realism would suggest, this would go directly against 'A-series-realism': under special relativity theory no A-series is objectively real[32].

A related clutter of arguments going against an A-theory uses the picture of the 4-dimensional space-time manifold prevalent in modern physics[33] to argue that time is just another dimension of the manifold, and should retain a resemblance to the manifold's three spatial dimensions. On the issue that we are interested in, this would mean the avoidance of genuine A-properties and focusing on B-relations, exactly like when we are discussing space we do not claim that the spatial property 'is

[31] See LePoidevin (1998; 2003).

[32] There is a sense that A-series-realism survives this criticism in the way I have stated it, if objectivity is not a requirement of reality. Kit Fine examines this view in his (2006) when he suggests the existence of an infinite number of A-series, corresponding to infinite frames of reference. This might be correct, but I doubt that the A-theorist wants to take up such a metaphysical theory, as: (i) most A-theorists are presentists, and Presentism is not compatible with the existence of an infinite number of A-series and (ii) Fine's position commits us to 'here'-like perspectival facts as well, which are unattractive for all metaphysicians and I have explicitly named as avoidable for this dissertation (Requirement 6: Uncontroversial 'here' contents - see also two footnotes down for some papers).

[33] The term 'modern physics' here does not include some more adventurous theories found nowadays in theoretical physics, such as String Theory or 11-dimensional Supergravity, which might give different philosophical intuitions. My description of theories of Physics in this section is not supposed to be the last word in the field of Philosophy of Science, so I will limit myself to the perceived view of the state of Physics, which is actually the way most philosophers *and scientists* treat the debate.

north' is a feature of the world, something over and above the relational property 'is north of position A'. On this view, talk of a privileged absolute present would be like talking about a privileged absolute 'here': not useful to describe the world as it really is[34]. In summary, it looks like modern physics is equivocal in its support for a B-theory of time.

In answer to this barrage of criticisms based on the picture that physics describes about the world, the A-theorist might take one of two positions: she either would assert that relativity is a bad scientific theory; or she would assert that relativistic physics does not picture the world as it really is. I do not think that I have to fight here the fight for relativity's worth as a scientific theory; my only comment would be that a more scientifically viable theory (that would be consistent with an A-theory) still has not surfaced. However, the second option might not be *philosophically* unattainable. For this we just need to imagine that somehow there is an absolute simultaneity in the world, but it is just very hard to observe - or it is completely unobservable[35]. This might be a philosophically sound defense of the *possibility* of the A-theory being true, but I think it falls short of giving any actual reasons to think that the A-theory *is* true. For if one argues that absolute simultaneity is real but impossible to observe, one denies outright the ability of science to ever capture the world as it really is. Short of supporting this view with a theistic argument for the existence of an extremely mischievous God[36] (and maybe especially then), I would argue that this is a very implausible claim to make. On the other hand, if the A-theorist argues that absolute simultaneity is just very hard to observe and we might be able to observe it –with a better scientific theory- in the future, my answer would be that when this theory appears I will be the first to congratulate her. But until then, scientific realism and ontological conservatism require me to say that the A-theory is, most probably, false[37].

1.5.2 Issues with analyzing belief

[34] Putnam (1967), Smart (1963), Sklar (1981; 1985) have even more to say on the unattractiveness of this position.
[35] Prior (1970), Pitts (2004), Rakic, N. (1997), Q. Smith (1987b), W. L. Craig (2001) present various forms of this idea.
[36] This line is defended in W. L. Craig (2001).
[37] At this point I could mention different arguments against the A-theory, such as Presentism's defects (see Sider (2001) chapter 2), or 4-dimensionalism's & Perdurantism's bigger success than Growing Block theories or Moving Spotlight theories) that would considerably change the subject of the dissertation. The same applies in discussing how time is treated in Quantum Mechanics – a controversial subject that however does not seem to support the A-theory (Healey 2002).

So far I have been focusing my criticism of a possible A-theoretic account of tensed belief on its unattractive features as a metaphysical theory. What is worse for this dissertation however is that an A-theoretic account of tensed belief is not really a complete account of tensed belief. This might have become evident from the vagueness in discussing the theory in the previous chapter; the proposal's most severe drawback is that it posits the A-concepts' connection to world properties, but it does not really explain how this occurs, or even how it is possible for this connection to occur. In short, it seems like a magical theory of reference. As a matter of fact, the only step towards this direction is the clear ability to find the tensed belief's truth conditions. But there is no actual account of the *nature* of a tensed belief, an explanation that would point to the mechanism of the belief's formation, an account of the way action resulting from a tensed belief is produced in a timely manner, or an error theory of the way we can be mistaken about our tensed beliefs – because we often are. It is one thing to posit that a tensed belief latches on to real objective world facts that are independent of the believer; it is another to explain how this happens and what it results in. Actually, if my previous comments are correct and the A-theorist has to insist that real absolute simultaneity cannot be observed with our current tools, then the A-theorist has a bigger problem. For now my tensed beliefs are magically correct and at the same time I am blinded from ever recognizing that fact, since it is extremely hard for us to observe the real objective present.

To make the point more concrete: Let us say that the A-theorist extends the account by claiming that the content of a tensed belief is a proposition, like every other belief's content. In this view my belief (Pr_p) that George Bush's presidency is past would resemble say my belief (Bc) that cats are feline. There is an obvious story to tell here about (Bc) and how it relates to other beliefs or results to action: the belief's content includes my concept of cat-ness and my concept of feline-ness. Then, in a generally Fregean picture of linguistic understanding, to understand the content you need to understand the senses/concepts of the words involved. No matter what the correct account of these concepts is (for instance definitional, or a direct connection with their extensions), we can say something about them. But any story we tell about 'cat-ness' cannot be extended to my concept of 'past-ness'. Taking Tense Seriously seems to rule out any kind of definitional account that would

define ‘past-ness’ in tenseless terms; and it is considerably obscure how we can be directly connected to instances of past-ness or things having past-ness if the A-theory is correct in that *past things are actually non-existent*[38]. In short, we need a very elaborate story of concepts that has not been told yet.

Additionally, the problem of explaining all these facts through an A-theory is almost impossible to achieve because of (Flux), the view that things and events constantly change their A-properties. If the A-theoretic account of Tensed Belief has an alpha-level magical theory to connect a thought attributing present-ness to my class-start to the real objective present, then it seems that it needs an omega-level magical theory to explain how the mind constantly updates my multitude of tensed beliefs to exactly correspond to an ever-changing collection of A-theoretic world properties.

One might object that I demand too much of an A-theoretic account of at least beliefs incorporating the now or that of the present. Might it not be that I can have them in a simple or primitive way, exactly like ‘I’-beliefs (that are always about the thinker of the thought) or ‘here’-beliefs (that are about the place the thinker is)? Unsurprisingly, the answer is that there is nothing simple about either ‘I’- or ‘here’-beliefs. Everyone agrees that they indeed are *about* the thinker and the place of the thought, but the questions ‘how does that happen’, ‘how I acquire them’, and ‘how it relates to my network of different beliefs” are, I think, still good questions without definite answers. Evidence for the ‘I’-belief’s peculiarity is the ever-expanding philosophical literature on self-knowledge and the ways of explaining the essentiality of the first person indexical in judgments exactly like those involved in [MESS]. As mentioned in 1.3, in [MESS] we can posit a reductive account of facts that would not contain indexical elements. However, any such account will be missing the *essentiality* of the indexical, the part of the thought that is always tied to the thinker’s personal perspective. This personal perspective then is a crucial part of an ‘I’-belief and there is a wealth of theories attempting to describe its function or connection to the subject’s beliefs. A similar need for explaining the private perspective arises for ‘here’ beliefs too: since Evans (1982) the connection of ‘here’-beliefs to our belief network and action is a valid subject for investigation in the

[38] I assume here that the A-theorist is also a Presentist. A Growing Universe A-theory does admit past things existing, so it is not subject to this objection. I have omitted discussion of Growing Universe Theory from this dissertation for space reasons.

philosophy of mind and perception[39]. Finally, let us not forget at this point that there is no significant debate over the correct metaphysics of space. Everyone would agree that there are no 'here'-facts in the world; at least not ones that are objective, independent of any perceiver or thinker, and such that 'here'-beliefs magically latch on to.

To sum up: I believe that an A-theoretic account of the content of tensed beliefs is not very satisfactory for the purposes of this dissertation; first, because the A-theory is very plausibly a mistaken ontological view on Time, and second, because it creates more puzzles and questions on analyzing tensed beliefs than the ones it purports to answer. The question for the rest of the dissertation now becomes: Given the failure of an A-theoretic account of it, what is the nature of tensed belief?

1.6 B-theory and Tensed Belief

As shown in section 1.5, the A-theory has important drawbacks concerning its ability to depict the world as physics describes it. I believe that the B-theory does not have such problems. First, the B-theory is more compatible with the world picture described by the special theory of relativity. Second, the similarity between space and time in the fourth-dimensional manifold is retained. Things are located in three spatial dimensions, and one can describe their properties without the need to posit a privileged spatial position, in terms of relations like 'to the north of' or 'to the west of' other things. Similarly, in a tenseless B-theory of time, the temporal properties of events can be completely described in terms of their {before} or {after} relations to other events. Moreover, it does not seem that we need temporal descriptions of a different type to be able to enter events and things in causal laws of nature. Meanwhile, seemingly A-events *have* to be described in terms of B-relations to be able to feature in causal laws, since the B-series temporal order of events is a necessary condition for their

[39] I argue in subsequent chapters for instance that the 'here'-belief's connection to egocentric spatial cognitive maps should be brought out by any theory purporting to explain action in [ABDUCTION] – see 1.7, 2.4.2, 3.3, 4.4.1.2.

entering into causal relationships[40]. Hence, if physics is a pretty reliable guide to reality, then the B-theory is both adequate and complete to describe the world as it really is. This consideration will shape the continuation of the dissertation in a very important manner: I will assume that any account of time that posits A-properties is not viable for this dissertation. So the final requirement of this dissertation will be:

> **Tenseless Facts and Properties**: The account should use only tenseless (B-theoretic) facts and properties. A-facts or A-properties should not be treated as fundamental.

Giving a complete B-theoretic account of the nature and cognitive role of tensed belief is more difficult than it seems on paper. This is because there is a clear tension between the claim that a tensed belief is *essentially tensed* and the basic (B-thesis) that argues for the non-existence of tensed (A-) properties in the world. If [CLASS] is not adequate to picture the tension, consider the following:

> [ROOT CANAL][41]:
> At 12pm, as I get off the dentist's chair after a particularly painful root canal, being averse to pain, I think the thought I would express by saying: 'I am relieved that my root canal is over'. I assume this thought involves the belief that my root canal is over. All the while I might have had the belief (p*) that my root canal ends at 12.00pm.

The tension here is that the latter belief will not produce relief every time. For instance it does not bring about relief when it is believed before 12 pm. But if the B-thesis is correct and events like my root canal only have *tenseless* properties, I could plausibly describe *all of them* with a statement resembling the latter belief's (p*) expression. Assume that at 12.01 I form true beliefs about all these B-properties; I still would not be relieved *if I do not know exactly when my temporal location is in relation to these properties*; as when I do not know exactly what time it is now.

The tension becomes more acute if we realize that tensed beliefs can be involved in rational inferences and/or motivate actions, such as in [CLASS]. My running to be on time for my class in that case is an action (a real world event) that *seems* to result from a conscious deliberation on a fact's apparent A-property: that my class' start is *present*. I might have known all along that the class would

[40] Quantum theory admittedly poses some puzzles for causation; but even there, a proposed solution is to posit the existence of "backwards causation" which again just requires events having B-relations. (And note also that A-theory's Flux opposes backwards causation).

[41] First mentioned in A. Prior (1959), p.12-17

start at 12.00pm; but I will not act rationally until I realize that it is 12.00 pm now. As in [ROOT CANAL], no tenseless fact seems crucial to the description of the case, because I might know all the tenseless facts and still not start running. A B-theory absolutely has to explain how a true tensed belief results to a world event or action, without using A-terms ('now', 'present', 'past') to describe each case. Among other things, it has to explain which tenseless fact was the crucial factor that provided a reason for my action, and how the true tensed belief capturing this reason works in my network of beliefs to provide a reason for acting.

At this point an exegetical parenthesis is needed. There is I think a misplaced worry between B-theorists that the tension described only has to do with establishing tenseless truth-conditions for tensed statements or beliefs. Sometimes this leads to unattractive positions, such as N. Oaklander's (1994) suggestion that a tensed belief is always false, while a tensed statement often is not[42]. I do not describe the tension involved in such a way for two reasons. First, I think that a B-theorist can reply that a tensed belief is *made true* in virtue of a worldly B-fact, exactly like 'here'-beliefs (e.g. that it is warm here) are made true in virtue of plain spatial facts (e.g. that it is warm in UCSB, room HSSB1207) and not ontologically extravagant 'here'-facts[43]. Second, I fear that searching for a *belief*'s truth-conditions in world facts is not a very well-defined endeavor; it is not clear for instance that one should count among them facts that are part of the context of the thought (and which ones she should count) or if one should stick to the belief's clear subject matter (what the belief purports to be about)[44]. The tension for me has rather to do with how exactly my private temporal perspective is captured in a tensed belief. There is a reason that I am relieved that my root canal is over, and it has to do with my private temporal perspective. My question is how this private perspective, the

[42] This position is unattractive because my stated aim is to remain a quasi-realist about tensed beliefs; it looks like they are often true. Moreover, if they are never true, one would still have to explain how they seem to succeed by leading us to timely action. I think that Oaklander's mistake is that he is identifying the nature of a belief with its subject matter content: what world facts the belief is claiming to be about. Then if my belief is that Obama's presidency is present, it has to be false because Obama's presidency does not really have the A-property of *being present*. But my belief that this gulash is yummy is not *false* if it turns out that the gulash does not have any objective real-world *yummy* property. We just have to explain the belief's content in a different way probably involving me, my taste buds, and our relationship to the gulash's real-world objective properties.

[43] This point is due to Mellor (1991).

[44] More on this point in 3.2.4.

representation of temporal information from the agent's point of view, can be described adequately with the tools that the B-theory gives us: in essence just a series of earlier/later than relations between things, events or times.

1.7 Mellor on Tensed Belief

I think that the first good attempt to examine the question in the way I am attempting here was Mellor's (1981a), further worked out in his (1991), (1998a) and (1998b). Traditionally, the [ROOT CANAL] case is assumed to be a problem for the B-theory due to the following argument:

> (i) If the B-theory is true, then when I say "thank goodness that's over" the object of my relief is a B-fact
> (ii) If the object of my relief is a B-fact, then it would have been just as reasonable for me to thank goodness before the ordeal was over
> (iii) It is not the case that it would have been just as reasonable for me to thank goodness before the ordeal was over
> (iv) Therefore, the B-theory is false. (Sider 2001: 34)

As it is the argument is valid. But Mellor argues that the argument is unfair to the B-theorist in that she does not have to accept premise (ii). At this moment in time (late October) I am very much relieved that it is warm here in Santa Barbara, and I might reasonably utter (W) "thank goodness it is warm here". I think it is uncontroversial to say that the object of my relief is a fact 'here'-lessly describing spatial positions, plausibly the fact: (F) that it is warm in room HSSB1207 of the University of California Santa Barbara. No metaphysician would claim that there are real and objective 'here' facts in the world that are the objects of our relief when we utter (W), as this would be tantamount to saying that the only fact explaining my action to wear a sweater would be that there is a fact about the world (something like <Vasilis-here, cold>) which I apprehend and it leads me to act. This sounds implausibly strong.

What *is* very controversial in this case however is to assume that it would have been reasonable for me to thank goodness for fact (F) when I am spatially located in Alaska! Mellor thinks –and I agree- that the B-theorist can take the same position regarding [ROOT CANAL]. Yes, the object of my relief is a B-fact, but it would not have been reasonable for me to thank goodness before the ordeal was over, because in that case I am not located in the relevant *temporal* position, exactly like in

the Alaska case I am not located in the relevant spatial position. The B-theorist can thus deny premise (ii) and save the tenseless account of tensed beliefs.

As disarming as Mellor's argument appears at first glance, there is a very important worry; he does not explain how the fact that I am not located in the relevant temporal position influences each case's rationality. In general, facts alone cannot explain thoughts in the absence of a description of how they (the facts) are represented *in thought*. Essentially, this dissertation is looking for an explanation of the primary *reason* to act in Prior cases such as [ROOT CANAL]. We can deny premise (ii), but we have to explain what constitutes the rationality of the relief appearing when I am having the tensed belief, and the irrationality of the relief appearing when I am having the tenseless belief at a non-relevant time.

Actually, [CLASS] is an even more pressing case for Mellor. In [CLASS] the tensed belief (n) contains (either in its content or the way to believe it) a 'now'-ish representation that I somehow am aware of when I rationally decide to run to be on time, and not aware of when I hold (n*) and do not know what time it is. This representation could alternatively be described as a temporal 'agent perspective': it represents things from the agent's particular point of view. If the tenseless truth-conditions of the belief are used to explain the cognitive properties of a tensed belief, these truth-conditions should either correspond or somehow point to the agent's perspectival point of view. As noted in 1.3 and the end of 1.6, without explaining the agent perspective involved in a tensed belief, we do not have any obvious means to describe the belief's connection to the agent's timely action. So far Mellor's comments do not attempt to depict this perspectival element at all; nor do they attempt to give a good error-theory on the belief's tenseless truth-conditions' apparent failure to depict it.

Finally, the same private perspective seems to be operative in past- or future-tensed beliefs as well. Believing that George Bush was president depends as much on my temporal perspective as believing that Obama is president. So far Mellor has only attempted to explain 'now'-beliefs, which do not exhaust the category of tensed beliefs. I conclude that if Mellor's account is to form a complete account of the nature of tensed beliefs, it would have to analyze beliefs in a bigger depth than he does.

To be fair, we could read the later Mellor as taking some steps towards resolving the pertinent issues. In (1998a) he points out that 'now'-beliefs arise from the "necessary presence of experience"; he calls it a 'brute fact' about experiences. For Mellor, any time I am having an experience (say I feel pain at t_1) I automatically 'locate it in my present', but *only in the sense that* a tensed belief token to the extent "I am feeling pain now" automatically arises. This implies that we are not really temporally locating our experiences and present-tensed beliefs – we are just aware of them *at the same time* as we are having them. Mellor continues by saying that, since this explanation uses only B-notions of time, there is no need for any A-facts. The B-facts about the agent's experiences (essentially, just that they happen at time t_1) explain the 'now'-beliefs that arise in the agent. They, in turn, cause the agent to act in cases like [CLASS]. Consequently, we have an explanation of the action in purely B-theoretic terms.

An alternative line of defense is presented in Mellor (1991). There he attempts to derive the causal properties of a tensed belief in terms of the truth-conditions of the statement used to express it:

> If *B*(IN) is my belief that I face food now], the content of X's belief *B*(IN) at any time Y is the … function f_{IN}(X,Y) from X to Y to the truth condition that X faces food **at Y**. … *B*(IN)'s causal function is linked to its content, i.e. to its semantic function f_{IN}(X,Y). … True beliefs make desires cause actions that succeed in achieving the desired end.[45]

For Mellor a true tensed belief (together with the relevant desire) *directly causes* timely action; the tensed belief then succeeds in producing timely action exactly because its tenseless truth conditions hold. I interpret this excerpt as saying that the type of belief does not contain any "now-ish" element at all. He actually explicitly says later that tensed beliefs "need no causal surrogates, no internal representations of the agents and times they refer to[46]" and that accounting for tensed beliefs does not "involve ... internal representations of oneself or the present[47]". Rather, since the explanandum here is a *belief token*, it is always made at a specific time, say t_A. Its truth-conditions are then tied to that time; and when we need to examine its causal results (say my running at t_{A+1}), we can just point to the times of the token belief and the action caused. A true tokened 'now' belief at t_A will always result in an action at t_{A+1}. "The mechanism that links such a belief to the agent and the time it refers to is

[45] Mellor (1991), p. 23, my emphasis
[46] Mellor (1991) p. 29
[47] ibid p. 25

simplicity itself: the contiguity of cause and effect."[48] For Mellor there is no special need to further explain the phenomenon at hand.

I believe that none of these explanations will do the considerable work we need them to do. First, the (1998a) way of explaining the situation is too vague in its use of terms like 'awareness' and 'experience of'. In fact, it might be seen as using the vagueness inherent in those terms (for instance, the definition of awareness is famously problematic) to defend his position. We have clearly pointed out that the B-theorist must avoid the use of A-notions like now or the present in his explanation. So if the term 'awareness' for instance is analytically connected to the notion of "now", we haven't made any improvement. What is more important: Mellor does not seem to explain how and why the mind seems to be 'thinking' in temporal A-notions, for instance when, faced with the belief 'the class starts now' I make the *reasonable seeming inference* that I have to run. As discussed before, the B-theorist should say something about the belief's function in reasoning as well. Simply describing general empirical causal facts that are not part of the subject's train of thought will not be able to explain a rational decision. I think that Mellor retreats to a third-person description of the cause of action when instead he has to explain *what* exactly it is that the subject thinks that *rationally* compels him to act.

It is also not clear that Mellor can use 'brute facts' in his explanation in the way he imagines. One can see this if she examines M. Richard's hypothetical case of the person I will call "Maria the precognitive experiencer":

> A person could believe that at any time *t* her experiences –at least her experiences of external objects- were experiences, not of those objects at *t*, but of those objects as they are ... *k* seconds in the future: she thinks that her perceptions are consistently of how things will be in just a little while. When you ask her a question, she consistently waits *k* seconds before answering; if she hears the telephone ring, she waits *k* seconds before answering it; and so on. (Richard 2003: 177)

In this example, Richard is attempting to drive a wedge between experiencing an event and locating it under the present by using the concept 'now' to describe it. According to his description, Maria's beliefs will not have the correct motivational properties we usually associate with 'now' beliefs. At first glance, it does not look like his description of the case is nonsensical. So what exactly is going

[48] Mellor (1991) p. 24

on? If Mellor insists on the causal connection of tensed beliefs with timely action, he could say that it is probably another 'brute fact' of the world that Maria's condition cannot exist. But there certainly doesn't *seem* to be such a negative brute fact of the world. Moreover, Maria manages to stop the original brute fact from taking place; but how exactly is she able to do it? No answers to these questions can be given by Mellor (1998a).

The problem of incomplete explanation does not go away in Mellor's (1991) 'token belief' explanation either. If there is no specific representation of the present in the thinker's thought, and the tokened tensed belief does not contain any reference to the present as such, there seems to be no way that the concepts of 'past-ness' or 'present-ness' are formed[49]. But we have repeatedly seen that these concepts play a crucial role in reasoning; after all, I might not always act in a timely manner, but I can form a decision to run, or engage in conversation with my roommate about the correctness of my decision[50]. All these episodes imply that there is something in the content of the belief that provides *reasons*. A complete account of the nature of tensed beliefs should give a way to describe how this part is formed and what it results in.

Mellor's silence in this matter is even more troubling for this dissertation aim, since a tensed belief might be a belief that could be expressed in past or future tense. These tensed beliefs are different than now-beliefs in that they point to *different* ways that the agent's temporal perspective is relevant to rational thought. For instance my private temporal perspective is connected to my belief (W) that George Bush was president quite differently than it is connected to my belief that it is now cold. Mellor's explanation of 'now'-beliefs in terms of token beliefs or brute experience causal chains has nothing obvious to say about how the 'past' belief (W) is connected to my 'now'-beliefs and my actions. This dissertation needs to explain past beliefs too; so we need to go into more depth than Mellor does.

[49] See also Brueckner (2003) for this point

[50] Mellor might say here that the correct decisions and communication episodes are again *directly caused* by my tensed belief token; but now he is entering a dangerous territory where all explanation of reasoning and communication is done in mechanistic causal terms that obscure the nature of reasoning as essentially involving *reasons*. More on this in 2.4.2.

To sum up: Mellor might have found a good way to explain what makes a 'now'-belief true, and possibly a good start to explain a tensed belief's causal power, but we need to fill the explanatory gaps in his account in a more substantive manner. One such way could be to flesh out Mellor's comments on his (1991) and especially (1998a) by viewing them as a *self-ascription theory of tensed belief tokens*. If this is done by exactly following Lewis' theory of self-ascription (Mellor mentions him as an inspiration in both papers) there might be a way to answer some of my working questions. The next chapter focuses on such theories, of which a Mellor-like account is a specifically mentioned special case; I call it Endurantist Self-Asciption Theory II (ESTii). If one feels that Mellor's account has not been adequately refuted in this section, she should consult the criticisms of ESTii in the next chapter (section 2.4.2).

1.8. Cases to work with, in the remainder of this dissertation[51]

[ROOT CANAL]:

As I get off the dentist's chair after a particularly painful root canal, being averse to pain, I think the thought I would express by saying: 'I am relieved that my root canal is over'. I assume this thought involves belief:

(p) that my root canal is over.

All the while I might have had the following belief:

(p*) that my root canal is ending at 2.30pm.

[CLASS]:

I am an absent-minded graduate student who wakes up relatively late one morning for class. I think the thought I would express by saying: 'The class is starting now'. Consequently, I decide to run faster to catch the bus and the last part of the class. If this thought is a belief then it is:

(n) that the class is starting [now].

All the while though I might have had the following belief:

(n*) that the class is starting at 10.30am

[ABDUCTION]:

I am abducted from my house in Santa Barbara and end up, unbeknownst to me, in a house in Beverly Hills with no windows. Thankfully, I have Google Earth and plenty of time, so I spend my time learning all the spatial facts about the L.A. area. Let's say that at this point I might be having belief

(h*) that my house is just a few miles north from Beverly Hills.

This does not help me when I escape though. It is only after I notice the Beverly Hills sign that I think the thought I would express by saying: 'Thank goodness, my house is just a few miles north from here'. Similarly to the two other cases, I am assuming that this thought involves the belief

(h): that my house is just a few miles north [from here]

[51] Note: In order to facilitate the quicker identification of the beliefs in what follows, I should explain that the naming serves a purpose: (n) indicates a 'now' belief, (p) a belief about the past, (I) an 'I'-belief, and (h) a 'here' belief. The * in the later beliefs indicates a belief seemingly free of indexicals.

[MESS]:

Perry's case of the amnesiac professor , modified: As I push a supermarket cart I hear "Vasilis is making a mess" without necessarily apprehending that I am making a mess. If I believe that the announcer is truthful, I might easily believe

(I): that Vasilis is making a mess

When I realize they are talking about me, I believe

(I*): that I am making a mess.

Consequently, I check my supermarket cart.

CHAPTER 2
SELF-ASCRIPTION ACCOUNTS OF TENSED BELIEF or TENSED BELIEF AS *DE SE* BELIEF

This chapter is going to develop and evaluate a possible framework for analyzing the content of a tensed belief and explaining its causal role by positing that a tensed belief is an example of a *de se* attitude. I see Lewis (1979) as providing the paradigmatic framework for an account of tensed belief to adopt: through that paper a belief is characterized as a *de se* attitude in that it consists of **the self-ascription of a property**. I am attributing similar views to R. Chisholm, S. Torre, A. Falk and a particular reading of H. Mellor. I attempt to describe the framework of such theories (2.1), and develop their exact account of the nature of the tensed beliefs involved in [CLASS] and [ROOT CANAL] (2.2). Section 2.3 presents their strong points by checking how they accord to the list of requirements drawn from chapter 1. Finally, in section 2.4 I present their main weaknesses, framing the issue under W. L. Craig's argument that these accounts entail the A-theory.

2.1. Self-ascription theories

I see Lewis (1979) as the most plausible and coherent theory of belief as a *de se* attitude. For David Lewis *every* belief is a kind of self-ascription; and those things we self-ascribe in the course of having beliefs are properties. The notion of 'self-ascription' is doing some heavy work here, as it replaces the notion of 'believing' in the theoretical framework. It is meant to capture an elementary cognitive process in which the subject assigns a property **to herself**. A paradigm case would be a simple belief I would express by using the statement "I am hungry" – the cognitive process identified with holding this belief would be me assigning **to myself** the property *being hungry*. In this way the objects of our beliefs turn out to be properties and not propositions as Frege and Russell assumed.

This is not to say that propositions are non-entities in the Lewis framework: some of the properties we self-ascribe easily correspond to propositions. For instance, take the simple belief:

(CD) <u>that Copper is ductile</u>.

For Lewis, to believe (CD) is just to think that I am in a possible world where proposition CD holds. For Lewis this just means to **self-ascribe** the property *of inhabiting some world where copper is ductile*. But in this case the process is still related to the proposition. And if one looks for the causal role of the belief, this can still be seen as somehow derived from the proposition itself – here the proposition that copper is ductile.

However, Lewis believes that there are some beliefs that cannot correspond to a proposition in the above way. Consider the deranged Heimson who sincerely says: ''I am Hume''. When Heimson sincerely says: "I am Hume", and Hume sincerely says: ''I am Hume'', they seem to give voice to the same belief. But for Lewis Hume and Heimson cannot believe the same *proposition*, as Heimson's belief is false and Hume's belief is true. On the other hand, the contribution of the described belief to their future actions and cognitive processes seems to be exactly the same. For instance, both persons would answer "yes" if asked "are you Hume?". Thus, it is more correct to say that they believe (here 'self-ascribe') the same property: *being Hume*. This single object of belief is true for Hume and false for Heimson.

The case of Hume and the mad Heimson is very similar to our case [MESS] from Perry (1979), in that the main motivation involved is to explain the correct cognitive significance of first person terms, or as Lewis puts it, the causal role of beliefs expressed with first person statements. He thinks that a uniform category of attitude objects is preferable as it would make it easier to explain behavior:

> Our attitudes fit into a causal network. In combination, they cause much of our behavior … In attempting to systematize what we know about the causal roles of attitudes, we find it necessary to refer to the logical relations among the objects of the attitudes. Those relations will be hard to describe if the assigned objects are miscellaneous. (Lewis 1979: 514)

It seems here that Lewis already sees the impetus of this dissertation: the need to describe beliefs in such a way as to easily explain the behavior that results from them.

This uniform category of attitude objects cannot be propositions for an additional reason. For Lewis propositions are formally sets of possible worlds, so inherently unsuited to carrying indexicality or contextuality. They are more properly analyzed as pieces of information –or things that are true or false simpliciter- rather than 'what people believe'. His example supporting this is the now famous "Two Gods" case that shows that there can be *no proposition* believed by one God exactly

corresponding to the piece of knowledge he would express by saying "I am the God living on top of the tallest mountain"[52]. Like Perry (1979), what Lewis really does is to show us a way to handle essentially first-person indexical cases. Since I proposed to look for exactly such theories to investigate their handling of tensed belief in 1.3, Lewis is inherently suited to this dissertation. As further proof of course we should check how he would analyze our two (non-tensed) indexical cases, [MESS] and [ABDUCTION].

Judging by his handling of the Perry (1979) case of 'Lingens lost in the library'[53], Lewis would explain [ABDUCTION] by claiming that in this case for me to believe (h) is just

(h') to self-ascribe the property *being a few miles south from my house*.

For Lewis, self-ascribing being in a specific location does not correspond to believing one specific proposition, because the suitable proposition (such as ^that my house is a few miles north from here^) would have to contain a spatial indexical ('north from here') and propositions are not entities that can contain such indexicals. On the other hand, the object of belief in (h'), the property self-ascribed, does not contain indexicality either. It is just a relational property that some things have and some things lack[54]. The spatial indexicality itself is *encoded into the process of self-ascription*. But since this process occurs in every belief, it is not problematic or in need of further explication. As Lewis says later in 1979, belief (h) is clearly *de se*, but this does not need further explanation since *all* belief is *de se*[55]. Similar comments would be extended to our case [MESS]: When the professor believes (I):

> (I') he self-ascribes the property *being the person that is making a mess* (or perhaps the property *being a mess-maker*).

[52] Lewis (1979:520): "Consider the case of the two gods. ... They know every proposition that is true at their world. ... Still, I can imagine them to suffer ignorance: neither one knows which of the two he is. They are not exactly alike. One lives on the top of the tallest mountain; the other lives on top of the coldest mountain. Neither one knows whether he lives on the tallest mountain or on the coldest mountain."

[53] According to Perry's first description of the case, Lingens is lost in the Stanford library and does not know where he is until he is ready to say "*This* place is aisle five, floor six, of Main Library, Stanford". For Lewis "he needs to **self-ascribe the property of being in aisle five, floor six, of Main Library, Stanford**; and this is not one of the properties that corresponds to a proposition." Lewis (1979) pp. 519-520, my emphasis.

[54] In [ABDUCTION] there are two obvious differences with Lewis's Lingens case: 1. The property involved in [ABDUCTION] is relational; this is not a problem since Lewis explicitly allows relational properties. 2. The construct 'my house' creates some extra complexity in (h'); this is not crucial for [ABDUCTION] since all my comments would be true even if there was a different description here, for instance 'Vasilis's house'.

[55] Lewis (1979) pp. 521-522.

Again, we have here a property that cannot correspond to one specific proposition, and the belief is *de se* via the self-ascription that defines it.

Since the Lewis theory treats our two non-temporal cases in an adequate manner, we seem to have found a promising alternative way to treat beliefs incorporating indexical elements. This chapter's suggestion is to check if a Lewis-like self-ascription analysis could make progress in analyzing *tensed belief*, since it looks suited to analyzing indexical belief, and tensed belief resembles indexical belief according to our working definition. I proceed with this in 2.2.

Lewis is not the only theorist advocating a self-ascription theory. Looking back for his inspiration for a *de se* analysis of tensed belief we should mention A. N. Prior[56]. In his 'Egocentric Logic' Prior playfully attempts to develop a system of logic centered on one person; the elementary propositions of his system are just subject-less predicates of common speech, like the gerunds 'standing' or 'sitting', with the understanding that these always "directly or indirectly characterize the speaker"[57]. This system may be viewed as a 'redundancy theory' of the first-person pronoun, showing that most statements in language can be shown to be equivalent, after rule-based transformations, to a subject-less predicate-style proposition like ^sitting^. In a sense, "every Egocentric sentence characterizes the speaker in some way or other, and characterizes other individuals only through their relation to the speaker"[58]. If these transformations are correct, and every statement in English can be somehow modeled as an Egocentric sentence (what Prior calls the 'adequacy' of Egocentric), it seems that every statement in English can be modeled as a *de se* statement that characterizes its speaker.

This system does not look very plausible when posited as an analysis of *all* language statements[59]; but it is not hard to see the attraction if it is followed somehow to the level of thought. In analyzing belief, which by definition *has* a subject believing it, it may have looked infinitely more

[56] See Prior (1957:9-10; 1967a:8-10, 1967a:14-15; 1967b) and mainly "Egocentric Logic" (1977) & "NOW" (1968) from the *Papers on Time and Tense* Prior (2003) collection.
[57] Prior (1968: 193).
[58] ibid, pp. 195
[59] Prior definitely thinks that his system is not meant for this purpose; he only wishes to take it as an example for the possibility of positing a **tensed logic** that follows the same spirit but centers on the present where Egocentric centers on the 'I'. Fine (2006 – chapter 1) on the other hand seems to argue that Egocentric is perfectly viable; since this is a parenthesis focusing on Prior, I will not delve into Fine's arguments.

useful than in language or logic. For instance if we follow Prior's models, my belief that I am sitting would be myself standing in some kind of belief relation to the elementary Egocentric proposition <sitting>. There is no need here for explicitly depicting the subject of the sitting in the level of thought; if every Egocentric sentence characterizes the speaker, then every belief expressed by the sentence characterizes the thinker. And if all sentences are equivalent to Egocentric sentences, all of my beliefs become *de se* attitudes.

Prior of course does not make this claim that we saw Lewis make. Indeed Prior does not make *any* claim about beliefs as he is only concerned with analyzing language as a method of uncovering the metaphysically fundamental accounts of the world. However, the account is definitely interesting for this dissertation, as Prior uses the adequacy of his system to argue for the adequacy of a similar Tensed Logic that would analyze every temporal statement as essentially being about the present. In Tensed a proposition p just *is* the proposition expressed by 'it is *now* the case that p'. And it is this aspect of Prior's thought that is clearly entering the picture in the following sections, as the push or drive behind at least Chisholm's account of tensed belief as the self-ascription of tensed properties. In what follows I am not going to mention Prior's articles explicitly; but I think it will be evident that his way of thinking looms over most versions of the self-ascription theory.

2.2. Self-Ascription theories applied to tensed beliefs

I mentioned in passing that Lewis is not the only person associated with a self-ascription theory of belief. However, anyone associated with such a theory would agree with the statement made in the preceding section 2.1; that Lewis' framework is ideally suited to personal indexical ('I'-) beliefs and spatial indexical ('here'-) beliefs. If we try to extend this line of argument to tensed beliefs, however, the way to formulate the self-ascription claim is not as straightforward. One reason is because so far we have been analyzing belief as a *person* self-ascribing a property. If in [ABDUCTION] I self-ascribe a spatial location (the property of being at a certain place), it seems that in [CLASS] I would self-ascribe a temporal location (the property of being at a certain time). But at least for Lewis, in [CLASS] a *continuant* person (say one that occupies (t_a): the half hour between 10.15 and 10.45 am

on the day in question) might self-ascribe her temporal location (t_a) absolutely correctly, while still fail to self-ascribe the crucial temporal location of being at *exactly* 10.30am– in which case the now-belief in [CLASS] will fail to cause the timely behaviors we see in [CLASS]. This and other difficulties related to the correct metaphysics of time and persons can lead to at least four distinct views that might coherently claim to apply Lewis' main self-ascription strategy to the temporal realm. I expand on each one below.

2.2.1 Lewis

Lewis himself proposes a version of the self-ascribing theory where the entity doing the ascription is not the *continuant* person, but the specific time-slice of her. In a different terminology, it is not the enduring person that self-ascribes, but the momentary slice of a person. His example showing this concerns an insomniac I will call Timmy, who is wondering at 3.49am what time it is, even though as a continuant person he is aware that he is so doing on (t_a): the night of 13-14 February 1978. Here the continuant person might correctly self-ascribe his temporal location t_a, but still fail to recognize a crucial piece of knowledge: that himself-at-3.49am is temporally located at exactly 3.49am. Lewis takes this fact as a reason to conclude that "it is the slice, not the continuant, that fails to self-ascribe a property"[60], at least in the Timmy case.

If we try to fashion this case closer to our paradigms, we could imagine that our insomniac might want to catch the start of a particular tv commercial for an attractive set of silverware that is set to appear at exactly 3.49am. In this case, the belief that would cause him to turn on the tv would be one that our enquiring Timmy-at-3.49am is then lacking, even if the *enduring* Timmy can correctly self-ascribe *his* whole locus in space and time. So the strong causal impetus for Timmy's turning on the tv would only be given by

Timmy@3.49am self-ascribing the property *being at 3.49am*.

Any other description of the case will not do for explaining what exactly is the relevant wondering; this is another example where Lewis is consistent with his declaration at the start of the article that he

[60] Lewis (1979), pp. 527

will try to differentiate belief episodes that make a crucial causal difference, in the level of their belief object only.

[CLASS] and [ROOT CANAL] of course are somewhat different than the Timmy example, as they involve beliefs that have to do with events and not just times. But, as with [ABDUCTION], this just means that Lewis needs a *relational* property to describe the belief episode, and he has specifically allowed for those in (1979). And as in the Timmy case, the need for high temporal precision will force Lewis to posit the time-slice, instead of the continuant person, doing the self-ascription. Here then is a first self-ascription candidate for explaining [CLASS]: believing (n) is

(n-PST): me@t1[=10.30am] self-ascribing the property *being simultaneous with the start of the class*.

Similarly for [ROOT CANAL], to believe (p) is

(p-PST): me@t1 self-ascribing the property *being temporally located after the root canal operation*.

If my comments so far are correct, it appears that Lewis is successful in explaining the "essential temporal indexicality" of a tensed belief mentioned in chapter 1. In both cases we have no need for tensed propositions (as no propositions actually take part in the belief), or tensed objects of belief (as the properties I am self-ascribing are tenseless). But where exactly did the indexicality go? The answer is that first-person indexicality is now a 'free' feature of the self-ascription process; and temporal indexicality is secured by the fact that it is only a time-slice that does the self-ascribing. For instance when my temporal slice at t1 (call it V@t1) sincerely utters sentence A: "I am sitting", his held belief can be described as V@t1 self-ascribing the property *sitting*. One does not need to ask when this sitting takes place. By definition, it takes place at t1, as V@t1 does not exist at any other time. Since the time-slice subject posited in Lewis account is vital for the self-ascription strategy's success in the field of tensed belief, I will call the Lewis account of tensed belief the 'perdurantist self-ascription theory' (PST).

2.2.2 Endurantists

Even the name I just gave to Lewis' account should be somewhat alarming. The worry is that one should not need to accept perdurantism to formulate an adequate theory of the nature of tensed belief. It is not only that some B-theorists find perdurantism wrong in matters of metaphysics[61]; as I shall try to argue in section 2.4.2, PST definitely obscures crucial matters of the *person*'s behavior in time, such as deliberations that have a temporal duration. At this point then it would be wise to offer an alternative account that might be named the 'endurantist[62] self-ascription theory' (EST). For this we need to nominate the *enduring* person as the entity doing the self-ascribing (not the time-slice) and look for the relevant property that would give us the required results. In the insomniac Timmy case, one candidate property that might be especially attractive to followers of Mellor's (1981a) 'date-theoretic' account of tensed sentences, would be

(Prop 1) the property *being [temporally located] at 3.49am*

But as we have seen such a time-specific property would not be useful explaining [CLASS], as in that case I am not concerned about the exact time of the class at all. After all, I might not know what time it is and thus be in no position to self-ascribe something like (Prop 1), while nevertheless believe (n) that the class is starting now[63].

It is clear then that EST has to use a property like PST's property *being simultaneous with x*. No time-specifying property seems to bring out the crucial relationship between the subject and the event taking place. But how can the theory identify the precise *time* the self-ascription is taking place, if an enduring person occupies more than one temporal position? I believe that EST has only two options at her disposal. The first option would be to explain the episodes in the level of belief *tokens*. Since each token happens at a specific, and exact, time, this is one way to depict the exact temporal location of the subject during each episode. Here is the first EST alternative for [CLASS]:

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[61] See Mellor (1998b) p. 86

[62] Alternative options, like T. Sider's exdurantism (from Sider (2001)), are not presented here for reasons of space

[63] At this stage of the dialectic, it would not be plausible to appeal to context to obliquely provide the correct time in a directly referential manner, as self-ascription of a property involves understanding the property in question. And if it does not, then the Lewisian theorist is using 'self-ascription' in a very misleading way, as Lewisian believers definitely *think* that they 'belong to the set of objects having that property'. More to be said on this point in section 2.4.2.

(n-ESTi-[CLASS]) For me as an enduring person to believe (n) at 10.30am is to self-ascribe at 10.30am the property *being simultaneous with the class start*.

This of course would be a very poor definition if it remained in the stage I have just described; because it only defines what it is for a subject to believe (n) at 10.30 am (just one belief token). If the definition is supposed to cover all (n) belief tokens it has to be the general schema:

(n-ESTi) For all t: for me as an enduring person to believe (n) at t1 is to self-ascribe at t1 the property *being simultaneous with the class start*.

I see ESTi as a possible theory of self-ascription that combines Mellor's focus on belief tokens (1981b, 1991, 1998a) with his explicitly stated preference for an *endurantist* B-theory (1981a, 1991, 1998b). So the spirit of ESTi is Mellor's, even if the exact details are only my interpretation, as Mellor does not argue for an explicitly *de se* theory. However, the criticisms against ESTi I will provide in section 2.4.2 are valid against Mellor's general belief token theory, so the reader could see 2.4.2 as completing my criticisms on Mellor detailed at the end of section 1.7.

ESTi is not the only way a possible EST might go. Recall that in the first person case (belief (I) in [MESS]) the belief objects are indexical-free properties, but the personal indexicality is encoded in the act of self-ascription. This might be one way to start here too; EST properties are the same as PST's, the second version of EST would go, but the self-ascription *process* somehow incorporates the tense involved. After all, I am using a present-tense verb ('self-ascribes') to describe the process itself. In other words, when Lewis insists that the subject self-ascribes membership to the set of entities having property F (something he would express by saying 'I am F'), the way the subject thinks of the process is as thinking 'I am *presently* F' or 'I am (present-tense) F'. Here is the second EST alternative for [CLASS]:

(n-ESTii) For me as an enduring person to believe (n) is to self-ascribe [in a present-tense way] the property *being simultaneous with the class's start*.

I will discuss (ESTii) in more detail in section 2.4.1. For this section, I will be content to say that it involves the *tensed* self-ascription of a tenseless property.

Stephan Torre in a recent article proposes a different (EST) alternative:

> "At t, a person, S, believes that e is now iff at t, S self-ascribes the relation of *being simultaneous with e at*" [64]

Even though Torre thinks that his alternative would be the only viable way to combine endurantism, self-ascription, and a tenseless theory of time, I have to admit I am very puzzled by his intuitions. First of all, self-ascribing relations and not properties would conflict directly with Lewis's demand to keep the category of belief objects uniform across the board. If a 'now' belief about an event e is a special case that can be viewed as **not** a self-ascription of properties, why cannot we posit the old eternal propositions as the objects of some tensed beliefs? More importantly, how are we to make sense of a tensed belief expressed by saying 'I am cold [now]', where there is no specific event to self-ascribe a relation to?

Finally, Lewis's account has an intuitive and formal pull that is hard to replicate in Torre's account. In Lewis's system you can think of the self-ascription of property F intuitively as the subject thinking 'I am F'; or formally as the subject claiming membership to the set of entities having property F. In Torre's account it would be very hard to imagine what it is for the subject to **self-ascribe a relation R**. Let's take the relation *being-married-to* as an example of such an R. If we follow Lewis's 'intuitive' way to cash out self-ascription, the thought 'I am married-to' does not seem to make much sense –except of course if it is just a shorthand for self-ascribing the quite different relational property *being married to someone*[65]. On the other hand, if we follow the formal way to cash out self-ascription, the entities that can self-ascribe membership to a set of things 'having' relation R can only be other sets of things: the set of {Vasilis, Mariana} for instance can maybe self-ascribe the relation *being-married-to*. But in the tensed belief case purportedly explained by Torre, it is quite puzzling to posit that the set of {Vasilis, 2.15} self-ascribes a relation. The 'self' doing the

[64] Torre (2010), pp.22

[65] In this case Torre's self-ascribed property in belief (n) in [CLASS] would be *being simultaneous with e at some time*, which will not produce timely action. Other possible 'relational property' interpretations of Torre's EST version might be (a) S at t self-ascribes *being simultaneous with e* ***at t*** or (b) S at t self- **and present**- ascribes *being simultaneous with e*. But (b) is just another version of ESTii, while (a) needs the subject at 3.49am to already have a concept of the relatum 'at 3.49am' which would not help with the insomniac Timmy case (Timmy does not know what time it is).

self-ascribing does not consist of a person *and* a time; it is always just a person, even if it is temporally located at a certain time[66].

2.2.3 Chisholm

Chisholm (1981, 1989) purports to offer yet another version of the property self-ascription theory for explaining belief episodes. If Lewis can be seen as adhering to the spirit of Prior's Egocentric system, Chisholm goes one step further and attempts to follow Prior's ideas about time and tense. Recall from 2.1 that Prior's Tensed Logic attempts to provide formulations of tensed statements taking the *present* as the starting point of logical analysis. Here the notion of the present does not need to be explicated, because it can be taken as the default analysis of all our statements. If we follow Prior's account to the letter, *any* statement is taken to be about the present; this might be how Chisholm concludes that "to say of a state of affairs or event that it occurs at the present time is to say, of it, that it is one of the events that are occurring, and we can arrive at *that* conclusion without singling out any identifying property of the present moment"[67]. For Chisholm the *de se* belief is also (and always) *de praesenti*.

This position gives Chisholm a different option for describing tensed beliefs: a belief <u>that it is presently raining</u> can be cashed out as simply self-ascribing "the property of being such that it is raining[68]", where 'is raining' is always understood in the present tense[69]. This would cash out belief (n) in [CLASS] as:

(n-AST) to believe (n) is to self-ascribe the property *being such that the class is starting*.

The crucial diverging point here is that the expression 'is starting' is to be understood in the present tense. In equivalent terms, to believe (n) might also be to self-ascribe the property *being such that the class start is (present-tense) occurring*, or more simply, the property *being such that the class start is*

[66] Falk (2003) explicitly proposes such a picture: In his approach there is a 'double subject' at play, and the property is ascribed both to a person and to a time. If the first part is a 'self-ascription', the second part can be only described as a 'present-ascription'. I admit that I cannot picture this theory as anything else than either ESTii or positing that the subject of every belief is a set consisting of a person *and* a time, which as I said would fly in the face of any plausible theory of belief.

[67] Chisholm (1981: 51). Chisholm names the process 'directly attributing' a property instead of self-ascribing one, but it is only a difference in terms.

[68] ibid, p. 51

[69] Chisholm's specific view about the present obviously creates a difference from the Lewis account even in the case of beliefs I would not here call 'tensed', such as the belief that copper is ductile. I will not discuss this issue here as it does not exactly pertain to this dissertation.

present. In light of that fact, it looks like the properties Chisholm posits are unambiguously A-properties; based on his definition, they cannot be analyzed further in B-terms. One can see that very clearly in the last example, as the property *being such that the class's start is present* includes the uncontroversially A-theoretic property *being present*. I shall therefore call Chisholm's account the 'A-theoretic Self-ascription' (AST).

2.2.4 Summary

To sum up section 2.2, here are again the proposed ways to describe a 'now' belief as a self-ascription:

(PST): At t, a person, S, believes that e is now iff her time-slice S@t self-ascribes the property *being simultaneous with e*.

(AST): At t, a person, S, believes that e is now iff at t, S self-ascribes the property *being such that e is occurring*. [where 'is occurring' is understood as happening in the present]

(ESTi): At t, a person, S, believes that e is now iff at t, S self-ascribes the property *being simultaneous with e*.

(ESTii): At t, a person, S, believes that e is now iff at t, S presently-self-ascribes the property of *being simultaneous with e*.

(ESTi-Torre): At t, a person, S, believes that e is now iff at t, S self-ascribes the relation of *being simultaneous with e at*.

(ESTi-Falk): At t, a person, S, believes that e is now iff at t, S self-ascribes and present-ascribes the property of *being simultaneous with e*.

The last two accounts are not analyzed further in this chapter.

In the following sections 2.3 and 2.4 I will try to evaluate the self-ascription theory of belief as it pertains to tensed beliefs. For this purpose I will view the theory as a disjunctive statement: I will thus assume that any proponent of a Lewis-ian *de se* analysis of tensed belief would accept that {(PST) or (EST) or (AST)} is correct. Section 2.3 will outline what I view as the attractive characteristics of the theory of self-ascription. Due to relevancy constraints, I am omitting AST from that section, as it programmatically posits at least one A-property (*being such that it is (presently) raining*) and hence

would directly violate the Tenseless Facts and Properties Requirement. In section 2.4 I will argue that none of these formulations is a conclusive answer for this dissertation; for they either violate some of the other chapter 1 dissertation requirements (2.4.1), or they are not complete explanations of the causal role of tensed beliefs (2.4.2). AST comes back in play in the former section, to make sure it is not viewed as the only remaining useful formulation of the self-ascription theory.

2.3. Virtues of self-ascription theories

2.3.0 Methodological Requirements for the intended theory of tensed belief[70]:

1. Definition

The theory should be consistent with my chapter 1 characterization of a tensed belief, as (DF): one the believer could and would normally express by using a temporal indexical.

2. Uncontroversial Simple Contents

The theory should be able to *at least* give the content of a simple present belief, let's say belief

(Pr) that Obama is president,

as well as simple past belief (Pr_p) that W. was president,

and future belief (Pr_f) that Jeb Bush will be president

3. Tenseless Facts and Properties

The account should use only tenseless (B-theoretic) facts and properties. A-facts or A-properties should not be treated as fundamental.

4. Untranslatability

The account should not be sentence-relative or utterance-relative (as a subject might not utter anything and still have a tensed belief). Translatability or meaning equivalence claims should therefore be avoided.

4a. Cross-linguistic Variation

The account should not just rely on explaining the *verb mechanism* utilized in linguistic expressions of the belief in English, as the explanation of tensed belief should not be tied to a particular language.

[70] I am arguing for these in the previous chapter of the dissertation (see esp. 1.3). The order here is random.

In essence we are looking for an account of what it is to believe or think in a tensed way, not just to state something using verbal tenses.

5. Non-descriptivism

Perry's work on the essential indexical dictates the avoidance of a particular type of descriptivism.

6. Uncontroversial 'here'-Belief Contents

The account should not posit foundational 'here' semantic values as belief objects in our theory. For instance a 'here'-proposition that changes truth-value according to the location of the context should not be the content of my belief that it is raining [here].

7. Decision Rationality

The account should count instances of timely decisions as rational.

8. Proposition Neutrality

The account should allow eternal propositions as the bearers of truth-value.

9. Level of Thought

The account should explain the difference in resulting behavior between tensed and tenseless beliefs with some difference in the level of belief.

(9a-Non-randomness)

This difference should not be a random fact specific to the description of the case.

(9b-Awareness Ability)

The subject should be somehow aware of this difference (he should be able to 'think' or 'grasp' or 'be attuned to' it) – or just *be able to* become aware of it. For instance a mere difference in physical realization of the two beliefs will not do.

2.3.1. Replies to the requirements

It is relatively easy to see how a self-ascription account of belief would meet some of the requirements outlined above. First of all, by not identifying a proposition as the direct object of a belief, the theory is open to analyzing propositions as eternal entities, things that are either true or false simpliciter (Proposition Neutrality Requirement 8). But this is not the only advantage of not

positing propositions as belief objects. For now the distance to the utterance or the sentence used to express the belief is even greater, and thus the account does not adhere too close to a sentential or utterance-based analysis of tensed belief. As I argued in the first chapter, such an account would have great difficulty in handling non-expressed or non-uttered tensed beliefs or tensed beliefs expressed in a language radically different than English (Cross-linguistic Variation Requirement 4a). This is not the case with a Lewis-ian account of belief, which for instance would have no trouble explaining adverbially-tensed beliefs as self-ascribing the same properties as verbal-tensed beliefs[71]. The general upshot is that a self-ascription theory shies away from grandiose claims about translatability or meaning equivalences (Untranslatability Requirement 4), as it does not claim that tensed sentences can be translated into tenseless sentences or that you can give the 'meaning' of them in tenseless terms.

These issues however might be seen as peripheral to the evaluation of the strategies here presented; this dissertation's fundamental question is whether the account proposed can adequately explain the cognitive/causal properties of the category of tensed beliefs. As I mentioned in 2.1, Lewis thinks that a tensed belief is 'irreducibly *de se*'. So it looks like it satisfies Requirement 1 (Definition): it is in accordance with the basic characterization of a tensed belief that I indicate in chapter 1 as a belief exhibiting an 'essential temporal indexicality'. Moreover, since the main impetus of Lewis' article was to uniformly explain instances of indexical beliefs, the system is ideal for keeping the family resemblance of tensed beliefs to other indexical beliefs. The main Lewis idea is that an indexical belief is something like a self-ascription of *location*: in the 'here' case it would ascribe spatial location (as in the case of Lingens lost in the library), in the 'I' case it would ascribe world-location (as in [MESS] or the case of the God at the tallest mountain), and in the 'now' case the indexical belief involves ascribing temporal location. In the tensed belief case, Lewis includes the temporal position of the belief episode in the same hierarchical position as the world position: The defining characteristics of the time-slice of the person self-ascribing the property (say

[71] I intended to use Guaraní to bring this out clearly, but maybe the following Perry belief suffices: My tensed belief that 'yesterday was 07/20/09' –where the tense centers on 'yesterday' and *not* the verb 'was', so could be translated word by word in Guaraní- is satisfactorily cashed out in tenseless terms in the Lewis way as "myself@2.15am, 07/21/09" self-ascribing the property *being temporally located on the day after 07/20/09*.

Timmy@3.49am) are the world it occupies *and* her temporal location. In essence, Lewis has subsumed all belief under the *de se* category. This is one of the clearest statements of the family resemblance between indexical beliefs, adhering very close to the 'essential indexicality' that Perry describes in [MESS] and I indicated also happens in a tensed belief. In the same vein, the account *prima facie* abides by Requirement 6 (Uncontroversial 'here'-Belief Contents). The explanation of Lingens' belief as the self-ascription of a spatial location (a property that does not include 'here' concepts or spatial indexicality) removes the account as far from a 'here' proposition or a 'here' object of belief as could be expected[72].

Regardless of the basic characterization of a tensed belief and the family resemblance to indexical belief, the model of self-ascription has a more important –and programmatically stated- job to do: it should provide a *uniform* explanation of the belief's ability to enter into a causal logical network. One part of this demand is to check if the theory is able to describe the content of some minimally tensed beliefs. I proceed with the three beliefs of Requirement 2 (Uncontroversial Simple Contents):

(Pr) my belief that Obama is president,

(Pr_p) my belief that W. was president,

(Pr_f) my belief that Jeb Bush will be president.

(PST) will analyse them as my time-slice:

(Prn-PST) self-ascribing the property of *being simultaneous with Obama's presidency*,

(Pr_p-PST) self-ascribing the property of *being after W.'s presidency*, and

(Pr_f-PST) self-ascribing the property of *being before Jeb Bush's presidency*.

These properties are all B-properties. As far as this analysis does not use any A-terms or A-properties, it is a good start for presenting the content of the simple beliefs in a tenseless way (Requirement 3 - Tenseless Facts and Properties). The truth conditions associated with self-ascribing these properties

[72] In section 2.4 I will attempt to show that any self-ascription account leads to the A-theory. The same argument can probably be run to show that Lewis' account of spatial indexical beliefs leads to an implausible position placing unnecessary metaphysical importance to 'here' properties - this is why I am saying "prima facie" in the current statement.

are similarly straightforward. If the time-slice doing the self-ascribing does indeed have the B-properties indicated, the belief is true; else it is false. ESTi and ESTii should exhibit similar success.

The second crucial part is to adequately explain the tensed beliefs involved in [ROOT CANAL] and [CLASS]. The various explanations mentioned in 2.2 at first seem attractive to this dissertation. But as dictated by Requirement 9 (Level of Thought) the system has to have the resources to show a clear difference in the level of thought between my believing (n) and my believing (n*) (as well as (p) and (p*)). This turns out to be an even more pressing matter for a self-ascription theory, since Lewis postulates that *all* belief is *de se*. What then will be the difference, for instance, between (n) and (n*)? The answer for Lewis is that there is a foundational difference between *irreducibly de se* beliefs and beliefs like my belief that copper is ductile. The former involve self-ascribing a property that does not correspond to a proposition, while the latter involve self-ascribing a property that *does* correspond to a proposition. In short, the latter are beliefs *de dicto*, a category that is indeed *de se*, but not irreducibly so[73]. This Lewis strategy (PST) for [CLASS] produces a clear difference in descriptions

(n-PST): me@10.30am self-ascribing the property *being simultaneous with the start of the class* and

(n*-PST): me self-ascribing the property *inhabiting a world where the class starts at 10.30am*[74].

Similarly for [ROOT CANAL], there is a difference between

(p-PST): me@t1 self-ascribing the property *being temporally located after the root canal operation* and

(p*-PST): me self-ascribing the property *inhabiting a world where the root canal ends at 2.30pm.*

This is more than a notational difference in describing the same belief or belief episode. It is supposed to bring out a constitutive difference between two distinct belief episodes. By positing *two distinct*

[73] "My thesis is that the *de se* subsumes the *de dicto*, but not vice versa" Lewis (1979), pp. 521-2

[74] Paragraph VII of Lewis (1979) is somewhat ambiguous. Lewis does not say if the self-ascription that accompanies *de dicto* belief episodes is done by a time-slice or a continuant person. Even though he clearly prefers the time-slice ascription for Timmy-like cases, he does not generalize or modify his earlier examples that do not explicitly make use of time-slices. In light of this I kept the **person**, and not the time-slice, as the subject of a belief that is not irreducibly *de se*. Nonetheless, I think that you can substitute "me" with "me@10.30am" in (n*-PST) without losing the crucial difference between (n-PST) and (n*-PST). In short, the difference is not *what entity* does the self-ascribing, but *what* it self-ascribes.

belief objects (separate properties), Lewis does show a difference between the contents of (n) and (n*). So (PST) is successful in abiding by the very important for this dissertation Level of Thought Requirement.

(AST) and (ESTii) are similarly sensitive to the distinction; as they postulate different belief objects in (n) and (n*), they describe different beliefs. The account is also similar in the case of (ESTi), as it inherits the distinction between two different properties. This time the difference is between belief-tokens instead of belief types:

(n-ESTi): self-ascribing (at 10.30am) the property *being simultaneous with the class start*.

and

(n*-ESTi): self-ascribing (at 10.30am) the property *being in a world where the class starts at 10.30 am*.

I do not wish to express a preference at this point between taking belief tokens or belief types as the foundational analyzans; I think that nothing important rests on this detail. In sum, all four versions of the self-ascription theory do succeed in depicting an important difference in the level of thought between the two beliefs (or belief-tokens) involved in [ROOT CANAL] and [CLASS].

However, this difference should be utilized to explain the difference in cognitive significance or causal role: is the theory in a position to give us a good model of the cognitive properties of a tensed belief? Is it able to explain *how* the difference between (n) and (n*) that we just noted leads to a difference in the belief's causal role? Finally, does the theory have the tools to explain a rational recognition episode, like the one taking place in [MESS] when I finally realize "it is me who is making a mess"?

We could probably begin to make headway into these issues by looking at how a self-ascription theorist would model the attitude of **desire**. Lewis thinks that all desire is *de se*; like belief, desiring just is to be in a *de se* relation of "wanting" a particular property. And now we can see how his project is complete in entering attitudes in the stated 'causal network': *de se* beliefs can be combined easily with *de se* desires to lead us into action. To illustrate this principle we could look at [ROOT CANAL],

fortunately investigated by Lewis (1979)[75]. It is natural, Lewis states, for myself to be relieved after my root canal is over, because all the while I desired the same property myself@2.30 believes he has: (p-PST) - *being temporally located after my root canal*. Relief is indeed the feeling someone (even a time-slice) gets when he wants F and now he is in a position to self-ascribe F. Moreover, the same feeling would never result from believing (n*-PST), because my time-slice does not explicitly desire to be in a world where the proposition 'the root canal is over at 2.30' is true. My desire and my belief here do not have the same object; hence they will not be immediately 'paired up' to produce relief. It is not hard to imagine a similar explanation taking place in [CLASS]. In this case, to explain the resulting action we would need more desire-belief pairs, but the system prima facie has the tools to make the explanation work[76]. The same belief-desire mechanism can explain temporal recognition instances similar to my [MESS] realization that it is myself who is making a mess.

To see if a self-ascription theory can explain tougher cases of tensed beliefs, we can look at the case of Maria the precognitive experiencer that thinks her percepts are happening 5 seconds in the future (described in 1.7). The following is the Lewis model of causation explanation, where DA is the relation of *de se* 'desiring' a property and SA is self-ascribing a property:

(D1 – Vasilis's desire to eat a banana): Vasilis@t1 DA -> *being a banana eater*

(B1 – Vasilis's belief that he is eating a banana): Vasilis@t1 SA -> *being a banana eater*

We explained that relief always accompanies instances where I desire some property F and I self-ascribe F. So relief will appear in this case. But what about Maria who thinks that her perception is

[75] Lewis (1979), p. 530 onwards.

[76] Again, I am saying *prima facie* here because section 2.4.2 will argue that there is still something missing. But if we insist on a Davidsonian formulation of the cause of the action being belief-desire pairs (see Davidson 1963) we could nominate the following desires and beliefs taking part in a causation-explanation of my action:

(D1): desire *being in the class room at* t_1 [= 15 minutes after t_m]. (t_m is the class's start-time)

(n-PST): SA (self-ascribe) -> *being simultaneous with* t_m.

(B1): SA -> *being in my house*.

(n-PST) + (B1) => (B2): SA -> *being in my house simultaneously with* t_m.

(B3): SA -> *being in a world where going from my house to the classroom lasts 15 minutes by running*

(B4 .. B100): various correct beliefs about times, durations and personal abilities

(Causal statement): [B2 & B3 & B4..B100 & D1] cause (A1): running

One naturally wonders on such a (PST) explanation if instantaneous time-slices are supposed to be able to hold all these beliefs and desires *and* the action be produced at the same instant. People smarter than me have asserted that perdurantism has the means to explain all of this; I am not going to investigate their assertions here as this would significantly derail the dissertation.

linked to the future? The answer for Lewis is simple: in this case she will wait 5 seconds and only then (at t1+5'') she will self-ascribe being a banana eater. The relief will follow only then, which is a result consistent with the case description. Since the level of action explanation is grounded only in causal facts, there is no normative action profile for tensed beliefs. Maria's tensed beliefs just do not pair up with desires in the (normal) way our tensed beliefs pair up.

The Mellor-like endurantist self-ascription theorist (ESTi) would have the same resources in dealing with causal role issues as Lewis, but this time a more apparent causation explanation is utilized (see footnote 76 and dissertation section 1.7). In this case the belief token has the same time stamp as the desire token, and together they directly cause the similarly time-stamped action token. In tenseless belief tokens, the desire token and the belief token are about different properties, so they cannot be combined to lead to timely action. In ESTi the *times* of the belief, desire or action do not need to be elements of thought at all, since all the actions appropriately follow due to causal demands. Similar comments can be made for AST and ESTii. To sum up: it looks like a self-ascription theory is a first strong candidate for this dissertation's project of explaining the nature and causal role of tensed beliefs.

2.4. Criticism of self-ascription theories

This section will attempt to highlight a couple of important problems arising when the self-ascription framework is used to account for tensed belief. The first is that such a theory would be uncomfortably close to an A-theory of Time for this dissertation's purposes; the second is that the possible absence of *representation* will create insurmountable problems for Lewis's stated project of describing the "logical relations between beliefs" [77] and consequently our guiding question. I think that all versions of the self-ascription strategy (PST, ESTi, ESTii, or AST) are vulnerable to these two criticisms, each with its own degree of vulnerability. However, my objection to a self-ascription theory only focuses on these two issues; so if one of the four versions is able to overcome *both* problems, I will be very happy to accept it as a good theory of tensed belief.

[77] Lewis (1979), pp. 514

2.4.1 Self-ascription theories imply the A-theory

William Lane Craig formulates the first criticism in the following way:

> For if one does not ascribe to oneself tensed properties, one cannot locate oneself so as to act in a timely fashion. In knowing what time it is, one must self-ascribe more than a mere B-series position to oneself, for one occupies tenselessly a multitude of such positions and in order to act reasonably, one must know what time it is now. Alternatively, if I am self-ascribing B-series positions, then the act of self-ascribing must itself be tensed. If I tenselessly self-ascribe a B-series position, then I believe that I tenselessly occupy that position, but I do not know where I am. The act of self-ascribing must be tensed: I am (present tense) at t1. Thus in order to have successful self-ascription of properties, I must either ascribe tensed properties or tensedly ascribe tenseless ones. On either account, real tense is ineliminable. (Craig 1996, p.264)

The argument can be stated as follows:

(1) If believing is to self-ascribe properties then either

(i) I tenselessly self-ascribe A-properties[78] or

(ii) I tensedly self-ascribe B-properties or

(iii) I tenselessly self-ascribe B-properties.

(2) If (i) is the case, real tense is ineliminable.

(3) If (ii) is the case then the self-ascription must be 'I am (present tense) F'[79].

(4) If the self-ascription is 'I am (present tense) F' then real tense is ineliminable.

(4a) If (ii) is the case, then real tense is ineliminable. *from (3) & (4)*

(5) If (iii) is the case, then I do not know where I am (in time).

(6) If I do not know where I am I cannot act reasonably.

(7) Since I often act reasonably, (iii) cannot be the case. *from (5) & (6)*

(8) Real tense is ineliminable. *from (1), (2), (4a) & (7)*

As presented here, the argument is valid. Craig understands the concluding claim as the claim that "reality is tensed", hence a good argument to show that the A-theory is true (Craig 1996:265). So if the premises are correct, Craig's argument can be used to show that the self-ascription theory implies

[78] I have taken the liberty of replacing Craig's terms 'tensed properties' to 'A-properties', and 'tenseless properties' to 'B-properties' to alleviate a possible lexical confusion. I am not sure if these terms are completely synonymous; we might use 'tensed properties' to refer to properties that look tensed but ultimately can be described in B-terms. However I have no doubt that Craig thinks the terms are synonymous, so my interpretation of the argument is consistent with his line of thought.

[79] Craig's example centers on the insomniac Timmy case, so for him the property self-ascribed is *being-at-t*. I wish to consider a general tensed belief case, so I abstracted from the specific example to include all properties.

the A-theory, a fact at least unattractive to this dissertation for the reasons outlined in 1.5. In what follows I will take up each version of the self-ascription theory, show where it stands in the disjunction of premise (1) and take up the argument from there. For a little bit of foreshadowing I should point out that the crucial premises will turn out to be (4), (5) and (6).

As has been already mentioned in 2.3, (AST) is the version of self-ascription theory that is closest to an A-theory of time – not an accident since Chisholm is an outspoken A-theorist. In (AST) there are clear cases where the subject is self-ascribing A-properties: *being such that it is (presently) raining* or *being such that the class start is present* are A-properties that a B-theory of time will have a hard time describing in equivalent B-terms. If (AST) is the correct way to spell out the self-ascription theory, then Craig's (i) is true. As my definition of the A-theory in 1.5 shows, I have no major gripes with premise (2); so in this case Craig's argument appears to be sound, but in clear conflict with my Requirement 3 (Tenseless Facts And Properties).

But (AST) is not the only self-ascription theory that veers close to an A-theory of time. (ESTii) can be plausibly seen as having the same consequences. Recall the (ESTii) analysis of a 'now'-belief:

> (ESTii): At t, a person, S, believes that e is now iff at t, S presently-self-ascribes the property *being simultaneous with e*.

The analysis shows a *tensed* ascription of a tenseless property. So in Craig's disjunction it belongs to option (ii). But what is it to presently-self-ascribe a property? Presumably it is not just to self-ascribe a property **at t**; this happens with every belief, even beliefs that are not tensed like my belief that copper is ductile. Nor is it to self-ascribe a property **at the present**, as then statement (ESTii) above would give the wrong truth conditions[80]. It is to do the process *in a tensed way*. So for ESTii to work, there must be a difference between self-ascribing and presently-self-ascribing - and the subject has to be in touch with this difference. Recall the intuitive pull of Lewis's framework theory: to self-ascribe F is to think 'I am F' or to claim membership in the set of entities being F. There is a natural correspondence with ESTii: to presently-self-ascribe would be to think

[80] Saying that "in 1941 Churchill believes that the war is now taking place iff he self-ascribes at the present the property *being simultaneous with e*" makes it false that he had the belief in 1941, since Churchill is dead at the present time (2010).

(10) ‘I am (present-tense) F’ or

(11) to claim (present-tense) membership in the set of entities being F.

But (10) is equivalent to thinking

(12) ‘I am presently F’

and (11) is equivalent to

(13) claiming membership in the set of entities *being presently F*.

Hence, if we take *being presently F* as a property –and I see no reason why we cannot- , ESTii is equivalent to

(ESTii’): At t, a person, S, believes that e is now iff at t, S self-ascribes the property of *presently-being-simultaneous-with-e*.

The statement is consistent with both (12) and (13). But now let’s see the property self-ascribed in (ESTii’):

(Prop 2): *being presently-simultaneous-with-e*

This is an A-property as much as AST’s ‘*being such that e is presently occurring*’ is an A-property. As it cannot be analyzed in B-terms, it is irreducibly tensed. To illustrate this in [CLASS], an event e or an entity x may be *simultaneous with the start of the class* (say Prop. 3) but not *presently simultaneous with the start of the class*. For instance the event of Michael Jackson’s death has the property of *being simultaneous with Farrah Fawcett’s death*, but it does not have the property of *presently being simultaneous with Farrah Fawcett’s death*, as they both happened some time ago. So Prop 2 is different than Prop 3. It is a tensed property, in the same way as the property posited by Chisholm in AST is a tensed property. I think that this shows that Craig’s (3) and (4) are good claims: if ESTii is a viable option, it will lead to the same conclusion as AST –namely that the A-theory is correct.

One might think that there might still be room for the EST(ii) proponent to bite the bullet and accept every claim I have made so far, but deny Craig’s conclusion (4) that “real tense is *ineliminable*”. Perhaps she could argue that a way to unpack (10) or (11) without using tensed concepts will be found in the future, so she can end up with a weaker conclusion such as “real tense

has not been eliminated yet" or "reality is *prima facie* tensed". But notice here that a self-ascription theorist wants to *explain* tensed belief by (10) or (11); she is thus committed to the claim that this analysis is the last word on the tensed belief's content. If she reserves judgment, she is not really an EST(ii) proponent. Personally, I find it plausible that something like the EST(ii) description does take place – believing that I am (now) clean in a sense *is* to presently self-ascribe cleanliness. But I am not an EST(ii) theorist, as I think that there is a further way to *explain* this claim, a way that in addition does not presuppose A-properties.

Is EST(ii)'s and AST's connection to a metaphysically suspect A-theory the only reason to dislike them? Then someone might turn the issue on its head (like Craig does) and claim that the theories' usefulness actually supports that the A-theory is correct. But this is not exactly a strong argument – as the other two versions of self-ascription theory might be able to keep the attractive results seen in section 2.3.1 and avoid being metaphysically suspect. What is more, EST(ii) and AST have an additional problem, mentioned against the A-theory in my section 1.5; they are not easily utilized to describe past or future-tensed beliefs.

To see this we can use a possible past-tensed belief I could have during [ROOT CANAL], expressed by me by saying 'I had a root canal'. If this is self-ascribing *being such that the root canal has occurred*, it is not as primitive as Prior's [sitting] or Chisholm's **present**-tensed A-properties. Their comments are based on the intuition that a present-tensed belief <u>that I am hungry</u> is primitive; the tense need not be explicitly signified in the analysis of the sentence. For AST it is a self-ascription of present hungriness, and for ESTii it is a present-self-ascription of hungriness. But even a simple **past**-tensed belief like the belief (WH) <u>that I was hungry</u> complicates the matters enormously. Assume that Chisholm is a proponent of Prior and would like to use Tense Logic (and that the subject would express her belief by uttering the sentence 'I was hungy'). In Tense Logic temporal operator Hp is 'it has always been the case that p', and the 'past' operator Pp is ~H~p[81]. So the thought that I was hungry is not –strictly speaking- primitive: it would be logically modeled as (LM) 'it has not always been the case that I am not hungry'. But this sort of indefinite sentence does not seem to have

[81] D. Zimmerman (2005) pp. 424

the properties associated with past-tensed belief (WH). Like all A-theories presuming a primitiveness of the present, difficult issues arise concerning statements about the past and the future[82]. To see just one of them, how would Prior or Chisholm explain the way differently tensed beliefs are normally updated in a person's psychology? A present-tensed belief @t1 is normally connected to a past-tensed belief @t1+x: for instance my present-tensed belief that Obama is president will be connected to my possible later belief that Obama was president. But if our present-tensed beliefs are totally different than the past-tensed beliefs in terms of primitiveness and way of believing, we need a very elaborate error theory to explain belief updating; and such a theory has not been provided.

I conclude that at least (AST) and (ESTii) are wrong or incomplete accounts of the cognitive properties of tensed belief. But note here that the PST and ESTi alternatives do not fare better in cases of belief updates. In PST it is entirely mysterious how time-slices share contents and update beliefs from the present tense to the past tense. The same is true for the ESTi enduring person whose belief tokens would presumably have a habit of updating automatically depending on the time they are tokened without the subject being aware of it.

2.4.2 Rationality/Representation Issues

In order to evaluate EST(i) and (PST), I will change tracks a little bit. I have interpreted both theories as following the spirit of Prior's "Egocentric" comments. This would mean that, in the 'I' case, the self-ascription could happen *without* the subject explicitly thinking of herself as a person or an object. The self-ascription happens by default and thus we have no need of depicting the 'I' in the belief's content: there is no special 'ego' representation involved, as all beliefs are *de se* and not just those expressed with first-person statements. Alternatively: the ascription as ascription to a 'self' is not transparent to the subject. The thought does not explicitly use a 'self concept'- think again of the Prior model of sentence "I am sitting" as just the statement [sitting]. As I argued in the previous section (2.3), this is fine in a first rudimentary formulation of the causal role of beliefs. But there is a sense in which this formulation under-describes the *rational* process taking place in indexical belief episodes.

[82] King's (2007 – p.76), Sider (2001) and Markosian (2004) present important problems for the A-theory in handling seemingly true statements about the past, such as the statement 'Socrates had a beard'. These problems about past-tensed statements easily transfer to the level of beliefs.

This also applies to tensed belief, as in this category we have a similar method used to 'explain away' a temporal indexical like 'now'. Let me transfer the previous paragraph's comments for 'I' in tensed belief: the element of decision involved in rational thought leading to timely action seems to completely disappear from the description of a tensed belief. In the ESTi-type Mellor theory, the action follows just because of the fact that the belief token is tokened at the same time as the resulting action. And in Lewis' (PST) theory (reminder: to believe (n) in [CLASS] is me@t1[=10.30am] self-ascribing the property *being simultaneous with the start of the class*), there is no mention of a representation of the time *t1* in the subject's thought process. Indeed Lewis thinks that there is no need of one, since he has purportedly explained the subject's behavior resulting to timely action just through the subject being *a specific time-slice*, hence necessary existing at a specific time. Both ESTi and PST then purport to explain the cognitive properties of a 'now' thought by completely avoiding any discussion of *the concept of the present* or what I marked in 1.4 as the perspectival 'now'-like mode of presentation of temporal information. Timely action follows in both theories because of some necessary properties of causation – in essence the thought-time is transferred to the time of action either through the belief token's time or the time-slice's time.

I wish to claim that this is not a good way of explaining what is going on, at least in cases like [CLASS]. There, it seems that the subject makes a conscious decision, made in the space of reasons, that is conclusive to her action. There is a rational inference from thought (n) to the decision to act; and this is a fact that even Lewis recognizes in his demand for beliefs and desires to enter in a 'logical network'. This inference can be understood by other subjects; it can be communicated between different people; it is a good object of philosophical investigation or even contemplative thought about the rational abilities of people we know. In short, I claim that just a mechanistic explanation positing the required causal roles as results of general causal laws will not be enough to explain at least cases like [CLASS][83].

[83] Mellor (1998b) (as sketched in section 1.7) and Falk (2003) might think that evolutionary success or 'human nature' are adequate explanations for positing the existence of the relevant causal laws; but as I interpret them here I think that at this point they are appealing to a 'magical' theory of rationality, since they do not show *how* the decision is rational.

I am not claiming here that in general there is no room for a mechanistic causal explanation of actions in a philosophical theory; I also do not doubt that there are important cases where thinking without *conceptually representing myself as subject or object* might take place – it might be true for instance that quick perceptions involving temporal information result in non-deliberated quick reflex actions[84]. But if we are to explain processes such as inferences, rational decisions, or communication; in short when we are dealing with information processing, mental acts and phenomena such as agency and intention, it is implausible to think that crucial steps of these processes happen automatically without the appropriate representations. If we move into the space of reasons (or some kind of information processing theory) as dictated by the rationality exhibited by our paradigmatic cases, it is implausible to see how a decision can be made in [MESS] without an 'ego' representation or a representation of my private temporal perspective in [CLASS] and [ROOT CANAL]. In short, I wish to claim that (PST) and (ESTi) do not explain a vital part of the cognitive role of a tensed belief – the thinker's point of view, the exact perspectival element involved that would connect tensed beliefs to rational decisions. Hence they do not adequately explain the content of a tensed belief.

But there might be a sense here that I am misinterpreting at least Lewis' comments, and there is indeed at least some kind of 'ego'-representation coupled with all my self-ascriptions. This is closer to what I earlier called Lewis's 'intuitive interpretation', where

the self-ascription of a property F

is more or less explained as

thinking the thought 'I am F'.

In this interpretation, I see no reason why the subject does not also use a 'now'-like representation when he is having a tensed belief. However, this would mean that the subject needs to think something *like* ('I am F now') or ('I am presently F') – which is uncomfortably close for us to AST, ESTii and the A-theory! For in a possible absence of a representation of the time occupied (e.g. if the

[84] Even in cases like that however, there is some validity to thinking that the subject somehow 'notes the present', utilizing a private temporal perspective in elementary thought. I think that you can call this a 'now'-like representational element in thought, exactly like some cases of 'I'-thoughts always depend on non-conceptual self representation elements such as spatial egocentric maps. These 'low-level' representations are not conscious but 'available' in the Burge (2003b) sense. But we absolutely need to describe them as I do in chapter 4 (see section 4.4.1) if we claim to have explained the nature of tensed beliefs.

subject thinks something like 'I BE F', where BE is tenseless), it is possible for the subject in [CLASS] to think that he BE *simultaneous-with-the-class's-start* and to desire that he *BE-in-the-class-room-in-15-minutes*, without being forced logically to conclude 'I have to run [now]' (here the verbs in capitals are tenseless verbs). If interpreted this way, the theory does not give us the exact reason why the subject could not just conclude that he HAVE-to-run. But if this is the conclusion, timely action does not take place, as the tenseless command above does not specify exactly *when* I have to run – I am as rationally justified to immediately run as I would be to run after having coffee and donuts.

I think that this is plausibly Craig's final point against a self-ascription theory that posits the 'tenseless self-ascription' of tenseless properties, like our PST or ESTi. Since such a theory does not explicitly describe the crucial representations or 'now'-like concepts involved, then the self-ascription can only be cashed out as something like thinking 'I BE F'; and in that case I do not know *when* I am in relation to any objects represented in my thought (Craig's 5)[85]. But if I do not know *when* I am, I cannot find a forcing logical reason to dictate action; and this is true even in the possible quick-perception cases where a reflex-based causal push to action is more plausible. In Craig's terms, "I cannot act reasonably" (Craig's 6). I would add that without reasons to act I do not even act *intentionally*, since intention cannot be cashed out merely in causal forces -it requires some reason-based explanation[86]. But this whole dissertation operates under the assumption that our subject in [CLASS] acts reasonably and intentionally; so Craig seems justified in saying that a tenseless self-ascription theory of tenseless properties like PST and ESTi is not correct (Craig's 7).

Is there an alternative way to correctly explain timely behavior, which does not utilize a 'now'-like *representational* element in thought explaining the private temporal perspective of the subject? Mellor (1998b) takes some distance from his (1991) and at least tries to describe how present-tensed thoughts are entertained without such an explicit representation. He says instead that we are just

[85] The example of poor Billy Pilgrim Unstuck In Time from K. Vonnegut's *Slaughterhouse Five* springs immediately to mind.

[86] I take it that this view has been established forcefully by Anscombe (1957) and Falvey (2000). As I note in chapter 4, in some cases the decisions can be *reasonable* if they are accompanied by a warrant weaker than full justification. But this line **also** requires describing the crucial representations involved in the warrant, which are not described by Lewis or Mellor.

'attuned to the time', perhaps because of evolution-based ancestral adaptations. For the purposes of this dissertation, I see these comments as nothing more than a general hand-waving that masks the real psychological issue. This is because calling the process 'being attuned to the time' actually names a form of representation; and how this happens is something that at least this dissertation *has to* describe. Else, the theory of behavior and/or rational decision appears magical. A case in point is Perry's comments on the matter, examined in the next chapter (section 3.2). Perry uses exactly the same expression ("attuned to"), but at least he tries to analyze how the process arises and what it does in thought –that is, how the representation is occurring and hence what the primary reason for action actually is[87].

All the above complaints have their root on more general issues looming when one views a self-ascription theory as the last word on belief theory. One needs only think of the following question: What exactly is a self-ascription? The philosophical value of a self-ascription theory in uniformly modeling our beliefs is not doubted. Still, Lewis could be viewed as having destroyed the concept of belief rather than having explained it. We can understand that the subject self-ascribes properties, but what does she *believe*? It looks like for Lewis she does not really *believe* anything. It looks like those two verbs/notions are not equivalent –or at least there is no psychological way to directly replace 'believe' with 'self-ascribe' in our cases of tensed belief.

[87] The same objection can be leveled against Lewis' PST. The question for me and Lewis is how my self-ascribing would enter into the desired 'logical network', the space of reasons, so that the causal role is explained. For Lewis the entities self-ascribing are time-slices associated with a specific time, say t1. But this does not mean that they do not think of themselves as continuing persons; it does not mean that they cannot think that they occupy a time different than the time when the self-ascription is taking place (say t2). So how is it secured that they do not make the following rational mistake: "I am simultaneous with x, and I desire x, so my future time-slice@t2 should run"? There needs to be a way to think about self-ascriptions themselves, and further cognitive work to be described concerning the time of the self-ascriptions and the events they are describing. In short, there needs to be a representational element that captures the private temporal perspective of even my time-slice@t1.
I essentially press the point here that if one assumes that Lewis has no representation problem with 'I'-beliefs (it is taken care of by the *self*-ascribing) he *does* have one for 'now' beliefs *and* 'here' beliefs. Therefore I could not agree with Torre's (2010) defense-by-analogy of PST by claiming that tensed self-ascription is not a problem, *because* 'here' self-ascription is not a problem. A 'here'-ascription posited to analyze in a Lewis-ian way my 'here' beliefs like (h) in [ABDUCTION] could very well run into a similar problem of the absence of representation. But notice that (i) a 'here' belief does not occur as often as a tensed belief, and (ii) the philosophy and psychology of perception has elegant ways to deal with 'here' beliefs and describe the necessary private perspectival spatial representations encoded with 'here' statements. For instance a cognitive 'egocentric spatial map' is a good candidate for the representation that somehow belongs to the content of spatial 'here'-thoughts. So I would argue that Lewis indeed has a problem with *both* cases, but it is more astute and in need of explanation in the tensed cases.

In order to show this we can examine how Lewis might possibly try to explain what a self-ascription is -and maybe connect it to belief in the way he wishes. A first option would be to state that self-ascription involves a *de se* thought element like the expression PRO, posited by Chomsky as occurring in sentence 'John expects [PRO] to win'[88]. But in Lewis, PRO implausibly needs to be present in *all* beliefs; in contrast Chomsky just describes one specific case.

A second reply might be what I indicated earlier as the 'intuitive explanation': a self-ascription of F is always related to the self concept, something like thinking 'I am F'. This reply presupposes a conceptual identification of my self-notion; so I really *is* in the subject matter of the belief. This is more plausible, since even the name of the theory (self-ascription) appears to put great emphasis on the self. But it would not be correct. Evans (1982) has already shown that a subject can have beliefs without necessarily involving the self concept. For instance a simple perceptually-grounded belief that F is here is not believed by way of the self. 'Where I am' is neither meaning-equivalent to 'here', nor its necessary mode of presentation (how we think of it). 'Here' is used in perceptual thoughts in ways that are not obvious in the self-ascription cashing out of belief episodes. As with the theories I will describe in chapter 3, a self-ascription theory is implausible if taken in a philosophy of mind way and meant to be the last word on *how we believe everything*. Specifically, it does not explain beliefs grounded by perception, as perception comes before fully conceptual self-ascriptions (required in Lewis's 'intuitive explanation').

The third (and last) reply of course would be that a self-ascription is something more primitive and it does *not* involve a conceptual identification of the self[89]. Then self-ascribing F would be something like a lower level 'being attuned to being F' or 'being conscious of being F'. In this case the Evans objection would be irrelevant. But, as mentioned before for Mellor, Lewis, Falk and Prior, mentioning this without explaining how it works in tensed belief cases seriously under-describes tensed belief, renders some widely-occurring rational inferences completely mysterious, and possibly

[88] "PRO is an expression having an interpretation (in fact, necessarily anaphoric to the main clause subject), but no phonetic realization." Chomsky (1981) quoted in Higginbotham (2009) pp. 213.

[89] Neil Feit's (2000) takes this line explicitly. One could also see Lewis (1980) as holding this view, as in that paper he explicitly states that there is no ego-representation involved in a *de se* belief.

renders timely action unintentional or irrational. If the third way is used to ground a self-ascription account, the account is at best incomplete and at worst incorrect.

2.5 Conclusion

To sum up: self-ascription without some fully conceptual representation might be happening in perception instances; but in our [CLASS] case and thus tensed belief in general, absence of representation during a tensed belief episode is not even plausible. Tensed belief requires some representation of the private temporal perspective to enter into rational processes and combine with other beliefs and desires to produce action. Avoiding this completely either makes self-ascription A-theoretic (as in AST, ESTii and Lewis's 'intuitive explanation'), or tensed beliefs useless for rational decisions resulting in intentional timely actions (as in PST and ESTi). If the former is correct, I have to agree with Craig's argument that a self-ascription theory entails the A-theory; and as I indicated in chapter 1.5 this is not a path that this dissertation is prepared to accept due to the many problems this theory faces when confronted with current science. If the latter is correct, self-ascription theory becomes just a theoretical abstraction unable to describe how subjects think of tensed beliefs. In this case a self-ascription theory might be a good theoretical model but it is at least incomplete for the purposes of this dissertation. I conclude that what is essentially missing from a possible account of tensed belief based on self-ascription of properties is:

> **Requirement 10 - Time Representation:**
>
> We need some representation of the private temporal perspective in thought to explain intentional timely action.

Notice that this does not mean that we are demanding something like a descriptive Fregean sense involved in every tensed belief; after all, Perry's 'essential indexicality' comments still hold. The representation need not be a fully conceptual thought explicitly entertained at the time of the decision; but it *should* be available to be used by the subject. So requirement (10) should be taken together with requirement 5 (Non-descriptivism); the two do not contradict each other.

CHAPTER 3
TENSED BELIEF AS INDEXICAL BELIEF or
PERRY AND KAPLAN ON TENSED BELIEF

This chapter is going to develop and evaluate in length at least two possible theories for analyzing the content of a tensed belief and explaining its cognitive/causal role. Section 3.1 takes up D. Kaplan's (1977) and (1989) treatment of indexicals and applies it to tensed belief, while section 3.2 gives the same treatment to J. Perry's latest work on beliefs incorporating indexical elements ((2002) and more). As in chapter 2, the structure of each section is the following: First, I describe the framework of these theories (3.1.1 and 3.2.1), and develop their possible account of the content of *tensed beliefs* involved in Cases [CLASS] and [ROOT-CANAL] (3.1.2 and 3.2.2). Sections 3.1.3 and 3.2.3 will present their strong points, by checking how they accord to the list of requirements drawn from chapters 1 and 2. Finally, in sections 3.1.4 and 3.2.4 I present their main weaknesses. In 3.3 I mention in passing some of the alternative theories explicitly proposed or intended for treating tensed beliefs as beliefs related to indexicality and the main difficulties these theories face[90]. This chapter's ultimate section 3.4 gives some concluding remarks, explains why we need an alternative account, and prepares the reader for the next chapter (chapter 4: Tensed Belief As *De Re* Belief) by explicitly nominating two new requirements by which chapter 3 theories do not abide, but the chapter 4 theory does; Requirement 11: **Richard Immunity** and Requirement 12: **Perception Priority**.

3.0. Introduction

As an introduction to this section, it is probably important to say a few things about Frege's view on matters of indexicals and indexical thought. This is because, as Prior was seen by chapter 2 self-ascription theorists as the originator of their views, most thinkers presented in this chapter (Kaplan, Perry, Higginbotham, and more) view Frege as the father or guiding force behind their views. As with Prior and self-ascription theories, each thinker in this chapter departs in considerable ways from

[90] To foreshadow, theories proposed by Higginbotham, Reichenbach, Oaklander, Dynamic Semantics & more.

Frege, and their interpretations of Frege's teachings are far and wide. However, there are some features of Fregeanism with which most of them would agree.

Frege's theory is most of all a view on semantics. According to most semanticists, a semantic theory must assign meanings to simple linguistic entities (words, phrases, or sentences) and establish a set of rules (a syntax or grammar) generating the meanings of complex expressions from the meanings of the base expressions. In this way, grasping the meanings of the base expressions and the rules enables a language user to understand (grasp) arbitrarily complex sentences. Fregean semantics in particular aim to distinguish a certain level of meaning - we might call it propositional content- that: (a) serves as the contribution sentences make to the meanings of larger sentences in which they figure [COMPOSITIONALITY], (b) serves as the thing to be asserted, doubted *and* believed [ASSERTION OBJECT], and (c) can be sensibly thought to carry epistemic properties, like being a priori or a posteriori, evidentially supported or undermined, etc. [EPISTEMIC PROPERTIES VEHICLE].

These proposals sometimes veer outside what I have described as 'semantics', as they are supposed to provide a complete picture of communication episodes: Let's say that S has a belief, the belief that s. To communicate her belief to someone else she uses a sentence –namely, *s*- that has the thing she believes (the Fregean propositional content) as its (or one of its) meanings. In a communication episode, someone who speaks the same language understands *s* and (if she trusts S) comes to believe this thing, hence *the very same thing that S believes*. In this way Frege can be seen as having wrapped up the semantic properties of language and the representational properties of thought in a tight embrace, and we have a theory that can be used to describe both belief contents and the semantic properties of sentences.

In the case of indexicals like the first-person pronoun however, even Frege acknowledges that his general picture breaks down:

> When Dr. Lauben is wounded he is presented to himself in a "primitive" way and so cannot communicate his thought to someone else. He uses the sentence "I am wounded" to get his

> listener to think a different Thought than the one he thinks – that the person speaking is wounded (or something like that).[91]

The Thoughts Frege is talking about are constantly associated with senses, described by Frege as "modes of presentation" that additionally have the role of determining reference. The mode of presentation that Lauben associates with his "I" utterances or thoughts determines him as referent; but *the listener's* corresponding "I" mode of presentation determines the listener (a different person) as referent. Hence, when the listener and Lauben share a piece of information, they cannot utilize the exact same sense in the example above: as Frege says, they cannot be thinking the same Thought. The 'breakdown' in the general theory, as I described it in the previous paragraph, occurs when one realizes that a Fregean sense cannot be identified with linguistic meaning – since in at least one natural way we use the latter term, 'I' has a constant linguistic meaning regardless of who is using it.

This dissertation's question ("what is the nature of tensed belief") has to do with exactly this remark, extrapolated in the realm of tensed thought. In thinking tensed thoughts we also seem to be having "primitive" modes of presentation like Dr. Lauben's; for instance the 'now' sense or mode of presentation cannot constitute the same Thought at every moment, since at every moment it refers to a different time (exactly how the 'I' thought refers to a different thinker). But if there is such a "primitive way" involved in believing a tensed belief or proposition, how does it connect with the belief's cognitive role and truth-value in the way I explained in chapter 1?

If senses cannot be identified with linguistic meanings, they might instead be descriptions. This line is taken up by at least the "descriptivist" interpretation of Frege. According to the interpretation, when used by a subject in a sentence, a linguistic entity has a specific sense associated with it that can be figured out and described by examining the subject's beliefs. Since compositionality must be preserved, and all sentences must have definable truth-conditions, there should be a way of describing the sense of every linguistic element so that we can find the truth-value of the asserted sentence containing it. So, for instance, the sense of "Einstein" when used by me in uttering the sentence "Einstein is a great man" can be given by a description of the sort "the father of Relativity theory,

[91] Frege (1956), p. 298 (as noted in Kaplan (1977) p. 533)

who lived in Germany and immigrated to the United States" – if this is how I think of Einstein while uttering the sentence above.

However, as Perry (1979) has shown, the sense of indexical elements like 'I' cannot be given by a description that does not itself contain indexical elements. As we have seen in previous chapters, in [MESS] any indexical-free description that could be proposed (say "the *x*") should be given up as we can always construct a counter-example where the subject does not have belief (I), while nonetheless believing that *the x* is making a mess. Similarly, if the sense of 'now' -as used by a subject in a sentence expressing belief (n) in [CLASS]- is to be given by a description of the sort 'the time *y*', then we can construct a counter-example where S does not believe (n) while at the same time believing that the class starts *at y*. It seems then that a descriptivist theory does not suffice for the aims of this dissertation. This fact corresponds to my Requirement 5 (Non-descriptivism).

Some philosophers (we could call them 'neo-Fregean') have proposed that the correct way to explain this class of phenomena would be to distinguish between two separate "objects of belief"[92]. One would be the classical Fregean proposition, while the other would be a 'way to believe' that proposition. Perry and Kaplan in particular have advanced this line of thought considerably. In various papers they propose that indexicals like 'I', 'here', 'now' and 'today' are not intersubstitutable salva veritate in all contexts, e.g. modal contexts. So they are diverging from Frege's three stated aims, in that they are not talking about one entity encompassing all kinds of meanings: [ASSERTION OBJECT] for instance is a different kind of 'meaning' than [EPISTEMIC PROPERTIES VEHICLE]. This also goes against the descriptivist interpretation of Frege: when a subject entertains thoughts like (I) and (n), the relevant cognitive properties of the beliefs are not to be found in some descriptive sense associated with 'I' or 'now', but through some other way. Nonetheless, they remain close to the Fregean spirit in stating that there is something ('character' for Kaplan (1989) and 'ways of believing' for Perry (1979) and (1996)), *related* to meaning, through which we can explain the cognitive properties of a belief. The obvious difference then from the self-ascription theories described in

[92] I am using "belief" here and the rest of section 3.0 and 3.1 as an all-encompassing term that could refer either to the propositional attitude itself (e.g. the belief that p) or the "belief state" which according to Perry is the carrier of both propositional content and cognitive properties. In section 3.2 (Perry) the two notions will be disentangled.

chapter 2 is that at the outset the 'neo-Fregean' views may have a way to adhere to requirement 10 (Time Representation) by including in the belief (n)'s content an element that can be seen as the 'representation' required. If this element or process can be related to the sense of a sentence including indexicals, as well as used to explain what it is to believe (I) or (n) or (h), the Fregean spirit can be preserved and the pitfalls of Descriptivism can be avoided. Since these remarks are tailor-made for the purpose of this dissertation (for instance our requirement 5-Non-descriptivism), maybe Kaplan and Perry's systems/remarks can shed light on the nature of tensed belief in a satisfactory manner. That is what I will investigate.

3.1 Kaplan

Presenting David Kaplan's theory as one of the viable options for this project's aim (to explain the content of a tensed belief) might seem counter-intuitive, especially in light of this dissertation's attempted distance from theories or arguments centering on language analysis[93]. What I will take to be Kaplan's theory, consummately presented in his "Demonstratives" (1977) and "Afterthoughts" (1989), aims to present instead a type of *systematic semantics*, primarily useful for examining language sentences, their truth-conditions, and their linguistic meaning. Even when we concentrate, as we will, on Kaplan's treatment of *indexicals* in language, the main aims of his system are to a) present a compositional semantics for indexicals, *and* b) provide a "logic" for indexicals. But as I mentioned in chapter 1, there is no guarantee that achieving these two, essentially semantic, aims will provide us with a clear analysis of what is happening in the level of thought, an analysis of the content and cognitive role of a tensed belief.

However, there are multi-fold good reasons to consider Kaplan's theory in the context of this dissertation. The first and foremost is our working definition (DF) which assumes that tensed belief is consistently related to indexical statements in language. If Kaplan brings out a story connecting indexical statements with truth conditions or linguistic meanings to cognitive significance, it would be useful to check if this story helps us with the question of this dissertation – to bring out the content of

[93] As mentioned in chapter 1

a tensed belief. Kaplan still champions the Fregean view that when I believe somebody's utterance, I grasp/endorse a linguistic meaning, which means he is interested in relating semantics to thought to some extent. Hence, it is worth seeing if he has the means to carry this off. Moreover, it turns out that Kaplan's theory is really good at fulfilling its stated aims; it has been elevated to a status of 'locus classicus' regarding the semantic and logical treatment of indexicals and sentences containing them[94]. So if we check only one theory from the field of semantics and try to extend it to the level of belief, this should certainly be it. Actually, Kaplan has had tremendous influence on more than one field of philosophy involved in this dissertation, and his ideas have penetrated philosophy of mind, linguistics, cognitive theory and certainly metaphysics through the system's connection to logic and truth-conditions. It is not coincidental that more than one philosopher, when faced with this dissertation's question, have been puzzled as to why Kaplan's theory should not be used to answer it, if not suggesting that it has already done so. Finally, an additional reason to proceed with Kaplan in this section is because attempting to connect his system to the exact cognitive properties of *tensed belief* I discovered in chapters 1 and 2 would be a novel endeavor. Even if Kaplan 's work has been taken up by B-theorists of time to argue for positions in Metaphysics[95], there has been no attempt yet to explicitly investigate how the theory could be applied to temporal cases of indexical belief – for us, this is to investigate if it is a good account of the nature of tensed belief. There is of course a lot more to be said about these points as we shall see in the following sections.

3.1.1. Characters

As noted in section 3.0, Kaplan begins by attempting to deal with Frege's admitted breakdown of his picture when faced with the case of the first person pronoun –essentially my case [MESS]. The general semantic background picture espoused by Kaplan is that in most cases of words in a sentence we can say that a word has as semantic value a specific *intension* - it can be associated with a function from circumstances of evaluation to extensions, the sets of things the word refers to. But at least the

[94] This is also in the field of Linguistics: see for instance Lasersohn (2005) and Koelbel (2009)

[95] Oaklander (1994), Mozersky (2001), Priest (1986), Mellor (1981) Smith (1987b) all discuss a 'new B-theory of time' that advances this line. The issues of Kaplan's exact relationship to the B-theory, and his view on eternal propositions and tensed 'propositions' will be discussed in more detail in sections 3.1.2.1 and 3.1.3.5.

first person pronoun, when encountered in a sentence, does not have an intension *in isolation*, independently of context. It can refer to any number of different things, depending for instance on who has produced said sentence. Kaplan's claim is that this fact, common to a category of different words, necessitates the appearance in an ideally complete semantic theory of a different sort of semantic value, the word's *character*, which is modeled as a function from the sentence's context of use to an intension or a propositional content. For instance, Kaplan insists that the character associated with the first person pronoun 'I' is a rule that maps every appearance of the word to a person in the following way:

(KAP) For any proper context *c*, 'I' refers to the speaker of c[96].

In a sense, Kaplan's system thus gives us a way to find out relative reference, that is, a reference depending on the context of use of the sentence. However, the semantic value of 'character' is not to be treated as playing the role of 'meaning' or content of the word or term, if content here is to be used to settle questions of synonymy and salve veritate intersubstitution in a sentence, or seen as giving the 'Fregean' descriptive sense of the term. Certainly 'I' taken relative to context c is not synonymous with 'the speaker of c'; the word cannot be translated by the expression. Rule (KAP) just given above fixes the reference of the word and thus directly contributes to the sentence's propositional content, but does not supply what we would call the content of 'I'. In this manner Kaplan keeps the essentiality of the first person indexical 'I' as Perry and we have described it: the theory is not descriptivist. In (1977) the point is minimally extended to all indexicals: similarly to 'I', 'here' refers to the place of c, 'now' refers to the time of c, 'today' names the day of c, etc. Additionally, there are even more rules like (KAP) that are brought about to handle demonstratives like "this" and "that"; but these points are not directly relevant to the purposes of this dissertation.

For the purposes of this dissertation, the only useful suggestion we have encountered so far about the possible *content* of an indexical belief is that character contributes to the meaning or content, in

[96] I will not delve deeply into all the intricacies involved with Kaplan's formal definitions and his logical system LD, as it is not particularly important to make the points that I want to make in this dissertation. But if one is worried about what is a 'proper context c', it is a *context* (point or interval in actual or possible spacetime) that contains a speaker, world, time and place, and in which the speaker of the context is at the location of the context at the time of the context. I will be implicitly using this definition in section 3.1, even though I agree with Salmon (1991) that it runs into trouble when dealing with 'answering machine' cases.

some sense, of a sentence. But perhaps the character of a term can be extrapolated to describing thought contents in the following direct (Fregean) manner: when you grasp or understand a *content* you do it through a character; that character just points to the mode of understanding or believing a content[97]. So it is not only that a character can be used to contextually determine *what* we believe; it can be used to also determine *how* we believe it. These two aspects of a belief are not always separated in the literature; but it is clear that any theory[98] that wishes to explain the cognitive role of a belief has to explain it in terms of one (or both) of the two notions. As argued by my requirement 9 (Level of Thought), excluding a purely causal theory of beliefs that leaves no room for reason-governed mental acts, there always needs to be an "element of thought" that determines the cognitive properties of a belief or belief state. In theories that use Kaplan's system, this element is almost always identified with character. For instance *the special motivational role* of an 'I'-belief is to be explained in terms of my accepting a sentence with the character associated with the first-person pronoun. The psychological properties of belief then could be analyzed or explained in terms of characters. According to Kaplan:

> A character may be likened to a manner of presentation of a content. This suggests that we identify objects of thought with contents and the cognitive significance of such objects with characters. (Kaplan 1977: 530)

But it is not only that a semantic notion of 'cognitive significance' is to be identified with character; Kaplan wants to be able to explain psychological states, thoughts and their cognitive roles, by using character: "We use the manner of presentation, the character, to individuate psychological states, in explaining and predicting action" (Kaplan 1977: 532). I take it that at least the (1977) Kaplan would support the use of characters to answer the guiding question of this dissertation.

It is important to see how this would work in specific cases. The paradigm case explicitly dealt by Kaplan is Frege's Dr. Lauben case presented in 3.0:

> What is the particular and primitive way in which Dr. Lauben is presented to himself? What cognitive content presents Dr. Lauben to himself, but presents him to nobody else? Thoughts

[97] Richard (2003) footnote 11, p.171: "In fact, Kaplan *identifies* the cognitive significance of a thought with the character under which it is held". Kaplan's actual quotes follow later in this section.

[98] Any theory, that is, that believes in belief contents. Some views that do not (Churchlands) are excluded here.

determined this way can be grasped by Dr. Lauben, but no one else can grasp *that* thought determined in *that* way. The answer, I believe, is, simply, that Dr. Lauben is presented to himself under the character of 'I'.[99] (Kaplan 1977: 534)

Here is an elementary diagram of the Kaplan picture:

Diagram1 || sentence A: 'I am making a mess' →
(through) character of A + context {speaker, location, time}
→ proposition (content) < [Vasilis], mess-making > →
(through) circumstance {world, time}
→ T-value TRUE[100]

To illustrate how the Kaplan picture connects to first-person beliefs, I will examine our example case [MESS]. There, the reason I am checking my cart is uncontroversially my belief that I am making a mess - belief (I). The character associated with the term 'I' in the sentence I would use to express my belief is constantly associated with the speaker of the context, and the speaker of the imagined context is me, who is directly connected to my cart. The same is not true when I believe (I*) because at least the character of the term 'Vasilis' is quite different from the character of 'I' – and is not connected to my actions in the same way as the term 'I' is. For instance: even if the term refers to me, I could be ignorant of the fact if I am amnesiac. Hence thinking (I*) will not necessarily make me check my cart, as thinking (I) will. In essence, only the 'I'-character gives us the needed first-person perspective indicated in this dissertation's section 1.3: even though both me and Lauben could grasp the same content <Lauben, wounded>, we grasp it via different characters. Kaplan seems to neatly connect beliefs to motivational roles in a way that is acceptable for this dissertation. Of course, the question that is important to us is if character can be used to explain [ROOT CANAL] and [CLASS]

[99] The later Kaplan of "Afterthoughts" holds a weaker position regarding the identification of cognitive role with character. There Kaplan says that "character is close to the intuitive idea of linguistic meaning (and perhaps of cognitive content)" (p. 568), and "[we might express the point by saying that] cognitive value *supervenes* on character" (598, ft.67). But even here it is clear that he is holding the door open for a possible stronger identification of character with cognitive content. It is also clear from further remarks that his actual reason for entertaining the weaker position is not the system's inability to connect sentences to thoughts, but its inability to solve the Hesperus-Phosphorus Frege Puzzle strictly through the semantic value 'character'. What is missing for him (brought out more in focus in his (1990)) is just some linguistic (almost lexical) difference that could be added to character to give the required difference between Hesperus and Phosphorus – or possibly "now" and "jetzt" in the temporal indexical case. I conclude that Kaplan (1989) still supports that characters should be used to explain cognitive role.

[100] This is somewhat over-simplified (for one thing, it does not explain the grammatical present tense involved in sentence A). But it will suffice for the moment.

(and, less necessarily, [ABDUCTION]) as neatly as it does explain [MESS]. I return to this in 3.1.2 below.

I have glossed over an issue that will be important later on (my criticisms in section 3.1.4). The issue is the exact mechanism that enables us to connect an essentially semantic rule like the character of 'I' to thought that might never be expressed through language. What definitely is not happening in [MESS] for instance is that the subject imagines himself in a discussion context, mentally forms the linguistic expression "I am making a mess", then identifies the referent of 'I' with the imagined speaker of the imagined discussion context and makes the connection to the cart in front of him. What is going on in the thinker's mind is rather simpler than this- Kaplan would just say that the subject believes that he is making a mess in virtue of/ under the character of the indexical 'I'. But however the thinker is presented to himself, it is a privileged[101] sort of presentation that can only be communicated to his interlocutor by using a sentence with 'I'- the peculiar character of 'I' *directly corresponds* to this privileged mode of presentation. For the moment I will take Kaplan to propose this point, and I will discuss its validity and coherence in the case of tensed belief in sections 3.1.2 and 3.1.4.

3.1.2. Tensed belief viewed through a Kaplan-esque framework

According to Kaplan's framework, temporal indexicals should have characters, as much as any other indexical. The important question for this dissertation is: can the character of temporal indexicals explain the cognitive significance of tensed statements and/or be extended to the cognitive role of tensed beliefs? In what follows I will attempt to use the framework and apply it correctly to tensed belief cases.

Starting from the start, it is clear in (1977) that 'now' is associated with a character exactly like 'I' is:

(KAPN) For any proper context *c*, 'now' refers to the time of c.

[101] By 'privileged' here I do not mean "un-communicable". In fact the Kaplanian mode of presentation is public & shared (it is the character of 'I' that any competent speaker of English should be able to use). I call it "privileged" because only Dr. Lauben can be presented to Dr. Lauben under the character of 'I'.

This comment suffices to start explaining our case [CLASS] through the following picture:

Diagram2 (Diagram1 modified):
sentence S: 'The class is starting now' →
(through) character N(the class is starting) + context {speaker, location, time t}
→ proposition (content) < class, starting, [at t]> →
(through) circumstance {world w, time t}
→ T-value TRUE

Let us assume for the moment that the thinker in [CLASS] *could* (and would normally) express his belief with sentence S above. Extending Kaplan's comments on 'I', the time of the class is then given to the thinker in a privileged, directly-referential, perspectival manner[102]. The time picked out is essentially the time of the thinker's context. As the person picked out by 'I' (the speaker of the context) is directly connected to the cart in front of him, so is the time picked out by 'now' directly connected to the time of the thinker's actions. His decision to immediately run therefore is straightforward, as it happens in the same context – hence, *at the same time*. If we take Kaplan to have explained the subject's actions in case [MESS] it follows that he can explain what happens in case [CLASS] when the subject entertains belief (n). Analogously with how we handled belief (I*) in [MESS], when the subject entertains belief (n*), the action does not automatically follow, just because the connection with the subject's actions is still not drawn. If the subject is mistaken about the time of his context for instance he will not realize that the class time is in fact connected to the time of his actions (it is the same time), exactly like an amnesiac subject in [MESS] does not realize that the talked-about cart is in fact connected to *his* cart (they are the same cart). So the action will not follow. As mandated by this dissertation's guidelines, we have succeeded in presenting a clear differentiation between tensed and tenseless belief that explains their different cognitive role[103].

The comments above might also give a Kaplan-esque theory a good start in explaining the relief formed in the [ROOT CANAL] case. In this case my belief (p) that the root canal is over is similar to my belief (n) in [CLASS]. The verb 'is' is tensed, so (p) carries a different character/mode of

[102] There is a crucial difference: a 'now'-thought is privileged to the time and not the subject. If for instance I tell my friend 'the class is starting now' he can probably immediately think the same thought I express under the same character. But if I am talking to his answering machine and he hears the message the next day he will not be able to think *my* thought under the same character. (Kevin Falvey, p.c.)

[103] Kaplan (1977) makes at least one such comment concerning temporal indexicals: "My hope to be finished by a certain time is sensitive to how the content corresponding to the time is presented, as 'yesterday' or as 'this March 26'" (p. 533). Presumably, the hope follows by the latter mode of presentation, but not the former.

presentation than a tenseless belief that my root canal IS over at t (where IS is tenseless). English sentences of course seemingly do not exhibit tenseless verbs like IS. But notice that we can *posit* such a construct and use it in a sentence, as in "World War II IS over at 1955". Moreover, there are sentences where verbs do appear as tenseless, likw (W): "I wish I **were** a rich man"[104] or (M): "I ask/asked/will ask that he **be** shown mercy". In the [ROOT CANAL] case then we can imagine that I believed all along (p*) that the root canal **IS** over at 3pm. My relief however only occurs when I think that same proposition under the character of now. That is, when I believe (p1) that the root canal IS over now. Similarly to belief (n), that mode of presentation is only available to me only on or after 3pm; hence the relief will only follow then, and not before. For this line of explanation to work, however, Kaplan would need to describe (p) as the same belief as (p1). I turn to this point in 3.1.2.1 below.

3.1.2.1. About tenses

At this point it is important to mention a very important discussion that might be lurking in the reader's mind probably since section 1.2 of this dissertation. Much has been said in the literature on Tense of the fact that *tenses* do not exactly behave as pure indexicals like 'now'. I have managed to avoid these issues at the outset because my cases describe thought and not language – hence the ability to include 'now' in brackets as I did in saying that the subject believes "that the class is starting [now]". However, Kaplan's framework attempts to draw a direct correspondence between thoughts and linguistic expressions. As we have seen, the notion of 'character' is at heart *semantic*; it describes expressions and not thoughts. In the case of tenses this is especially problematic as the subject's belief (n) could be linguistically expressed with sentence (S*) "The class is starting"

Unlike (S) "the class is starting now" however, this sentence *does not* contain what Kaplan would call a 'pure indexical'. How, then, can we point to a specific character that the subject 'grasps' that will guide him to run?

[104] One might think that "were" is in the past tense in this example. But it is not; the inflection indicates mood (subjunctive) and not temporality.

It might be that the present progressive ("is starting") in my description of (n) skews our intuitions; but the same problem rears its head in discussing cases with Simple Present tense. Imagine I am a good friend of John and every time I see him happy I wish to congratulate him for his good fortune. At some point in time I see John smiling and believe (J), a thought I could/normally would express by asserting S1: "John is happy". How could Kaplan explain the result of *me* congratulating John here? The reason for my action could be that I believed the Kaplanian *tensed* 'proposition'[105] <John, happy> under the character of 'now' –this is why the middle level in **Diagram2** is N (Happy (John)). But Kaplan could also propose that the reason for action is that I just believed the tensed 'proposition' -Happy (John)- without a mediating temporally indexical character. How do I explain my congratulations in both cases?

A first idea is to explicitly extend the indexicality framework to every occurrence of tense. The character of a verb in the *present progressive* for instance could be seen as combining the tenseless root verb meaning with something like the character of 'now', encoded grammatically with the PRES and/or PROG tense/aspect markers. If this is correct, sentence S* ('the class is starting') could have the same character associated with it as sentence S ('the class is starting now'). In a sense this is the account of present tense that Kaplan gives in his (1977) LD. There, using the present tense is like saying "it is now the case that…" x. In LD, tense and 'now' are both intensional operators that take the non-eternal 'proposition' that the class is starting and the time t of a given context c as arguments and yield the proposition that the class is starting at t as value. In a proposal such as this, the sentences (H) 'John is happy' and (H*) 'John is now happy' have the same character (N(Happy(John))).

For various reasons this account does not give the correct semantics of verbal tenses of the English language. For one thing, it looks like present tenses do not exhibit the same properties when accompanied by an expression like 'now' or 'the present': there are differences in meaning between sentence (Love): 'In 2005 you will hug the one you love' and (Love*) 'In 2015 you will hug the one you **now** love'. The same distinction is observed with sentences (Sitting) 'Tomorrow you will realize that David is sitting' and (Sitting*) 'Tomorrow you will realize that David is **now** sitting', or (Pres)

[105] The scare quotes to differentiate tensed and eternal propositions are not mine, but Kaplan's. See (1989) p. 580.

'Sometimes, the US president is a democrat' and (Pres*) 'Sometimes, the **present** US President is a democrat'. In essence, tenses interact with different temporal operators and other temporal expressions in a way that suggests they are not themselves standard operators[106]. In recent literature examples like these have been taken to show either that tense operates on something other than propositions (Salmon 2003) or that a treatment of tense as a quantifier over times is preferable (King 2003). I take these arguments to at least have shown that the verbal/grammatical tense is not always a pure temporal indexical or a simple Kaplanian temporal operator in semantics; the simple present tense (eg "is") does not have the exact same character of a 'now' operator (eg "now is").

My view on the issue is that in some way these worries are either overstated, or they are not a pressing problem for a possible Kaplan-esque theory of tensed belief. What we need to explain in all of the problematic examples is *embedding*, an essentially linguistic phenomenon. Embedding creates problems for any semantic analysis of tensed talk, because we need to delineate the two times indicated by the two verbs or temporal expressions featuring in the sentence. This need for delineation is a feature of sequencing English tenses that Greek for example does not have in the verbal tense case[107]. In light of this consideration, it might be that the issue is really one of **anaphora** and not indexicality, of the sort sometimes noted in cases of indexicals ('now', 'tomorrow') appearing in natural language sentences. Examples where anaphora appears instead of indexicality, at least according to linguists or philosophers of language, include free indirect discourse ("**Tomorrow** was Monday, Monday, the beginning of another school week!") and the historical present ("Fifty eight years ago to this day, on January 22, 1944, just as the Americans are about to invade Europe, the Germans **attack** Vercors")[108]. Partee (1984), Kamp (1971), Kamp & Schiehlen (2002) and Corazza (2004) take this to show that there are clear differences between temporal anaphora (or in Kamp's

[106] King (2003) presents more cases like the above for thinking that tenses are not operators, additionally supported by Partee (1973), Glazberg (forthcoming) and McFarland (forthcoming).

[107] Though it might appear in a different place in the grammar. The discussion here enters into the complex territory of formal semantics and there is not much literature on how embeddings work in the Greek language. But any competent Greek speaker will recognize for instance that embedding the simple present under the future tense ("Θα αγκαλιάσεις αυτόν που **αγαπάς**"-"you will hug the one you **love**") almost exclusively triggers the 'now' reading ("Θα αγκαλιάσεις αυτόν που **τώρα αγαπάς**"-"you will hug the one you **now love**"), while there is a different grammatical form to trigger the "embedded" reading ("Θα αγκαλιάσεις αυτόν που θα αγαπάς"-"you will hug the one you will (then) love").

[108] Another example where this is valid is when linguists examine narratives in fiction – but sentences from fiction (books, magazines) do not straightforwardly apply here because they are not easily connected to the belief/ communication level.

words ‘perspectival shift in a discourse’) and indexicality, even though grammatical indexicals are used for both purposes[109].

But since the business of this dissertation is the explanation of thought and not language, why can’t we differentiate $tense_{AN}$ (anaphoric) and $tense_{IND}$ (indexical) in thought, exactly like linguists differentiate between temporal anaphora and indexicality exhibited by ‘now’ used in some natural language sentences? Such an approach is uncontroversially followed in the Linguistics strategy (especially on romance languages) to explicitly distinguish aspectual and temporal elements in tensed verbs; in these instances it seems obvious that the aspectual and temporal *thought* elements involved are not constitutively connected even if the same linguistic entity is used to express both. If we follow this strategy we could say that *normally* linguistic tenses exhibit the indexical character described by Kaplan’s LD. So only $tense_{IND}$ is the part that is necessarily involved in a tensed belief - the part that this dissertation is trying to explain. The complicated counter-examples then are not data against a possible explanation of *tensed belief* in Kaplan-esque terms, since the complications arise from syntactic and/or pragmatic phenomena having to do with practical exigencies and not mental structures. Actually, this strategy would not be novel for Kaplan either, as he has explicitly taken it in (1977) to differentiate between indexical and anaphoric uses of ‘here’. For him, utterances like ‘The patient was hurt here [pointing to a medical organ chart]’ or ‘John doesn’t work here [in this company] anymore’ are not data pointing to indexical ‘here’-beliefs. Analogously, I claim that the cases we are trying to explain concern thoughts like ‘Arsenal **are dominating** the game’[now] and not ‘Arsenal **are dominating** the game’[pointing to a video of the 2007 FA Cup final]. Similarly we are interested in thoughts like ‘You **love** Jane’[now] and not ‘In 2020 you will hug the one you **love**’ [in 2020]. A Kaplan-esque theory of tensed belief should not be constrained by phenomena of natural language statements that could possibly be described as pragmatic/discourse anaphoric in nature. To

[109] By *anaphora* here I mean something like the following: “An anaphoric element carries a conventional presupposition to the effect that in a discourse context in which it is felicitously uttered its intended interpretation can be readily retrieved from information antecedently available.” (Roberts (in preparation):2). Kamp & Shielen (2002:183) similarly define ‘anaphora’ as ‘relating to other sentences or parts of the sentence’, in contrast with ‘indexicality’. Similarly for Burge (2006a:13) anaphora is to be understood more broadly as just ‘going back’: “The ascriber may not have in mind any definite, antecedent expression used by the subject. It might even go back to a family of ways of thinking – not to any definite linguistic antecedent at all”. Anaphora in any of those senses is not restricted to bound variables or even pronominal elements / NPs.

sum up: my belief that the class is starting can still be the same as my belief that the class is starting now[110].

Nonetheless, maybe the LD treatment is not the only way to transfer Kaplan's comment on tense in the belief level. Since for him propositions need not be eternal, he might have the option of presenting the content of (S) as just the tensed 'proposition' ^Is_starting (class)^, without a mediating 'now'-like or 'present'-like character. If Kaplan would insist that at least the present tense does not always carry such a character, it would be one more way to avoid some of the semantic problems (shown in the previous paragraphs) associated with the treatment of tense as an operator in LD. However, as I argued in 2.4 and will expand on in 3.1.4.2, such a view would encounter extensive problems in explaining the cognitive role of a tensed belief. Believing a tensed 'proposition' like is_starting(class) does not lead to timely action.

To summarize, I agree that a Kaplanesque theory should not treat all language instances of present-tensed verbs as indexicals or intensional operators in his semantics theory, as that creates problems for his systematic semantics project. But I hope that my above comments have made it clear that an account of the cognitive role of tensed *beliefs* based on the Kaplan framework can steer clear of the valid issues plaguing Kaplan's semantic proposal. According to the guidelines of this dissertation, the account will live or die on its power to explain the cognitive role of tensed beliefs, and not on the semantic details of the broader Kaplanian picture. I turn to this point in 3.1.4.

3.1.3. Virtues of a tensed belief theory based on Kaplan's framework

This section will present some initial considerations in favor of a Kaplan-esque theory of tensed beliefs. I will aim for brevity since criticizing Kaplan is the real purpose of this chapter. However, if my later criticisms are proven to be inconclusive, I would not hesitate to name a Kaplan-esque theory as at least an improvement over a self-ascription theory (chapter 2) in describing the content of a

[110] Support also comes in Higginbotham (2002), Tooley (1998:418-423), Enç (1987), Ogihara (1996). The general point is mentioned in Evans (1981) thusly: "the surface term functions as an indexical OR is referentially controlled by –or anaphoric on- a different term of the sentence" without a syntactic test to define which use is which. To foreshadow, I flesh out this exact difference in chapter 4, where I will nominate some uses of (grammatical) tense as indexical (corresponding to *de re* tensed beliefs) and some as corresponding to *de dicto* beliefs that cannot be characterized as tensed beliefs.

tensed belief; so this section is important enough to deserve some remarks. I proceed by evaluating such a theory with respect to the methodological requirements laid down in the previous chapters of the dissertation (1.3 & 2.3).

3.1.3.1. Definition:

The theory should be consistent with my chapter 1 characterization of a tensed belief, as (DF): one the believer could and would normally express by using a temporal indexical.

Reply: Kaplan is consistent with characterization (DF): it actually is the strongest case for supporting the definition, as the semantic temporal indexicality observed in the sentence expressed is directly related to the belief's cognitive role if character is associated with cognitive significance.

3.1.3.2. Uncontroversial Simple Contents:

The theory should be able to give *at least* the content of a simple present belief, let's say belief

(Pr) that Obama is president,

as well as simple past belief (Pr_p) that W. was president,

and future belief (Pr_f) that Jeb Bush will be president

Reply: Kaplan's treatment nominates clear and distinct characters (C) for each belief in the LD level: C(Pr): N(President (Obama)), C(Pr_p): Past (President (W.)), C (Pr_f): Future (President (JebBush)).

3.1.3.3. Tenseless Facts and Properties:

The account should use only tenseless (B-theoretic) facts and properties. A-facts or A-properties should not be treated as fundamental.

Reply: Kaplan's account can be B-theoretic. In the Lauben case he explicitly mentions that the privileged perspectives given by the characters of 'I' and ´now´ do not have any metaphysical connotations – even though there might be reasons why the 'I' or ´now´ modes of presentation are especially important **to me** (Kaplan 1977: 523). Moreover, nowhere in (1977) or (1989) does Kaplan talk in A-terms; for instance he always speaks of 'the time', and never 'the present'. In the theory, since 'now' just points to a privileged mode of presentation of **a time** (compare: 'I' points to a privileged mode of presentation of **a person**) and not a *privileged time* (compare: a privileged

person), it can be B-theoretic in the sense that the time itself does not have any A-properties, nor are there facts that have A-properties. Now directly refers to a time, but is not a time itself. This point actually has been taken up by various articles written to support what has now been called a "New B-theory" of Time[111]. In terms of Kaplanian semantics, since the singular propositional content that features on the last stage of Kaplan's picture (diagram1 and 2) is the content that is evaluated for truth and falsity, some metaphysicians have appealed to it in support of the view that there is no need for an A-theory of time to complement Kaplan's picture. Finally, the existence of the Kaplanian 'proposition' Happy (John) in the early stage of Diagram2 does not prove that there is an A-property (here 'present-ness') of times or facts[112]. Some commentators do not agree on the direct connection of this 'New B-theory' of time to Kaplan's work[113], but at least we can at first glance argue that Kaplan's picture *can* be B-theoretic. Kaplan himself refuses to draw any metaphysical implications of his semantics theory.

3.1.3.4. Untranslatability:

The account should not be sentence-relative or utterance-relative (as a subject might not utter anything and still have a tensed belief). Translatability or meaning equivalence claims should therefore be avoided.

Reply: as shown in 3.1.1, in Kaplan's system 'now' is not *synonymous* with 'the time of c'. The description above fixes the term's reference but does not supply its whole meaning, so Kaplan makes no meaning equivalence claims. Moreover, Kaplan states that the word and the phrase are not intersubstitutable in every context, so he does not make any translatability claims either[114]. Indexicals cannot be translated or be meaning-equivalent to indexical-free expressions like 'the time of c', even if this is an intuitive analysis of their character.

3.1.3.4a. Cross-linguistic Variation:

The account should not just rely on explaining the *verb mechanism* utilized in linguistic expressions of the belief in English, as the explanation of tensed belief should not be tied to a particular language

[111] See footnote 95 (last footnote before section 3.1.1) for some articles.
[112] See D. Zimmerman (2005) for this point: we can have A-propositions without positing A-facts or A-properties.
[113] Q. Smith (1987b), Craig (1996)
[114] As a matter of fact, this is how Kaplan (1989) explicitly argues against Reichenbach (1947) and descriptivism.

paradigm. In essence we are looking for an account of what it is to believe or think in a tensed way, not just to state something using verbal tenses.

Reply: arguably, this might be the toughest requirement for a Kaplan-esque theory. First, the theory seems to rely too much on linguistic expressions of the English language. Second, the specific character I use in 3.1.2 to bring out the cognitive significance of tensed belief is that of *tensed verbs*, which might not be relevant to tenseless languages like Paraguayan Guaraní.[115] Still, nothing in Kaplan's picture precludes different grammatical terms from realizing the same 'now'-like character (in Diagram2 the LD formula N (verb meaning, object)). Guaraní speakers for instance might do it periphrastically. I believe that a systematic re-working of a Kaplan-esque treatment of tensed beliefs to account for cross-linguistic variation should explicitly mention the characters of the corresponding Guaraní lexical items, but in principle the lexical element tends to fall off during the semantics phase[116]. So a Kaplan-esque theory of tensed belief can at first glance be made to *abide* by Requirement 4a if tensed thought is explained cross-linguistically in a disjunctive manner ("Subject S in [CLASS] has tensed belief (n) iff he is believing that the class is starting now under the character of 'is-starting-now'-in-English OR the character of 'BE-starting-presently'-in-Guaraní OR …"). I explore this suggestion further in 3.1.4.2.

3.1.3.5. Non-descriptivism:

Perry's work on the essential indexical dictates the avoidance of a particular type of descriptivism.

Reply: Kaplan is definitely non-descriptivist as noted in 3.1.1 and other places.

3.1.3.6. Uncontroversial 'here'-Belief Contents:

The account should not posit foundational 'here' semantic values as belief objects in our theory. For instance a 'here'-proposition that changes truth-value according to the location of the context should not be the content of my belief that it is raining [here].

Reply: Kaplan is clearly against the metaphysical importance of 'I' facts or 'here' facts, as we saw in 3.1.2. This is reflected in LD where 'here' directly refers to the place of the context, and does not even

[115] As argued in Tonhauser (2009) & Kubota et al. (2009), Guaraní (and Mandarin) languages do not have a verbal tense morpheme indicating tense. The temporal reference is usually done through other grammatical forms (ie the temporal adverb kuri='back then' to indicate past-ness) that are not part of the grammatical paradigm of verbs.

[116] Although not completely, if we take Kaplan's (1989: 598-9) or (1990) comments about lexical differences at heart.

feature in any stage of Diagram1 or Diagram2. 'Here' drops off immediately from the sentence and is not part of the belief's object, that is, what S believes.

3.1.3.7. Decision Rationality:

The account should count instances of timely decisions as rational.

Reply: as described in 3.1.2, S's timely actions in [CLASS] are rational (the time of context is the time of the decision, so timely action can follow).

3.1.3.8. Proposition Neutrality:

The account should allow eternal propositions as the bearers of truth-value.

Reply: Kaplan is sometimes seen as an advocate of tensed (non-eternal) contents. In footnote 13 of (1977:503) he calls them 'propositions' (his scare quotes) and proposes that we absolutely need them to explain how sentential temporal operators work ("in the past, *p*", where p is a non-eternal 'proposition'). But this LD detail is not crucial, as very similar accounts have been given where propositions as belief objects are wholly eternal (Salmon 2003), and statements containing indexicals *still* have Kaplan-like characters or modes of presentation associated with cognitive significance. So at least the spirit of his theory is neutral, even if Kaplan himself is not.

3.1.3.9. Level of Thought:

The account should explain the difference in resulting behavior between tensed and tenseless beliefs with some difference in the level of belief.

(9a-Non-randomness)

the difference should not be a random fact specific to the description of the case

(9b-Awareness Ability) the subject should be somehow aware of the difference (he should be able to 'think' or 'grasp' or 'be attuned to' it) – or just *be able to* become aware of it.

For instance a mere difference in physical realization of the two beliefs will not do.

Reply: disengaging with a descriptive Fregean picture of communication in the way I mentioned in 3.1.1 is Kaplan's way of abiding by this requirement. The difference for Kaplan is indeed in the level of thought, this time on the 'way to believe' a proposition (character). So it is not random, and the subject *can* be attuned to it – Kaplan claims for instance that the subject 'grasps' the different rules

('characters') associated with different ways to believe. How exactly the subject does that will depend on the specific picture of mental acts incorporated in the theory – but at least we have a first way to differentiate between tensed and tenseless belief in the level of thought and reasoning.

3.1.3.10. Time Representation:

We need some representation of temporal information in thought to explain timely action.

Reply: what would count on a Kaplan-esque theory as "representation" is not pictured explicitly. But it can be assumed to be captured by the 'way to believe', that is, the character: "The character of 'I' provides the acknowledged privileged perspective. … '***now***' **too is presented** in a particular and primitive way. At other times, earlier and later, we can know it only externally, by description as it were. But now we are directly acquainted with it"[117]. This direct acquaintance is a noted representation of temporal information, even if it is directly referential. Of course, the fact that neither in (1977) nor in (1989) does Kaplan say anything more about this privileged representation could be seen as rendering the account incomplete (I will press this issue in 3.1.4); but on the face of it Kaplan has a way to abide by requirement 10, in contrast to the self-ascription theories we saw in the previous chapter.

3.1.4 Problems with a tensed belief account based on Kaplan's framework

Usually the problems attached to Kaplan's picture are of a semantic nature. I have already described some of these in 3.1.2.1. Some linguists have seen them as good reasons to depart from a Kaplanian treatment, preferring instead King (2003), Salmon (2003) or even some version of Dynamic Semantics[118]. However, as I explained in 3.1.2.1, these defects are not necessarily transferred to thought. So at least for the purposes of this dissertation they are not pressing issues. Instead, even though I mentioned in 3.1.0 that we could overlook the fact that a semantic theory is used in this section to make points about thought, I will here press the case that Kaplan's theory runs into problems when used to explain the cognitive roles of tensed beliefs, for that *exact* reason. Simply put,

[117] (1977), p. 534, my emphasis

[118] See for instance Gutierrez-Rexach's (1998) review of the field in or Glazberg (forthcoming). Some words about Dynamic Semantics are reserved for section 3.3.3.

I will argue that character is a semantic notion that is not *constitutively* related to the cognitive content of a tensed belief.

3.1.4.1. Counterexamples

My first point is that the character that Kaplan nominates as the bearer of cognitive significance (and hence a candidate to explain a belief's cognitive properties) cannot be used in every context to give us the cognitive roles we need. The strategy is not new; one can view it as an extension of the strategies used to defeat a "descriptivist" Fregean theory of indexical belief. What we need is cases where we can 'drive a wedge' between a subject believing a proposition under a temporally indexical character (a semantic notion) and the cognitive role expected from the subject having a tensed belief. The strategy is actually similar to how Perry drives a wedge between an indexical-free description of a term's sense with its intension in his (1979). The overarching point is that a Kaplan-based theory will not be able to explain every possible instance of tensed belief resulting in timely action, *even if* it can explain our paradigmatic cases [CLASS] and [ROOT CANAL] in the way sketched out in 3.1.2.

Specifically for temporal indexicals, the strategy is exemplified by Richard (2003). In Kaplan-esque theories my accepting a sentence with the character of 'the class is starting now' should have, all else being equal, the same motivational upshot as the belief (n) <u>that the class is starting [now]</u>[119]. But in at least the following hypothetical case of a person I will call "Maria, the precognitive experiencer" the two come apart:

> A person could believe that at any time *t* her experiences –at least her experiences of external objects- were experiences, not of those objects at *t*, but of those objects as they are ... *k* seconds in the future: she thinks that her perceptions are consistently of how things will be in just a little while. When you ask her a question, she consistently waits *k* seconds before answering; if she hears the telephone ring, she waits *k* seconds before answering it; and so on. She in fact complains about her cursed luck, saying things like 'I know that you are in the room now, because I saw that you were *k* seconds ago'.[120]

[119] Richard (2003)'s point is to disagree with this statement, but his overarching argument has a totally different structure. He gets into a complicated discussion of character-as-a-procedural-rule & rightly suggests that it is *fiat* (or implausible) to connect it to the epistemic/evidentiary properties of tensed thought. I, however, see no evidence that Kaplan or someone else attempts to actually do the latter, so I do not see the point in pursuing Richard's exact dialectic. Hence, one should read what follows as a distinct argument, even if I will be using Richard's examples.

[120] Richard (2003), p. 175-6

According to this description, Maria's relevant present-tensed beliefs –at least those about the world around her- will not have the correct motivational properties we usually associate with 'now' beliefs. This is because a 'now'-belief's cognitive role is connected to action and the environment in a more or less direct way. As I will argue later in this section (and in more detail in chapter 4), explaining what constitutes the content of a 'now' thought or a present tensed thought should bring out what people *actually do* when they are having it. The account should explain for instance why it is that having a perception, like perceiving that the phone is ringing [now], leads me to immediately pick up the phone. In pain of being repetitive, one of the basic points of this dissertation is to explain how a present tensed thought or a 'now' thought leads to timely action. But timely action is exactly what Maria will be missing, even though she *can* grasp sentences containing the indexical "now" the way we do, associate their content with a character rule like (KAPN) from 3.1.1, and so accept a sentence with the character of "the class is starting now". It follows that accepting a sentence containing a temporal indexical under a 'now' character is not necessarily the same as having 'now' beliefs; therefore, it does not explain in any interesting way the cognitive role of a 'now' or present-tensed belief.

I think that the 'precognitive experiencer' is the strongest attempt to provide a 'wedge' between character and cognitive significance, but Richard has an additional example in case Maria strikes one as implausible:

> Suppose that I am taught a word 'yadot' on a day d, being told (D2) Today, 'yadot' names Sunday, February 28, 2010. And each day, 'yadot' names the day immediately succeeding (immediately preceding) the day it named the day before (it names on the next day). (Richard 2003: 172)

If the day d is Sunday, 28/2/2010 and I accept a sentence like (y):'I am writing a paper yadot', it looks like I am accepting a sentence with the character of 'I am presenting my paper today' (roughly: in each context, 'today' names the day of the context). But believing that the class starts yadot does not have the motivational/cognitive properties we need, because I might still not know that d is Sunday, 28/2/2010. So believing things under a temporally indexical character does not necessarily mean that I have tensed beliefs.

The same strategy should also work for a [ROOT CANAL] type belief. Suppose that I am taught a word 'revo' on a day *d* and time *t*, being told:

(D2) Right now, 'revo' names all times before Sunday, December 11, 2010, 7.55pm. And each minute, 'revo' names all times before the minute immediately succeeding (immediately preceding) the time it named one minute before (it names one minute later).

If the time *t* is Sunday, 12/11/2010, 7:55pm and I accept a sentence like (y):'My root canal is revo', it looks like I am accepting a sentence with the Kaplanian character of 'My root canal is over' (roughly: in each context, 'revo' names all times before the time of the context). But believing that my root canal is revo does not have the motivational/cognitive properties of believing that my root canal is over, because I might still not know that *t* is Sunday, 12/11/2010, 7.55pm; so I will not be relieved. Hence, again, believing things under a temporally indexical character does not necessarily mean that I have tensed beliefs. We could also re-use the case of Maria the 'precognitive experiencer'. What will she think if placed in a [ROOT_CANAL] context? Seeing the dentist put down the dental drill she doesn't think that the root canal is over, even though she *should* think that. So a [ROOT CANAL] tensed belief does not arise even though it should – her tensed beliefs do not have the cognitiveproperties we associate with normal tensed beliefs.

Just in case the reader assumes that there is something wrong with the description of the above counter-examples, the point can be alternatively presented in the following way. The idea again is that an attempt to relate characters to the content of our beliefs seems too contrived. If Kaplan thinks that ways of believing are firmly related to, or correspond one-to-one with, characters, we can always make examples where the agent believes a singular proposition under one character and the negation of the same singular proposition *under the same character*:

> [TWO-FACE] Imagine the Batman villain Two-Face dressed in one of his usual garbs, in which the left side appears to be a business suit while the right side appears to be a punk outfit. Additionally, imagine that Two-Face has been hit by Batman recently and consequently has total amnesia: he does not remember how he dresses or even what a mirror is. When he is looking at a suitably placed mirror he can sincerely assert 'You [pointing at the business-suit wearing side] are good, while you [pointing at the punk-outfit side] are not'.

In [TWO-FACE] the unfortunate subject believes a singular proposition (roughly <[Two-Face], good>) and its negation, under the *same* Kaplanian character **[KAPY]**: 'you' refers to the addressee in context c. Under the proposed description of the content of a belief, Two-Face has two logically contradictory beliefs (or belief states). But it is implausible to think that a rational agent (which Two-Face seems to be in this example) can have two logically contradictory beliefs, so it looks like ways of believing do not correspond one-to-one to characters[121].

To sum up this section: the existence of counterexamples showing that characters are not constitutively connected to tensed beliefs indicates that characters cannot fully explain the nature of tensed beliefs.

3.1.4.2. Vagueness/Magical Theory of Belief

My second criticism can be seen as an extension of the first. As mentioned at the end of 3.1.1 Kaplan does not present enough details to connect my accepting a sentence with the character of "the class is starting now" to having belief (n). As a matter of fact, a Kaplan-esque theory of tensed belief can be viewed as a magical theory of belief. Kaplan does say that I believe a proposition "under" or "in virtue of" a character, but he does not expand on how exactly this process is supposed to take place. What we do not have yet is a clear way to describe cognitive significance and hence explain timely action.

The problem of vagueness is extremely pressing because, for one thing, relying on character to explain thought –as Kaplan does- means that we have to do a complicated dance-step to explain cross-linguistic temporal reference in various speakers' tensed beliefs. As I noted in 3.1.3.4a, Kaplan needs to explain cross-linguistic tensed belief disjunctively, because of languages like Guaraní, where there is no *verbal* tense in the language. Such a disjunctive definition would lead to significant questions in the psychological level: Are we talking about one psychological element or various? If the latter is true, do we have various 'cognitive roles' as well? More damagingly, it is generally not clear how one can believe a proposition *under a disjunctive character*. Finally, and contrary to what I suggested in

[121] This specific example's point is supported also by Taschek (1987) (who additionally mentions that "identity of cognitive significance & character utterly fails in the case of 'now' (and 'here')") and Wettstein (1986).

3.1.3.4a, cross-linguistic sameness of beliefs might create significant issues on a formal semantics level, where Kaplan's characters should be paradigmatically used without issues. For instance, take a sentence in Guarani expressing a tensed belief: it will always have more lexical items in the syntactic level than a sentence in English, since Guarani encodes tense periphrastically. But now there is no simple way to make the characters appearing in English and Guarani be the same in the LD level. A Kaplan-esque character-based systematic semantics has to retain the syntax/LF level of a sentence in the LD level; so if the LF level has 3 lexical items in English and 4 in Guarani, the full sentence characters presented cannot but be different. I conclude that a disjunctive semantic character cannot be what constitutes cross-linguistic tensed thought; so a Kaplan-esque theory of tensed belief is at least incomplete for the purposes of this dissertation.

The lexical component of cognitive significance in Kaplan (1989:ft. 7) and (1990) does not make the connection between character and belief more clear, since it neither translates easily to belief nor does it help in avoiding Richard-like counterexamples.

> There are *linguistic* differences between "Hesperus" and "Phosphorus" even if there are no *semantic* differences. … The linguistic difference between "Hesperus" and "Phosphorus" … may be all the difference in mode of presentation one needs in order to derive the benefits of denotation theory. Words are undoubtedly denizens of cognition. (Kaplan 1989: 599)

These lexical differences however are not clearly related to thought, except if one believes in a rigid Language of Thought with 'one-to-one' assignments of concepts to words. But then it would be impossible for a Greek speaker and an English speaker to have the same tensed belief (n) if the latter thinks it under the character of "now", and the former under the character of "τώρα", since "now" and "τώρα" are different words. As I mentioned in Requirement 9a (Non-Randomness) nominating such a difference is too random to be used to explain the difference between tensed and tenseless belief, while being implausible on its own due to its presupposition of a very strict Language of Thought.

Of course, the theory is even more magical if we circumvent LD and cash it out in the way suggested at the end of 3.1.2.1 - that is, as modeling the content of my present-tensed utterance that John is happy as the tensed 'proposition' <John, happy> *without* a mediating now-like character. If we try to explicate tensed belief on this model we lose the mode of presentation or character usually associated with the belief's cognitive role. And then what is supposed to make the subject run in case

[CLASS]? The subject could of course have a number of other beliefs and desires with a similar 'proposition'-like tensed content (for instance the desire (d) that I run if the class is starting). But in the absence of specific time information associated with the tensed belief the subject has *no grasp* on the truth conditions of the belief, as on this model the 'proposition' can be true at some times and false at other times. So even if, at a time t1, he desires (d) and believes the 'proposition' p, he will not know if the inference described in (d) is true, since he will not know if the antecedent in (d) is false at t1. In this case timely action will not follow.

All the comments in this section suggest that in 3.1.2 I was in a way 'too fast'. My 3.1.2 description of what is going on in the subject's mind that leads him to act in a timely manner actually went further than Kaplan by painting a picture of the contents of 'now' beliefs presented under a 'now' character-rule like [KAPR] "'now' refers to the time of this thought", or [KAPSE] "'now' refers to when me and my actions are". Only then can we have the specific explanation I gave in 3.1.2 of how the subject in [CLASS] rationally decides that it is time to run. But these are quite different rules than what Kaplan nominates as the normal character of 'now' – that was just [KAPN] "'now' refers to the time of the context". [KAPR] is a reflexivity rule and [KAPSE] resembles a Lewis-like *de se* ascription[122]. The connection of rule [KAPN] with these two is never explicitly shown in Kaplan (and I have negatively evaluated the latter idea in chapter 2). I will implore the reader to put aside the reflexivity idea for now, as I will deal with it explicitly in 3.2 (Perry) and 3.4 (Higginbotham).

Overall, contrary to my declarations in 3.1.1, a Kaplan-esque theory cannot adequately explained the temporal analogue of the "direct way that Dr. Lauben is presented to himself". In essence Kaplan just points to it, and posits that it can be captured by his notion of 'character' and corresponds to uses of temporal indexicals in a sentence. But 'character' is at heart a semantic notion. So a Kaplan-esque theory is incomplete for the purposes of this dissertation, at least until someone gives a clear picture on how character is constitutively connected to how we believe[123].

[122]Some indications that at least the (1977) Kaplan was flirting with the Lewis idea are scattered mentions of "egocentricity" (eg. "to ... forge the link between cognitive significance and character we must come to see the *context-sensitivity* (**dare I call it ego-orientation**?) of cognitive states", 1977 p. 531, my emphasis).

[123] To foreshadow, this is exactly what Perry attempts to do (See section 3.2 below).

3.1.4.3. Instrumentalism

But there might be a sense that I am misinterpreting Kaplan. There are some indications that when pressed about characters explaining cognitive significance Kaplan might retreat to a weaker "instrumentalist" picture of linguistic competence. According to this picture, competent speakers should be viewed as merely conforming to rules such as characters, or merely acting *as if* they were following them in producing and understanding sentences. In such a view, the causes of language production and comprehension are not to be found in semantic/cognitive modeling, but by using other methods (for instance by looking at a deeper psychological level than the common-sense level or even neuro-psychology). If we take this proposal as a valid retreat for Kaplan, it looks like believing a proposition under an indexical character is not all there is behind indexical belief, and *ipso facto* tensed belief. It is just how tensed or now-sentences and utterances work in communication. Then he could relegate the answer to my research question to a *different science*. Admittedly this would be a stronger statement than what I have taken him to have stated in (1977) and (1989) [124].

This dissertation however would not agree with such a strong statement. I think that contemporary philosophy of mind, armed with the results of cognitive science and psychology, can give answers that are understandable philosophically and explain timely action: one of them is presented in 3.2, while yet another in chapter 4. In fact, presenting such an account is this dissertation's central question. An instrumentalist view might be valid for the success of semantic modeling, but does not give any useful explanation of how a tensed belief leads to timely action. If we take this instrumentalism to be a kind of hand-waving, it reinforces my 3.1.4.2 point that a Kaplan-esque theory of tensed belief is vague and incomplete.

Moreover, if we take it to propose something more substantive (that the explanation is to be found in a science like neuropsychology employing causal laws), I disagree. First, as my 1.7 comments

[124] Carnap's (1963) reply to Einstein's worry about "what the experience of the Now means" (see ft. 22 in section 1.3) was that Psychology is the Science that can describe it, not Semantics or Philosophy. I think that this answer is not satisfactory. Analytic philosophy should have the means to answer this kind of questions without relegating the complete answer to Science. Of course, this does not mean that philosophy could *a priori* replace a Carnapian science of the mind. After all, the issues we are considering are fundamentally empirical. But what philosophy can do is examine the empirical issues involved and try to explain them as best as it can. Especially in the case of time, this point is more pertinent, as any claim about the fundamental nature of time cannot shy away from the experience of it – it is my belief for instance that the *anthropocentric experience of time in A-terms* is the only reason an A-theory of time has a significant intuitive pull.

against a similar view by Mellor state, not everything can be explained by pointing to causes and effects, as tensed beliefs somehow enter into reasoning as well. Second, such a view would not validate our ordinary commonsense psychological explanations of timely action and so would go against the spirit of this dissertation. Third, if Kaplan is to be interpreted as an instrumentalist about belief, this dissertation's Requirement 10 (Time Representation) is clearly not met. Since the semantic characters of a Kaplan-esque theory now cannot be used to explain the crucial representation involved in tensed belief, then it is entirely mysterious what that representation is. As a final point, I take it that it will similarly not be adequate for this dissertation to propose a more 'directly referential' instrumental view for times and relegate the explanation of timely action directly to the *environment* without explaining or indicating how referents such as times are presented/thought about. As Burge (2006a) puts it: "This would have no grip on psychological explanation, perceptual theory, or on a reasonable philosophy of mind. It is psychologically incoherent to imagine that we think of referents, but in no way at all-from no representational perspective at all."[125]

3.1.4.4. Perception Priority

The last criticism against a Kaplan-esque view of tensed belief is that it cannot be used to explain perception, and perception comes before self-ascriptions; the theory is in a sense 'too conceptual'. Let us look back at the rules suggested to be associated with the now-like character involved in my tensed beliefs: [KAPN] ("giving the time of the context", [KAPR] ("happening at the same time as this thought" and [KAPSE] "happening at the same time as me and my actions are"). All of these rules leave out the faculty of perception from the explananda, and perception comes before belief. In some way (that will be more brought out in chapter 4) perceptions are constantly connected to tensed beliefs; and perceptions might plausibly be taken to have non-conceptual contents. When I see a tiger running at me my perception is *immediately* connected with the timely action of fleeing. Even if we assume that sometimes an intermediate tensed thought takes place, that thought seems to simply

[125] Burge (2006a: 13), ft. 30. Burge's comment is of course aimed against a more spelled-out direct reference view that would posit something like: "*'now' –or tense- directly contributes the time of the context to the content expressed*". So it might be unfair to use it against Kaplan's view. What I am rather trying to suggest here is just that a Kaplan-esque theory of tensed belief cannot resort to such a direct reference view to support a possible "instrumentalist" picture.

inherit its tensed element from the perceptual representation. Is it plausible that at any point in this episode I am thinking under characters or rules like Kaplan's?

Strongly arguing for a positive answer to the previous question would be akin to positing that a subject can have 'here' thoughts *only after* learning that the concept here is somehow constituted through the conceptual definition where I am. I take it that Evans has adequately discredited this view:

> It is not the case that we first have a clear conception of which material object in the world we are ... and then go on to form a conception of what it is for us to be located at a particular place. It is true that "p = here" is the same thought as "I am at p"; but this does not mean that I identify here as where I am. (Evans 1982: 153).

Evans in essence cautions us against positing the conceptual priority of the 'I' concept to the 'here' concept. And the concept I is probably constitutively connected to being a person, or being the subject of feelings, or even just being a material object. In addition, for the subject to think where I am thoughts, he has to have a concept of what being at a certain place is. All this sounds implausible for 'here' thoughts accurately describing perceptual thoughts and actions.

I think that for the temporal case an extension of his argument is even more obvious. We have had a multitude of tensed thoughts since probably we started having perceptions. It would be implausible to think that one needs to have, not only full I-thoughts, but also being at a certain time thoughts to have thoughts about temporal happenings. For instance, when I hear two sounds in succession I can think that one was before the other without having the concept of being a person or what a time point is. A strongly 'conceptualist' view is also empirically unsupported if taken as the picture of how concepts actually arise in a subject's psychology. Developmental Psychology literature shows that children do not have a concept of the time around them until very late in development, so they cannot know what being at a certain time is[126]. However, they start using present tenses correctly to describe their perceptions very early (see 4.4.1.4 below). This does not prove that very young children actually have present-tensed thoughts; but at least puts the burden of proof on the conceptualist to explain what kind of thoughts they have that are so different from adult present-tensed thoughts, while seemingly having the same role in action and communication.

[126] Hickman (2003) puts this at about 6 yrs old.

I think that in many instances of tensed thoughts we ought to say that thinking that something is presently happening is not to think that it happens 'when I am'; so [KAPSE] from three paragraphs above will not be quite right. Similarly, 'now' is not always thought of as 'the time of my context' [KAPN] or 'the time of this thought' [KAPR]. It actually seems that the perceptual representation itself has some of the properties of a tensed thought or belief. This is totally inexplicable in a Kaplan-esque theory of tensed thought. The ideal account however should be able to connect perception to tensed belief in a more immediate way, if it claims to have explained the **nature** of tensed belief that leads to timely action. I will return to this issue in 3.2 (Perry) and 3.4 (Conclusions).

3.2 Perry

This section discusses Perry's conceptual folders (or 'buffers') theory of mind, explicated in his (2002) book *Knowledge, Possibility & Consciousness*, and then applies it to the specific issue of tensed belief. I will assume that this account is similar to his earlier (1979) treatment, where the analysis is made in terms of 'belief states'. Perry is placed in this chapter as he is sympathetic to the Fregean theory of senses or modes of presentation and his framework comments resemble Kaplan's. A novel element of his (2002) is explicitly attempting to place the reflexivity notions of Smart and Reichenbach in the realm of thought. As with Kaplan before, this section's comments are novel since neither Perry nor any other commentator has investigated the exact connection of the (2002) framework comments to *tensed belief*. As always, the structure of this section is the following: Perry's (2002) comments on indexicals (3.2.1), my application of his theory to tensed belief (3.2.2), the strong points of such an extension (3.2.3) and a criticism of the theory as wrong or incomplete (3.2.4).

3.2.1. Perry's Contents

Perry's strategy described in many papers throughout the years[127] usually posits that beliefs expressed in statements with indexicals (as belief (I) in [MESS]) have a common belief object with beliefs expressed in statements without indexicals (as belief (I*) in [MESS]), but the subjects having the beliefs are in different 'belief states'. As first noted in (1979), this particular difference in characteristics is to be used to explain the lack, or apparent lack, of relevant human action. The approach is similar to Kaplan's and more or less Fregean: a common belief content (like Kaplan, a singular proposition) is believed under a different mode of presentation: "We use the manner of presentation to individuate psychological states, in explaining and predicting action"[128]. Where he explicitly departs from my last section on Kaplan is against any possible instrumentalist claim like the one explicitly mentioned in 3.1.4.3: the later Perry ((1997), (1998), (2002), (2005)) attempts to move deeper into understanding the cognitive properties of indexical beliefs by describing belief episodes in

[127] Perry (1977; 1979; 1986; 1997; 1998; 2002; 2005).

[128] Perry (1977: 494). Perry (2002) usually talks about "a different conceptual folder involved", but this is a terminological difference, still intended to be connected to a more or less Fregean sense or mode of presentation.

a manner that stays close to commonsense psychology, and does not relegate the explanation to some deeper level of psychology or remain content in describing semantic properties of indexical sentences.

This chapter primarily analyzes Perry (2002) because, dealing with theories of the mind, it is the most sensitive to the requirements I have raised so far. As a matter of fact, it would be ideally suited to this dissertation since it explicitly argues for the similarity of [MESS], [ABDUCTION] and [CLASS], begins from the same starting point as my chapter 1 (this is Perry (1979)) and is informed about the advances in psychology and belief theory. I also believe that his main (2002) explanation of recognition, which he calls meta-conceptual or meta-theoretic, makes considerable progress in some of the issues confronted in this dissertation, even if I will ultimately argue that it is defective[129].

The first detail to be aware of when discussing Perry (2002) is a change in terminology. When discussing belief and its properties Perry for the most part avoids referring to singular propositions, characters or modes of presentation, instead preferring the term 'contents' to describe *all* of these entities; as well as Kaplan-like tensed 'propositions' and what we have called 'privileged perspectives' when talking about Frege's Dr. Lauben. According to Perry, beliefs, desires and sentences all have a variety of 'contents' like these. For Perry contents are, roughly, truth conditions:

> Content is a way of classifying cognitive and linguistic events by their truth conditions (and success conditions more generally). … I propose to discover content with a formula I call the "content analyzer":
> (CA): Given such and such, φ is true iff so and so.[130]

Sentences in this picture can have *at least* two kinds of content, roughly corresponding to the questions "who is saying it" (what Perry calls the 'reflexive' content) and "what is it saying" (called the 'subject matter' content – hereafter SMC).

To illustrate the use of these contents, here is how Perry (2002) handles Frege's Puzzle about Hesperus and Phosphorus. In one instance of the puzzle we would have belief (H) possibly expressed by the subject by uttering (1) "Hesperus is a big star" and belief (P) possibly expressed by the subject by uttering (2) "Phosphorus is a big star". For Perry (and Frege) sentences (1) and (2) can have two

[129] The same ideas and explanation occur in various other papers by Perry, most notably his (1986) "Thought without Representation". If one substitutes the term 'beliefs' with the term 'contents' in that paper's theory she would have the (2002) version.

[130] Perry (2002) p. 125. - "such and such" refers to features of the general context of the events.

distinct contents, and not just because of the different phonemes/lexical items used. They do have the same 'subject matter content', roughly that the object Venus is a big star. But they have different 'contents' in a separate level – for Frege they have different senses, while for Perry they have different 'reflexive contents'. (1) has the content "the object I refer to by using the term 'Hesperus' is a big star" and (2) has the content "the object I refer to by using the term 'Phosphorus' is a big star". In one level of semantic analysis the two *statements* can mean the same thing. But if this is followed in a distinct cognitive level, the statements can have a different cognitive content. An ignorant subject for instance, that does not know Hesperus is Phosphorus, usually has two quite distinct thoughts.

As we saw in section 3.0, Frege did not explicitly theorize that something similar could also handle the indexical cases. In contrast, Perry (2002) thinks that if we add more kinds of content - including various notions, perceptual buffers or known facts-, then we can handle the kind of cognitive dynamics associated with context-dependent recognition facts or perspectival ways of thinking. For instance, Perry uses a particular 'reflexive' content to explain the cognitive significance of sentences containing the first-person indexical. Here the sentence A: "I am making a mess" has a 'reflexive content' found by the aforementioned formula

(CAsp): "Given that A is in English, etc, A is true iff the speaker of A is making a mess."

The double-underlined portion of the truth-condition pinpoints the new content. That content is 'reflexive' because it has the utterance itself (A) as a constituent and thus resembles Reichenbach (1947)'s token-reflexivity theory and Smart's (1963) similar account described in section 1.3.

The second "subject matter" content (SMC) is found by the following formula:

(CA''): "Given that A is in English, etc, and the speaker of A is John Perry, A is true iff John Perry is making a mess".

An SMC is called thus because it involves the object that the sentence is about and the property this sentence assigns to the object. In Kaplanian terms the "reflexive" content involves the indexical's character, while the SMC is the singular proposition this sentence expresses. So much about sentences. Correspondingly, beliefs have a hierarchy of contents, found by analyzing each belief's different truth-conditions. Here the SMC is the highest level of content and is revealed by the truth

conditions resolving what the belief *is about*. This content corresponds to what many philosophers would call the propositional content –it captures the possibly *eternal*, ready to be evaluated for truth/falsity singular proposition[131]. An uncontroversial example would be my belief that Vasilis Tsompanidis is clever. The belief is true iff the object Vasilis Tsompanidis has the property of cleverness; hence its SMC is the singular proposition <[VT], clever>.

But SMCs are not the only kind of content beliefs have. Take for instance a belief b1, believed by me when I express a piece of information I know by asserting "Dretske wrote *Knowledge and the Flow of Information*" (hereafter K&FI). Besides its SMC, belief b1 has at least one more content, corresponding to a different truth-condition. The belief's "reflexive" truth condition is roughly

> (CAb1): "Given that I am intelligent, etc, b1 is true iff my notion of Dretske is of the object that wrote K&FI".

Belief b1 is true if the sense (or concept or mode of presentation) I use to refer to Dretske can indeed be used to refer to this object. If we insist on drawing the connection to Kaplan, reflexive contents involve Kaplanian characters – or rather their equivalent in the realm of thought, notions and concepts. This content is reflexive because it contains part of the thought itself (the notion/concept used) as a constituent.

Now let's see belief b2, one I could possibly have when Dretske is in front of me, utters "I wrote K&FI", and *I believe what he is telling me*. The reflexive truth condition of b2 is roughly

> (CAb2): "Given that I am intelligent, etc, b2 is true iff *my perceptual buffer* is of the object that wrote K&FI". (Perry 2002:131, my emphasis).

(CAb1) can be applicable when (CAb2) is not, and vice versa. Hence we have two different reflexive contents even though b1 and b2 share the same subject matter content - that Dretske wrote K&FI:

> Just as the reflexive contents of our statements made clear how two statements with the same subject matter content can have quite different cognitive significance, the reflexive contents of our beliefs make clear how they can have different *causal roles*, each appropriate to its own reflexive content. (Perry 2002:130-1, my emphasis)

[131] Perry actually never says the exact statement here because he wishes to remain neutral to the 'eternality of propositions' issue. In fact he only says that subject matter contents are "what philosophers ordinarily refer to as propositions". I think that eternalists would not hesitate to draw the connection between the two, but for Perry it is an open question.

In the Dretske case described above the total belief b1 is different from b2. The reason is that its total truth conditions are different than the belief I had before; it has a different reflexive content. If I wish to congratulate the author of K&FI, I will extend my hand to congratulate the man I see in front of me (Dretske) when I have belief b2, but not necessarily when I have belief b1. Only if my *present perception* is of the author of K&FI will the hand-shaking *directed by my present perception* be a way of shaking hands with the author of K&FI.

It is not clear so far if the individuation of beliefs by causal role is due to the individuation of beliefs by Perry-like contents (and hence truth-conditions) or by another feature that determines both of them. But it is clear that Perry attempts to explain the difference in causal roles by pointing to different belief states, and their difference is shown by the fact that they have different truth conditions. Same belief states, on the other hand, would have all of the same contents, all of the same truth-conditions, and -one would suppose- all of the same actions resulting from them.

The 'buffer' mentioned in (CAb2) is Perry's attempt to pinpoint *in the mind* the differences in reflexive content between two beliefs that have the same subject matter content. If the thoughts are different they should contain some different 'elements of thought'[132]. Cognitive buffers are for Perry

> the first floor ideas, the buffers that collect information about things that play certain roles in our life, such as the object we see, the object we touch. On my view **this includes the self-notion**: the object we are identical to. (Perry 2002:130, my emphasis)

Armed with this new theory, we should have the means of explaining at least our paradigmatic case [MESS]. Following Perry's description above, in [MESS] the subject can be in various belief states involving his "self-notion", what I will call the EGO-buffer[133]. There is information he learns that is directly classified under it: that he is touching a cart, that he feels happy, arguably that it smells nice in the supermarket (to him). Moreover, any desire or belief he entertains about himself using the self-notion will be immediately associated with all the other beliefs using the self-notion. It is

[132] The issue is especially pressing for him since in (2002) Perry is pushing for physicalism; hence he would prefer to point to actual **physical** differences between the subject entertaining the two different thoughts. A physicalist could accommodate this if there are two clearly distinct thought elements involved.

[133] For more on this "self-notion" see Perry (1997). Perry individuates three psychologically distinct self-notions that might all be possibly associated with an 'I' expression. However, in a normal, perceiving, non-amnesiac subject all three are linked. I assume here that we can talk of one EGO buffer associated with all three self-notions, but it might only correspond to one such notion. I think that the difference is not a vital point at this stage – but it does become important in section 3.2.4.

probably very fortunate that language has a way of expressing this privileged EGO-buffer associated with some beliefs: all of them can be expressed with sentences using the first person indexical ("I am touching a cart", "I feel happy", "It smells nice to me"). And this is why my belief (I) would directly result in my checking the cart. If I have the desire not to make a mess, *it* is classified under my EGO-buffer as well – it is a desire I could express by saying "I wish **I** would not make a mess". As such, it can be easily combined with (I) in [MESS] to result in my action of checking the cart I am pushing. In contrast, having belief (I*) will not make me check the cart because I classify it under a quite different conceptual buffer: one referring to an object called "Vasilis". The two beliefs do not have any different subject matter contents, for both their SMC is <Vasilis, mess-making>. But their *total* truth-conditions are different as they have different reflexive contents: (I) is true iff my self-notion is of the guy making a mess, while (I*) is true iff my 'Vasilis' buffer is of the guy making a mess. Only the first reflexive content closes the gap between my desires and my action of checking the cart. If my self-notion really is of the guy making a mess, the cart checking directed by it will be a first step to satisfy my desire not to make a mess.

As with Kaplan, one important question is what is really going on in the thinker's mind in episodes like [MESS] above; and specifically the question if the subject actually *thinks* every thought's reflexive contents. Perry's answer is that the reflexive contents are normally not "realized" or "entertained" by a normal thinker, who obviously has no idea of what is a self-notion or a perceptual buffer; however they somehow are an essential part of the belief the thinker has. For an illustration of how this would work, Perry analyzes the following episode of recognition: At a philosophical gathering Perry suddenly realizes that the person talking to him is Dretske (he had not seen him before but always admired K&FI), and extends his hand to greet him. At this exact point, the thinker (Perry) definitely learns something new that he did not know before. If we ask him what new thing he learned in order to decide to shake hands with Dretske, he will just say "that he [pointing to Dretske] is Dretske". In no way is Perry-at-that-moment thinking *that* his notion of Dretske and his perceptual buffer are of the same object. However, Perry proposes that this is exactly what is occurring on a lower level of thought processing and this is what the 'recognition' consists of. The underlined

portion then is a 'meta-conceptual' piece of information that is not a new SMC, but involves reflexive contents. It is a *linking* of a buffer and a notion to create a new cognitive file involving both. As such, it makes actions available that were not available before.

Here is a more specific example illustrating the same case: while teaching I might have a cognitive buffer for a brown-haired girl that sits in front of my class and gives great insights. At home I grade my students' papers and find out that a student called Susan Smith had the highest grade in the class. But it is only when I hand the paper back to the student that I link my notion of Susan Smith with my perceptual buffer for the brown-haired girl and my memories of her insights. At this moment new actions are available to me, such as being able to congratulate her on a good overall class performance[134]. These examples can be used to show how in every case the subject is 'attuned' to the differences in the beliefs' reflexive contents, and different actions 'spring' from them, again due to the special connections between the self-notion or perceptual buffers and actions. In short, a belief subject *knows how* to use the reflexive content of her belief even if she does not exactly *know what* it is[135].

3.2.2. Tensed belief viewed through a Perry framework

As mentioned at the start of 3.2.1, Perry explicitly claims that his theory can be used to describe cases of indexical belief usually expressed through temporal indexicals. His paradigm is the following:

> [Larry Lost In Time]
> Larry is part of a philosophical experiment. He has been entirely disconnected from a date-description of the days of his life so far. Larry however has various future desires and beliefs described by dates: he has the desire for instance to attend the 1999 Pacific APA Presidential Address and has belief (D*) <u>that the 1999 Pacific APA Presidential Address is on 4/1/1999</u>. Unbeknownst to him it is actually April 1, 1999 when he is finally freed from his philosopher-imposed seclusion. Glancing at a fresh newspaper he realizes (D) <u>that the 1999 Pacific APA Presidential Address is today</u>.

According to Perry, beliefs (D) and (D*) are different beliefs, as the reflexive content of (D*) is roughly "my <u>4/1/1999</u> notion is of the 1999 Pacific APA Presidential Address" (here forth PAPAPA) while the reflexive content of (D) is "my <u>today</u> notion is of the 1999 PAPAPA". Moreover, only (D)

[134] Kevin Falvey, p.c.

[135] The same idea occurs in his (1998) and one can assume is there even on his (1979) when he talks about a self-conception that can be thought as accompanying a first-person belief. Notice that the new information looks like Frege's (1972) "Begriffsschrift" meta-linguistic solution to Frege's Puzzle, but this time in the realm of thought and involving conceptual notions instead of words. More on that detail to follow.

will be combined with Larry's possible beliefs that today is sunny, that if the PAPAPA is today I need to take the plane to San Francisco in 30 minutes, or that today I feel happy. Hence, (D) will result in timely action, while (D*) will not. In the conceptual folder/'buffer' way of explaining belief, the episode can be explained by Larry classifying information under a today buffer and under a 4/1/1999 buffer. When he glances at the newspaper, the two buffers become linked and Larry can combine the information contained therein.

Using this explanation for our case [CLASS] would mean that the subject also has two *distinct* beliefs (n) and (n*), even if their subject matter content can be thought to be the same – that the class is starting at 10.30am. Of course, to pinpoint the exact differences in reflexive content we would need something like the self-notion involved in [MESS] or the today buffer involved in Larry Lost In Time above. The obvious explication using the tools of the (2002) theory is to posit a now concept or now buffer that is assigned information in a different way than a @10.30am notion. Then the reflexive contents of (n) and (n*) from [CLASS] differ thusly: (n) is T iff my now-notion is of the class start, while (n*) is T iff my "@10.30am" notion is of the class start. Moreover, belief (n) is associated with other desires and beliefs utilizing the now buffer, for instance my desire to be on time for my class (e.g. my belief that if my class is starting now, I need to run). Belief (n*) is usually not associated with these desires, so timely action does not necessarily follow. We have a clear difference between tensed belief and tenseless belief that can be used to explain the fact that timely action follows from the first but not the second type of beliefs[136].

In [ROOT CANAL] however there is no appearance of a pure indexical term like now. What then is the relevant notion or buffer that could explain the difference? One option would be that my thinking that the root canal is over involves a 'past' notion or folder. Then my root canal is categorized under that 'past' notion when I believe (p), while it is not so categorized when I believe (p*). We can posit then that the feeling of *relief* is associated with the 'past' folder, hence it can follow from believing (p), but cannot follow from believing (p*). A different option might be that,

[136] One issue is what happens if we insist that I instead express myself by uttering (S*) "the class is starting" without using a term such as 'now'. Perry's reply can be that in principle a Perry-like now buffer can be associated with *both* belief (n) and the belief expressed by (S*); there is nothing on the surface content of S or S* that necessitates an explanation using distinct cognitive buffers.

similar to the Kaplan-like treatment of [ROOT CANAL], 'is over' always means something like 'is over as of now', in which case the indexicality resurfaces through the now-buffer being utilized in the level of thought exactly as I described it in the previous paragraph. In both cases we seem to have a new way of explaining what the tensed belief (p) consists of and how it makes new actions available to the agent having it or how it produces relief.

3.2.3. Virtues of a tensed belief theory based on Perry's framework

The (very) short version of this section is that we are moving closer and closer to the desired account of tensed belief. Perry abides by all the requirements we have nominated. Of course this is not very surprising since (a) they were in part derived in chapter 1 by taking his (1979) paper to heart and (b) Perry's (2002) theory is in the field of philosophy of mind and thus avoids some issues plaguing an A-theoretic account, or the ones deriving from Lewis, Mellor and Kaplan's framework theories. I proceed by evaluating the theory with respect to the methodological requirements laid down in the previous chapters of the dissertation (1.3 and 2.3).

3.2.3.1. Definition

The theory should be consistent with my chapter 1 characterization of a tensed belief, as (DF): one the believer could and would normally express by using a temporal indexical.

Reply: Perry's theory is consistent with characterization (DF): it actually is another strong support for the success of our definition, as the semantic temporal indexicality observed in the sentence expressed is directly related to the belief's cognitive role (the semantic 'character' or function of the indexical 'now' is related to the specific notion/buffer now, which in turn is related to a specific cognitive role).

3.2.3.2. Uncontroversial Simple Contents:

The theory should be able to *at least* give the content of a simple present belief, let's say belief

(Pr) that Obama is president,

as well as simple past belief (Pr_p) that W. was president,

and future belief (Pr_f) that Jeb Bush will be president

Reply: Perry's theory would posit a number of different 'contents' associated with these beliefs, depending on the context of the situation in which a subject believes them. But in principle all of them can be found by following the Content Analyzer formula and using particular buffers or notions capturing the verbal tenses in each belief. In the absence of relevant contextual information, they will at least have a clear subject matter content.

3.2.3.3. Tenseless Facts and Properties:

The account should use only tenseless (B-theoretic) facts and properties. A-facts or A-properties should not be treated as fundamental.

Reply: Perry's (2002) theory can straightforwardly be B-theoretic. Facts and properties could be associated with *just* the SMC of a belief, in which case they *could* be restricted to date-theoretic B-facts and properties. Alternatively, the Perry-like B-theorist could avoid talking about facts or properties altogether, since this account is one of *thoughts* and not statements or sentences. As with Kaplan, the possibility of adopting an A-theoretic view is left open by Perry[137]. But the now cognitive buffer is always a mental structure belonging to a person, not an A-theoretic entity in the 'external world', like **the present** (for a Presentist). As described here and Perry (2002) such a mental entity is perfectly compatible with ordinary B-theoretic metaphysics. In any case, as I explained the theory so far, it does not use A-notions or is committed to the existence of A-facts or properties.

3.2.3.4. Untranslatability:

The account should not be sentence-relative or utterance-relative (as a subject might not utter anything and still have a tensed belief). Translatability or meaning equivalence claims should therefore be avoided.

Reply: By adhering to the psychological level Perry avoids utterance-relative translation claims. Similarly he avoids meaning equivalences: it is clear for instance that "the class is starting now" does not *mean* that "the class is starting at the same time as this thought/sentence/utterance", even if these two sentences can be seen as having the same SMC.

3.2.3.4a. Cross-linguistic Variation:

[137] In fact Perry (2006) does take it up by suggesting that the now-buffer always points to "the present time".

The account should not just rely on explaining the *verb mechanism* utilized in linguistic expressions of the belief in English, as the explanation of tensed belief should not be tied to a particular language. In essence we are looking for an account of what it is to believe or think in a tensed way, not just to state something using verbal tenses.

Reply: Cross-linguistic variation is secured in Perry (2002), since the linguistic element immediately drops out of the explanation. We have here a description of beliefs at the level of truth-conditions and/or conceptual buffers involved. Both of these levels can be explored in the tensed beliefs of, say, speakers of the Guaraní tenseless language which does not use verbal tenses to express thoughts about times.

3.2.3.5. Non-descriptivism:

Perry's work on the essential indexical dictates the avoidance of a particular type of descriptivism.

Reply: As noted in 3.2.1 and other places the account is clearly non-descriptivist.

3.2.3.6. Uncontroversial 'here'-Belief Contents:

The account should not posit foundational 'here' semantic values as belief objects in our theory. For instance a 'here'-proposition that changes truth-value according to the location of the context should not be the content of my belief that it is raining [here].

Reply:. Perry's (2002) explicitly treats ´here´ similarly to ´today'. His case of Gary Lost In Wyoming (essentially my [ABDUCTION] case) is explained without positing 'here'-relative propositions in any level. By Perry's view, in [ABDUCTION] beliefs (h) and (h*) would be different even though their location-involving SMC is the same, because (h)'s reflexive content involves a here buffer and (h*)'s reflexive content involves the Beverly Hills notion. If we view only the SMC as the 'belief object' referred in Requirement 6, then Perry abides by it.

3.2.3.7. Decision Rationality:

The account should count instances of timely decisions as rational.

Reply: The 'meta-conceptual' argument of Larry Lost In Time (first paragraph of this section 3.2.2) secures the rationality in cases of recognition. Similarly, the decision in [CLASS] (second paragraph

of 3.2.2) is described as a rational decision, as all the 'now' beliefs and desires are connected in a rational manner – they are reasonably associated with the now buffer.

3.2.3.8. Proposition Neutrality:

The account should allow eternal propositions as the bearers of truth-value.

Reply: Perry explicitly mentions that the subject matter contents correspond to propositions. These SMCs could straightforwardly be eternal propositions, and not tensed Kaplanian 'propositions'.

3.2.3.9. Level of Thought:

The account should explain the difference in resulting behavior between tensed and tenseless beliefs with some difference in the level of belief.

(9a-Non-randomness)

The difference should not be a random fact specific to the description of the case (9b-Awareness Ability) the subject should have some awareness of the difference (he should be able to 'think' or 'grasp' or 'be attuned to' it) – or just *be able to* become aware of it. For instance a mere difference in physical realization of the two beliefs will not do.

Reply: By disengaging with semantics of sentences or utterances, Perry's (2002) is the clearest way we have encountered so far to conform to this requirement. For instance, the way I described [CLASS] in 3.2.2 clearly abides by Requirement 9b (Awareness Ability), as the subject is aware of the reflexive contents of his belief - even if, as explained, he does not *entertain* the exact contents but is merely 'attuned' to them.

3.2.3.10. Time Representation:

We need some representation of temporal information in thought to explain timely action.

Reply: if in the case [MESS] we can describe my representation of the object <VT> through a self-conception (EGO buffer), then in present-tensed belief the representation of the time involved can be described by the now buffer. So the Perry account gives us a first *depiction* of how temporal information is represented in thought.

3.2.4. Criticisms of a tensed belief account based on Perry's theory

3.2.4.1. Vagueness.

Perry's (2002) theory makes good progress in describing issues connected to indexical belief in a psychologically realistic way. But in a sense the account is incomplete. In particular, the apparatus of conceptual folders and buffers leaves significant issues unexplained. For instance, Perry has not explained clearly the ontology of these entities that populate his reflexive contents. What exactly **is** a conceptual buffer? Is the structure literally a part of our thoughts (in which case it would have physical existence for a physicalist as Perry (2002) wants to establish), or is it an abstraction that helps theorizing, in which case it could point to a *functional* element of thought? More specifically, what exactly is the now buffer I nominated as explaining timely action in [CLASS]? Perry (1998) describes the buffer as *both* now[moment of thought] *and* now[present time]. Can those be distinct buffers involved in a rational subject's present-tensed belief? In this case, do we have distinct beliefs that might come apart and lead to distinct actions? So far no clear answers to any of these questions have been provided.

In a sense the vagueness of the 'buffer' theory is removed when the thought analyzed is a perceptual thought about a clear object in the world (like Dretske, or 'the man in my field of vision')[138]. But times are not clearly objects; they might not even be consistently represented as objects in a rational subject's thoughts. So does a subject *have* to have a time-specific now buffer associated with every tensed belief? It might be plausible to argue that all events thought of are thought of *as of* occurring at a specific time; but it is not clear that all events have to be associated in thought with a clear and distinct time-specific buffer collecting information about a day or time. I conclude that, at least in the [CLASS], Perry owes us a better explanation of the now buffer involved.

3.2.4.2. Perception Priority

Concentrating as Perry does in conceptual buffers creates an additional problem. Similarly to the theory I have extrapolated from Kaplan in 3.1, the explanation of timely action seems to be *too*

[138] In the vision and perception literature these buffers are widely discussed– see for instance the discussion of "object-files" created by the visual system to keep track of spatio-temporal information in Raftopoulos (2009), ch. 3 and 6.

conceptual. As such, it cannot be straightforwardly associated with perception and cognitively automatic timely action. I believe that the ideal account should give some priority to temporal information gained in an immediate way from the environment, akin to the spatial information gained in instances of perception. For instance, when I see a tiger running at me my perceptual representation is immediately associated with the *timely* action of fleeing – and if I have a tensed thought at that time the thought seems to inherit the tense from the perceptual representation.

Perry fares better than Kaplan's theory in such cases, as he does talk about 'perceptual buffers' involved, which could tie tensed thought to perceptions in the spatial case. But the vagueness of the 'buffer' notion already noted does not enable us to take a specific stance on the tiger example. The worry here is that the entities used by my Perry-like theory in [CLASS] to explain timely action (now[moment of thought], or now[present time]) look *entirely conceptual* – this is why for instance Perry refers to them as 'conceptual folders'. Can there be automatic cognitive processes (like the one apparently occurring in the tiger episode) associated with them? Perry's answer seems to be that they cannot, since none of the (1998) descriptions of the now buffer represent it as primitive in the manner of the perceptual buffer described in the Dretske episode (the spatial case). The latter buffer could be primitive, as has been suggested by the existence of egocentric spatial indexes in psychological theories of visual perception, but the former is depicted as entirely conceptual. Hence I conclude that the Perry-like theory I present is not complete for the purposes of this dissertation.

3.2.4.3. Richard counterexamples

The case of Maria the precognitive experiencer from 3.1.4.1 could be solved only if the vagueness of the comments on the 'now' buffer (3.2.4.1) is somehow removed. In effect, we need to describe Maria as not classifying perceptual information under a 'now' mental buffer directly associated with her desires and actions *while at the same time* describing her now-beliefs (such as her belief that she is now hungry) as essentially involving this 'now' buffer. Only then could Maria's perceptions be disconnected with now-beliefs as we need. As I argued before however, the enterprise of describing the 'now' buffer that could facilitate this explanation has not been carried out adequately.

Moreover, even if the Maria case is solved, Perry will have problems explaining other Richard (2003) counter-examples like the clawing dog case:

> Suppose that I know that a certain sound is characteristic of the dog's clawing at the door to gain entrance. Suppose the dog claws, I hear it, and that causes me to think,
>
> (19) The dog's wanting entrance is simultaneous with my hearing this [I intend the clawing] and with my so thinking.
>
> I know how often I vividly recall the past. And so, at the same time I think (19), I take myself (mistakenly) only to be recalling (quite accurately) something that happened several weeks ago; consequently, I don't go to the door to let the dog in, which I would if I thought the dog was *now* clawing. (Richard 2003:168-9).

If Perry's now-buffer is something like now[moment of thought], then (19) should be characterized as a now-belief. The subject would be thinking <u>that the dog is clawing at the time of that$_{AN}$ thought</u>. However, this will not result in the timely action required. Hence as noted in the previous paragraph, it seems that individuating present-tensed beliefs in terms of a now-buffer requires a more complete explanation of what that buffer is and how it connects to timely action. If this explanation is too conceptual, it will not defeat all the Richard counter-examples.

3.2.4.4. Contents as truth-conditions.

I think that the most important defect of a Perry (2002) type account is that the Content Analyzer formula renders it either circular or unusable for analyzing tensed belief in an explanatorily adequate manner. The problem can be posed in terms of the following critical question: if beliefs always have many different contents (discovered by analyzing the belief's truth conditions), *why* are only specific ones relevant to explain timely action?

Let us start from the start. In 3.1 I explained that Perry equates *truth-conditions* with *contents*. But this runs the risk of loading totally irrelevant contents into any belief. Notice for instance that in Perry's account of sentence contents: (A) every sentence could be seen as containing the declaration of *its* truth as a separate sentence content ('snow is white' is true iff '"snow is white" is true' is true). Moreover, 'truth-conditional' statements like the following are correct: 'snow is white' iff '2+2=4'; hence Perry might have to designate a mathematical truth as a content of my *belief* that snow is white. The problem is evident when we notice that usually the subject needs to check *all* the belief contents

to see if her belief is true; this is clearly implausible in (A), where an infinite series of such contents can be generated.

I believe that for the whole account to work in explaining tensed belief Perry would need to designate only the "relevant" contents or truth-conditions through his Content Analyzer and avoid those truth-conditions that are not plausibly taken as *contents of our thoughts*[139]. *Those* truth-conditions should be present in a tensed belief like (n) but not in a tenseless belief like (n*). We could cash this reply out in two ways:

Way 1: (n) differs from (n*) in [CLASS] only in virtue of the specific buffers or conceptual folders associated with the beliefs. If that story is coherent, we have a way to find the *relevant* contents without begging the question - roughly by following the rule "the relevant contents are those that correspond to different buffers in the reflexive content". However, as we saw in 3.2.4.1 the now buffer appearing in tensed beliefs has only been described in a vague way, and is open to various interpretations. In the absence of a less vague explanation **Way 1** would render the theory incomplete.

Way 2: We have different contents *just because* they lead to different behavior. In this case 'content' is thought of as whatever makes a causal or functional difference between two cognitive states of the same kind (e.g. two beliefs)[140]. However, for the purposes of this paper, **Way 2** would be just begging the question, or at least showing that there is some circular thinking involved. The relevant contents are either there or they are not; but we cannot decide their relevance based on the subject's potential resulting behavior, as the behavior is **exactly** what we are trying to explain. If **Way 2** is used, a Perry-like account of tensed belief is circular.

I conclude that Perry's truth-conditions cannot show us what it is that makes me act in a timely manner. If Perry-like reflexive contents are really what differentiates tensed from tenseless belief, then we have to explain exactly what they are, and only after that, how they get their truth-conditions.

[139] Pinpointing the psychologically relevant thought contents has been a thorny issue for Perry's past theories as well. In his (1986) he tries to describe some of them as 'unarticulated constituents'. These are elements like Chomsky (1981)'s PRO. But Linguists or Syntacticians have ways to test PRO's existence, while something like the *thought's* reflexive content posited in (2002) for Frege's Puzzle (roughly "that my Hesperus notion can be applied to Venus") cannot be discovered with such linguistic methods. I press the point in this section that they cannot be discovered with the Content Analyzer either.

[140] This is actually a use of the term 'content' corresponding to how the cognitive literature uses it.

3.2.4.5. Temporal Complications of the Content Analyzer formula

Extending Perry's theory to account for tensed belief might create additional complications. The perceptual buffers used to individuate tensed belief contents are themselves temporal creatures. But in this case my *current* perceptual buffer seems to differ from my 2.15 perceptual buffer; it might be that under Perry's theory only the first one can be used to individuate a present-tensed belief.

I will try to explain the previous comment with an example case. Let us assume that from 2.15 to 2.30 I am looking at Dretske giving a lecture. At 2.15 I am having the thought (b3) that Dretske [the guy I am watching] wrote K&FI, and at 2.30 I am having a thought I would express with the same statement (call that thought (b4)). If we follow Perry's method we could attempt the following truth-conditional content analysis:

(CAb3): "Given that I am intelligent, etc, b3 is true iff my 2.15 perceptual buffer is of the man that wrote K&FI"

(CAb4): "Given that I am intelligent, etc, b4 is true iff my 2.30 perceptual buffer is of the man that wrote K&FI"

I think that Perry has to accept that these are among the contents of my beliefs, since he insists that you can unpack any contextual fact into truth-conditions. But the truth-conditions involved in (CAb3) and (CAb4) are clearly different. Perry has to then say that the beliefs are different. This would mean that every belief whose reflexive content is associated with a perceptual buffer is unique and cannot be repeated, as each one occurs at a different time. Such a view would create significant problems for the project of explaining communication, inferences and/or action, as beliefs turn out to have no duration. The worry here is that unpacking contents in a time-specific way through the Content Analyzer formula will create problems for Perry's theory.

One could of course insist that *the same perceptual buffer* is involved at 2.15 and 2.30. The content analyzer should then give only one truth-condition (content):

(CAb5): "Given that I am intelligent, etc, b4 is true iff my perceptual buffer is of the man that wrote K&FI".

Here belief b3 is *the same* as belief b4, and the communication/inference/action problems are avoided. But what to say about this issue clearly depends on what exactly a perceptual buffer is. I think that Perry has not given us the clear definition of buffers to decide if (CAb5) is a better description of the thought in contrast to (CAb3) and (CAb4). More damagingly, I think that under the Content Analyzer method there are reasons to favor the latter, time-specific, way of cashing out my forming beliefs, in which case the problems are not avoided. Normally, we are able to talk about different buffers, since I can remember what I assigned under the 2.15 buffer at the same time as I am assigning something to the 2.30 one. Moreover, I could look at Dretske at 2.15 and 2.30 and wonder if those two mental images of the man in front of me belong to the same object. In that case what I am wondering about is the connection between two distinct perceptual buffers, and the wonder cannot be described through (CAb5).

The last resort for Perry might be to argue that b3 and b4 are *the same belief*, while b1 (my belief that Dretske wrote K & FI) and b2 (my belief [looking at Dretske] that he wrote K & FI) are different, but because of some *other factor* than the Content Analyzer Formula used in 3.2.1 to individuate belief contents. But this would be admitting incompleteness, since now the Content Analyzer is not what explains differences in beliefs; it is because of some other fact that b1 differs from b2. What exactly is that other factor that creates differences? One obvious answer is that they differ in terms of causal role, but as explained in 3.2.4.4 this is not helpful for this dissertation, as we are trying to explain the causal role itself.

3.2.4.6. Vagueness Again

The vagueness of Perry's theory transfers to the part of the theory that interests this dissertation: the connection of tensed belief to timely action. The theory fares better than Kaplan's hand-waving comments about semantic characters, as with Perry we have entities that are elements of the thoughts that lead to action. Still, a subject might have concrete thoughts about perceptual buffers; he might for instance explicitly entertain the thought that his perceptual buffer is of Dretske. But thoughts about buffers are not straightforwardly involved in action! What for instance secures that every time I have

a ‘now’ belief (explained in [CLASS] as one involving a ‘now’-buffer) I will run to catch the bus? There is an additional step that needs explanation. In essence, it is not enough to talk about buffers, you have to *show* how they are connected to action and this is not explicitly shown yet.

3.3. Other Theories of Tensed Belief as Indexical (or Contextual) Belief

This section attempts to bracket off some theories of tensed belief that clearly do not abide by the list of requirements discussed so far. If the reader has been perplexed as to the exegetical need for having posited the requirements in 1.3, this section is the clearest explanation. Regretfully, the exposition of each theory here is very brief due to length constraints on this dissertation.

3.3.1. Token-Reflexivity

Mellor's (1981a), Reichenbach's (1947) and Smart's (1963) token-reflexivity or 'old B-' theories, and linguistic theories based on them[141] do not abide by the 'meaning' requirements 4 (Untranslatability) and 5 (Non-descriptivism). They all advance unsuccessful 'meaning equivalence' claims, according to which a tensed statement can be 'translated' into a tenseless one involving the time of utterances. Moreover, they have important semantic defects and related modality issues. For instance, the following sentence implausibly comes out as true: "If no one were to utter this token, I would not exist" (Kaplan 1977:519-520).

3.3.2. False Tensed Beliefs

Oaklander's view in (1994) is that all tensed beliefs are false. The view is implausible, even if it is attractively B-theoretic. First, consistently false tensed statements create problems in logic similar to the one mentioned in 3.3.1. Second, any inference to the need for timely action is based on a false belief, which would make the success of timely action following a tensed belief an extraordinary miracle of chance. This is because actions based on false beliefs are not usually successful except by chance. Third, it will not abide by Requirement 10 (Time Representation) since the tensed belief contents will all be false – which would mean that they do not represent anything significant for action. In general, this position is unattractive because my stated aim is to remain a quasi-realist about tensed beliefs that look like they are often true; and even if they are never true, I would still have to explain how they *seem* to succeed by leading us to timely action.

[141] See Garcia-Carpintero (1998) and similar views treating the linguistic meaning of tensed statements as involving explicit references to utterances.

In Perry's terms, Oaklander's mistake is that he is identifying the nature of a belief with its subject matter content: what worldly facts the belief is about. Then if my belief is that Obama's presidency is present, it *has* to be false because Obama's presidency does not really have any A-property such as *being present*. But my belief that this gulash is yummy is not false, if it turns out that the gulash does not have any objective real-world 'yummy' property. We just have to explain in a different way what makes the belief true, perhaps by appealing to me, my taste buds, and our relationship to the gulash's actual objective properties.

3.3.3. Dynamic Semantics

Some literature in linguistics and philosophy of language has moved away from favoring a Kaplan-like treatment of indexicals and demonstratives to suggesting a Dynamic Semantics framework for analyzing these and other parts of speech. The fundamental difference is that in a framework like Kamp (1990)'s Discourse Representation Theory (DRT) the interpretation of a natural language expression dynamically changes the Kaplanian context: it creates a new context out of the old one and thus affects how subsequent expressions are interpreted. In essence the new approach has a different way of explaining *indexicality* as just one instance of a wider *contextualism*; so it is an alternative to the theories discussed in this chapter.

Specifically for our case, it has been argued that the new semantic approach comes closer to explaining some problematic features of tensed talk, like temporal anaphora, boundness and/or shifting temporal perspectives[142]. I think the approach could be extended to include embeddings under tenses, and thus explain clearly the semantic issues noted in 3.1.2.1[143]. A DRT approach would indicate that verbal tense is a more generally contextual, rather than a purely indexical phenomenon. Like Kaplan and Perry, DRT can be B-theoretic, as the time involved is always part of the general context and no 'present time' is postulated.

[142] Gutierrez-Rexach (1998), Predelli (1998), Kamp & Schiehlen (2002).

[143] To remind the reader of one instance: that the underlined portion in sentence A: 'You will hug the one you love' is different in semantics to the underlined portion in sentence B: 'You will hug the one you now love'.

However, as noted in 3.1.2.1, such semantic problems might not run in parallel to the level of thought. Problems like these are often encountered in analyzing linguistic expressions – for instance, linguists have traditionally had a hard time distinguishing aspectual and temporal elements in tensed verbs, especially in romance languages. But at the level of thought, it seems obvious that the aspectual and temporal thought elements involved are not constitutively connected. I think therefore that at the level of tensed belief we can straightforwardly follow Corazza (2004) and distinguish two different belief categories corresponding to two different uses of verbal tense: the anaphoric one and the indexical one. This dissertation is concerned with just the latter use and corresponding belief category, and we can hold this view without being committed to a DRT framework.

The main drawback of a Dynamic Semantics theory is that it has nothing new or concrete to tell us about belief. Using it to describe tensed belief would run into the same problems as Kaplan's theory: trying to shoe-horn a semantic theory into a picture of how the mind works. And it would be even worse, since a DRT version of the Kaplanian picture runs the very real risk of loading issues of communication and practical exigencies (shifting contexts, Lewisian scoreboards, speaker's intentions, language conventions, prosody) into mental structures. These are all issues that a classical theorist could classify as *pragmatic*. If DRT proves to be successful in linguistics, they might indeed *be* semantic issues. Still, (a) they are not necessarily part of what is believed and (b) they are not easily specified when trying to analyze a singular thought without a clear context. For instance, it is entirely unclear how Dynamic Semantics can abide by Requirement 2 (Uncontroversial Simple Contents) and give an explanation of the simple present-tensed thought 'Obama is president', as there is no pragmatic context to be used to describe the significance of tense.

3.3.4. Non-Indexical Contextualism

Recanati (2007), MacFarlane (2005) and Shapiro (2006) examine a possibly helpful theory called "non-indexical contextualism" or "moderate relativism"[144]. Under such a view, tensed expressions are

[144]This should be distinguished from MacFarlane's (2003; forthcoming) assessment relativism. That view is sometimes seen as successful in analyzing the truth-conditions of future contingent sentences. I do not have the space here to go into it; my general complaint with such a theory is that it would run afoul of many of our requirements because it concentrates on

not indexical but 'contextual' – so the view is compatible with Dynamic Semantics. Recanati's (2007, 2008) theory in particular has a wider reach than indexicality. His contextual expressions can have two kinds of content –tensed expressions in particular always have as contents *both* an eternal proposition (which he calls an "Austinian proposition") and a tensed Kaplanian 'proposition' (which he calls a *lekton* or a *perspectival proposition*). The situation is the same in the level of belief: for Recanati tensed beliefs can have two kinds of content, a tensed one (lekton) and a tenseless one. But in any case that the content of the belief is a *lekton*, its truth-value varies according to the context. In such cases, Requirement 8 (Proposition Neutrality) is not met and the account is virtually indistinguishable from a wider relativism about tensed belief (see the MacFarlane footnote above).

If Recanati instead insists that we believe *both* contents, he has not given us a definite answer to our research question: which of the contents is operative in tensed beliefs leading to timely action? Recanati (2007) states that we cannot decide the answer by appealing to belief reports, as they are related to matters of practical exegencies and communication. But we *have* to know when we believe the one content or the other, and which type of content constitutes tensed belief. Otherwise we cannot describe why the subject acted timely after (n) in [CLASS] and did not act after (n*). Moreover, the subjects themselves should be able to recognize when they believe which content, since each content would result in a different rational action. We cannot all be blind to the contents all the time on pain of irrationality.

In general I doubt that this type of semantic contextualism would describe tensed belief in any way different than Kaplan, Perry, or Dynamic Semantics, with all the defects these theories have. For instance, a pressing problem is that Recanati himself extends the theory to cover 'I' and 'here' beliefs, by positing perspectival 'here'-*lekta*. But this directly violates Requirement 6 (Uncontroversial 'here'-belief contents). In [ABDUCTION] for instance the subject would believe a 'proposition' that changes its truth-value (but not its content) depending on the subject's spatial location. As I have explained before, such 'here'-like belief objects are not plausible avenues for this dissertation to

assessment and thus avoids talking about thoughts or thought contents. For example, Wright (2008) argues that MacFarlane cannot describe representations. If this is correct it means that relativists about tensed statements will not adhere by Requirement 10 (Time Representation).

traverse. I think in the end that Recanati's non-indexical contextualism probably fares well in describing the problematic semantics of belief reports; but the theory does not straightforwardly carry over to the belief level.

3.3.5. A Thought Reflexivity Account

Higginbotham (1995)'s thought-reflexive theory posits that tensed thought always includes a fully conceptual explicit reference to the present as "the time of this thought". So any present-tensed belief's content (e.g. that Obama is president) would include a conceptual identification component to the effect that whatever my belief is about (e.g. Obama's presidency) *happens at the time of my believing*. On one interpretation, this view descriptively analyzes the *Sinne* of tensed expressions by establishing clear meaning equivalences. In this case the account would run against requirements 4 (Untranslatability) and 5 (Non-descriptivism). If the exact details of the theory are not given such a strong descriptive gloss, the account could be viewed as positing a Kaplan-like character rule such as KAPR ("'now' refers to the time of this thought") or positing a Perry-like reflexive content ("Given such-and-such my belief that the class is starting is true iff the class is starting at the time of the thought").

I think that both interpretations have been shown to be vulnerable to Richard-like counter-examples. For instance, to think the thought (F) that the dog is [now] clawing (see 3.2.4.3 above) the subject needs to (G) explicitly identify the thought as his own, and (H) identify the time of the clawing with the time of the thought. These are neither necessary nor sufficient for having a tensed thought. When the subject (mistakenly) thinks the dog's clawing is a memory, he will not have a tensed thought (Richard 2003: 169). And conversely, a schizophrenic patient might think that the dog is clawing without thinking that the thought is his own (Recanati 2007:186). Basically, Higginbotham's tensed thoughts seem to require too much of thinkers[145].

I agree of course with Higginbotham and Perry that reflexivity plays a very important part in tensed beliefs. But thinking of something as present is not always to think reflexively in the way

[145] Actually Higginbotham (2003: 193-4) seems to concede such some points.

Higginbotham describes. That we always think of things as past or future in explicitly reflexive ways is even less possible. So reflexivity cannot be what *constitutes* tensed belief. In any case, I believe that the most conclusive objection to Higginbotham is that, similarly to Kaplan and Perry, the theory is *too conceptual*. It exhibits a disconnection from perceptual episodes that seem to lead to tensed thought and timely action (see for that 3.1.4.4 and 3.2.4.2).

3.4. Concluding Remarks

I argued in the chapter so far that one could attempt to describe the nature of tensed beliefs by following Kaplan's and Perry (2002)'s frameworks with some success. In contrast, the theories presented in 3.3 are considerably less successful, since they fail at least one of this dissertation's constraints for a good theory of tensed belief (Requirements 1 to 10). I think that the accounts I extrapolated from Lewis (2.1), Kaplan (3.1), and Perry (3.2) fare better. In light of their problems (2.4, 3.1.4, 3.2.4), I would actually put them in this exact hierarchy in terms of their success. A Lewis-like theory does not abide by Requirement 10, while Kaplan and Perry do. A Kaplan-like theory rests on semantic notions, while a Perry-like theory does not. However, one should not conclude from my extensive criticisms of Perry in 3.2.4 that I regard it as the worst account; it is because it makes the most progress in cognitive matters that I spent more time criticizing it. Perry's account is the closest answer (so far) to my research question.

I see the main problem plaguing the theories proposed in this chapter 3 as twofold: *First*, the ideal account should give priority to temporal information gained in an immediate way from the environment akin to the spatial information gained in instances of perception. When I see a tiger running at me my perceptual representation is immediately associated with the timely action of fleeing. I name this **Requirement 11: Perception Priority**. *Second*, the account should be able to cleanly handle the set of Richard-inspired counterexamples posed in section 3.1.4, 3.2.4 and 3.3.5 – I name this **Requirement 12: Richard Immunity**. The theories discussed so far have a clear problem with the first requirement, and most have problems with the second requirement. In the next chapter, I propose that an account based on Tyler Burge's framework for treating *de re* beliefs, extended to

cover tensed beliefs, will be able to deal with these two requirements in a satisfactory way, while at the same time will abide by the set of initial requirements that have been the guidelines of my dissertation so far. I should note here that the main difference of Kaplan or Perry's views with the chapter 4 *de re* account of tensed belief is not the '*de re*' part itself (both Perry and Kaplan are sympathetic to it for different reasons), or the anti-descriptivist stance; but a new externalist/anti-individualistic component. I believe that tensed belief has a perspectival and representational element: and for Burge all such perspectival, representational elements are to be individuated externally.

CHAPTER 4
TENSED BELIEF AS *DE RE* BELIEF

The main motivation of this chapter is to present an account of Tensed Belief that retains the connection to perception lacking from the other accounts, while keeps the advantages of the theories described so far. The account I will sketch is based on Burge (1977) and his subsequent clarificatory (2006a) and (2006b). One important thing to note is that only in scattered footnotes of these papers does Burge draw an explicit connection of his comments to tensed belief or *temporally* indexical information[146]. This means that the work in this chapter is original; and as such it needs to be analyzed in a detailed, critical manner.

For Tyler Burge all indexical thought is *de re*. I will try to show that tensed beliefs are among such *de re* beliefs. To foreshadow, I will argue, for example, that the content of my belief that the class is starting now can be represented as (B_r (Vasilis, <now>, ⌜Starts-at(class, y_n)⌝), where 'B_r' is belief *de re*, and y_n is a free variable that corresponds to a demonstrative element such as the term "this": an indexical feature, capturing the subject's private perspective, that completes the thought's content by contributing a value to a variable-like element in the content. Section 4.2 goes deeper in the details of the Burgean framework and formalization; for instance it analyzes how the free variable y_n is to be understood, and what exactly a *de re* belief is – tensed or otherwise. Section 4.3 explicitly shows how an application of Burge's ideas to time satisfies all the theory desiderata I have drawn from the previous chapters. Section 4.4.1 continues deeper into psychological, especially perceptual issues. Section 4.4.2 tries to make the connection to full concepts and rational decisions more explicit. I conclude this dissertation by summarizing it in 4.5.

4.1 Tensed Belief as Burgean *De Re* Belief[147]

The main framework I wish to use is Burge's analysis of *de re* beliefs[148] presented in his (1977). As defended for the case of general perception, there is a sense in which a subject can have beliefs that

[146] Burge's *Origins of Objectivity* (2010) is a notable exception, incorporated in this chapter in later sections. Earlier mentions of the indexical now: ft. 5 of (2006b), pp. 357 of (1977).
[147] A significant part of this section 4.1 is re-worked from Tsompanidis (2009).

encompass an indexical element, without that meaning that there is some "indexical thing" in the world that she is apprehending. In the tensed belief case, the subject can have tensed beliefs without that meaning that she apprehends A-theoretic tensed facts or objects.

Starting from the start: Burge would like to present an account of a *de re* belief that could differentiate between a similar *de dicto* belief. He suggests that a representation of

(4) Alfred believes the man in the corner to be a spy,

where we do not want to attribute to Alfred any notion of a man in the corner, should be something like

(4') (B_r(Alfred, <the man in the corner>, ⌜Spy(y)⌝),

where B_r represents *de re* belief.

In this case the portion in <> (angle) brackets serves to pick out the man and does not need to be "apprehended" by Alfred in order for him to entertain the belief. (4') could be true regardless of Alfred's conceptual relations to the object. In this logical form, we can see exactly how the equivocation between *de re* and *de dicto* might take place. In a *de dicto* belief the subject is asserting a proposition, while in our case he is thinking *of* something that *this something* has a particular property. This is a 'lurking indexicality' that is hidden sometimes in belief ascriptions and is indicated in (4') by (y). Burge's idea is that a free variable such as (y) corresponds rather naturally to a demonstrative element such as "this"; a feature that gets assigned a value depending on the context of the belief[149].

Burge proposes that something like the above is probably applicable to various cases (for instance most proper names) but he deems it more pertinent in cases of perception, such as our

[148] In some later works (e.g. 2003a, 2009) Burge uses the nomenclature '*de se* belief' to deal with some of the issues concerning me here. For him however *de se* belief is structurally similar to –and a subspecies of- *de re* belief - see ft. 60 of (2010); it is also a lot different than Lewis' *de se* belief analyzed in chapter 2. For this reason I will stick to the (1977) term for this dissertation.

[149] To clarify the terminology Burge uses and I will borrow for this chapter: the term 'indexicality' refers to thought and not just semantics. As such, it needs not correspond only to 'proper indexical terms' used in linguistic expressions. Sometimes the direct dependence of the thought content to the thought context is cashed out in language through 'proper indexicals' like 'I' and 'now'. Sometimes it is cashed out in terms of demonstratives like 'this person'[the one I am pointing to] or other expressions like 'to the left'. I argue later (4.2.4) that it can even be cashed out by tense, like S in class saying 'my class is starting' without using 'now'.

[ABDUCTION] case.[150] Here is how Burge's story might explain [ABDUCTION] in broad strokes. When I am looking at the Beverly Hills sign my perceptual representation has a raw content (L), with very primitive elements such as a collection of colors and textures representation and an egocentric spatial position representation which is the primitive analogue of the concept here. These representations inform an immediate *perceptual thought* derived from this perceptual content, which we could describe as (M) $\underline{\text{that}_1 \text{ is here}_1}$. M's content does not need to include any explicit *descriptive* depiction of my own location in reference to the Beverly Hills sign's location. L is non-conceptual, being the content of a perception. M simply adverts to this content, containing demonstrative elements that refer to the entities referred to by elements of the perception. Back to [ABDUCTION], since I know from Google Earth pictures that the only such sign is located in Beverly Hills I can entertain a thought like (N) $\underline{\text{that}_1 \text{ is in Beverly Hills}}$. I consequently am able to think (O): "Beverly Hills is here_1". And since I know that Beverly Hills is some miles south of my house, I can proceed to thought (h)[151] as required. In this description of [ABDUCTION], belief (h) could be (Br(S, <here>, ⌜2-miles-north-from(house, y_h)⌝).

My suggestion is that one could use such a formal representation to describe what is going on in the cases of *temporal* beliefs involved in [CLASS] and [ROOT CANAL], as they can be seen as cases of perception, this time in the temporal realm. Let's see how this might apply to [CLASS]. Suppose we have the agent S with a tensed belief like belief (n):

(n) that the class is starting now.

If we follow Burge, a formal representation of S's belief could very well be

(nB) (B_r(S, <now>, ⌜Starts-at(class, y_n)⌝).

[150] "*A de re belief is a belief whose correct ascription places the believer in an appropriate nonconceptual, contextual relation to objects the belief is about.[…]Perceptual contact […] illustrates the sort of element independent of semantical or conceptual application that is essential to the notion.*" Burge (1977: 346-7). Over the entire (1977) Burge indicates that temporal awareness has similar, if not the same, characteristics (see for instance p. 352). This line of thought is exactly what I need here, assuming for the moment that time is a *res* and can be treated in such a way. I analyze Burge's framework picture in 4.2.

[151] I should note here that I am not explicitly talking about justification or entitlement to belief (h) – or thought (O) for that matter. For this section I will be content in explaining how the belief arises in normal subjects and normal circumstances. Issues of entitlement and practical rationality are discussed in later sections (4.3.7, 4.4.2, possibly 4.5).

Here y_n is an indexical device pointing to a time exactly like y_h in (h) points to a location or y in (4') points to a man[152].

But this is not the only representation of (n) that could be true in the world. For instance when the *res* (the time involved in [CLASS]) is "10.30am" or exactly the time of thought (n), we could have representations

(nB*) (B_r(S, <time of S's belief (n)>, ⌜Starts-at(class, y)⌝),

which would correspond to a Reichenbach-like reflexivity account (see 3.3.1), or

(nB**) (B_r(S, <10.30am>, ⌜Starts-at(class, y)⌝),

which would correspond to a date-analysis account of tensed statements like Mellor (1981a).

In contrast, when S in [CLASS] has a belief such as the belief that

(n*) the class is starting at 10.30am

we could represent what S believes as

(n*B) (B_d(S, ⌜Starts-at(class, "10.30am")⌝).

Here B_d represents descriptive *de dicto* belief. The idea is that we could give a description of (n) that avoids mentioning A-notions. As per our B-theoretic wishes, we have such a description (one of either nB, nB* or nB**) that uses only B-notions. If in the [ABDUCTION] case of spatial perception (y_h) is an indexical that points in space, in this case it is an indexical that points in time. In all cases, it is just a placeholder to pick out the correct time, and it does not need to have an explicit *descriptive* sense associated with it. This does not mean that any term that refers to the same time can be used in reporting the belief. The thought still incorporates a perspective on the time. But that perspective is not a conceptualized description. It is a non-conceptual perceptual representation. The most important feature for this dissertation is that the analysis clearly differentiates between [CLASS] tensed belief (n) and non-tensed belief (n') without needing to posit A-facts or A-times. This means that we have at least a first foothold to show exactly how tensed beliefs differ from non-tensed beliefs in B-theoretic terms: the first are *de re* while the second are *de dicto*.

[152] I implore the reader to postpone questioning the exact nature of y_n (or y_h for that matter) until the deeper analysis of section 4.2.

However, the issue is not yet explained fully. It seems like the way we acquire a 'now' belief we would express with (nB) (B_r(S, <now>, ⌜Starts-at(class, y_n)⌝) is different somehow from the way we acquire the beliefs in cases (nB*) (B_r(S, <time of S's belief (n)>, ⌜Starts-at(class, y)⌝), or (nB**) (B_r(S, <10.30am>, ⌜Starts-at(class, y)⌝). In the latter cases, we also have demonstratives that point in time, but they may not have the same explanatory role. For instance (nB**) could describe a case where S points at a clock on the wall showing "10.30am" and believes that "the class starts at *that* time". In this case it is not necessary that he would start running; he might not realize that the class is starting *now* if he thinks that the clock is stopped. So the demonstrative involved in case (n) can only be accurately described by y_n in case (nB); only y_n will capture the required privileged perspective and thus have the precise action-explanatory role we are seeking. Burge's account shows some promise, but we have to show how we can distinguish between free variables with different explanatory roles.

A possible explanation of our cases could be formed by borrowing the concept of an 'egocentric index' from work in perception, vision, and self-knowledge. Theories in these areas postulate that humans and many other lower organisms have at least one spatial egocentric index in vision that has the perceiver as the origin of vision's spatial representational framework. Its function is to map perceived objects in spatial relation to the perceiver (for example, *to the left*). The index can be characterized as non-conceptual; there is actually evidence that lower animals utilize it[153]. If the index is usefully employed in explaining [ABDUCTION] (the 'here' thought arising from a perception instance) then we can posit the existence of a temporal index to explain [CLASS] and [ROOT CANAL]. In [ABDUCTION] the index points in space. In [CLASS] a different index points in time. Similarly to the spatial case in visual perception, the temporal index maps events in relation to the perceiver's temporal position (for example, *before* or *after*). Naturally, there is a big difference between indexical elements in perceptual contents on the one hand and full concepts on the other. But if the fully fledged 'here' concept is related to the spatial egocentric index, then the fully fledged

[153] Burge (2003a): An egocentric index for instance figures in memories of animals that cache food; even in perceptual representations of lower animals such as insects. There is actually evidence that such animals also retain in memory the time of the act of caching (Tulving 1983). Even if this does not provide any obvious proof of *our* having a similar non-conceptual index, the possibility of the two mechanisms sharing important characteristics seems quite a strong one to me. More on ECIs to follow in section 4.4.

'now' concept is related to the temporal egocentric index. We can spell out the similarity in the following way:

Spatial story: There is experimental evidence that suggests vision's egocentric index is related to actions in an instinctual manner. When a large object moves speedily toward the perceiver's position, the representation is immediately associated with motivation to get out of the way. It is a feature of our constitution that this happens in perception instances – occurring in lower organisms as well, and possibly established through evolution.

Temporal story: As we perceive things happening in close proximity to our bodies, we perceive things happening in close *temporal* proximity to our bodies. When a large object moves speedily toward the perceiver's position *at a time close enough* to the perceiver's temporal position, the representation is immediately associated with motivation to get out of the way. It is a feature of our constitution that this happens in perception.

This analogy between the spatial and temporal cases seems to me to capture an important similarity between 'now'-thoughts and 'here'-thoughts. It might be puzzling, however, to someone who does not share the same intuitions; someone who might try to argue that the temporal case differs significantly from the spatial case. Here is one way to form this claim: "It seems that objects (or events) at a spatial distance can still be perceived; but objects (or events) at a temporal distance cannot. An event that is sometime after or before now is not, it would seem, perceived. It is not clear, therefore, that a temporal index could be the same sort of thing as the spatial index".

I think that there are two ways to face this problem. First, it is not obvious that objects (or events) at a temporal distance cannot be observed by a perceiver. Every night we observe stars in the sky (things) or planets moving (events) that usually are at a considerable temporal distance from us. Indeed, it seems that any perception instance is at least in some minimal degree removed from the time of the events perceived. It is true that we are experiencing events as happening *at the same time as now*. But this is purely a phenomenological feature that need not apply to our physical constitution.

If this reply is not accepted, we can offer a modification of this theory (that may even be essential for alternative reasons). The modification would follow the idea that things in the world do not have separate spatial and temporal locations; they just have one kind of location: a *spatiotemporal* one. If this is true, then maybe we could reform this chapter's sketch and describe a unique **spatiotemporal index** that would explain cases involving both 'here' and 'now'. Since this needs some experimental data however, I am leaving it aside for the moment as only a promising possibility.

I am pretty confident that this analogy is a promising first step. However, in an intuitive way, cases such as [CLASS], [ROOT CANAL], and [ABDUCTION] do not involve such an instinctual action. Indeed, the beliefs I entertain seem to be results of some kind of deliberation. How can we accommodate this? What is the exact way the non-conceptual indexical y_n is related to the *conceptual* elements of a tensed belief? A first answer is the following:

The naïve view: A 'here' or 'now' thought incorporates a conceptual reflection on a non-conceptual perception instance.

For instance, my thought (L) in [ABDUCTION] is a very primitive conceptual reflection on the perceptual episode that occurred when I saw the Beverly Hills sign. The concept 'here' is a complex notion that is based on reflection on perceptual instances; instances that apply the s-index. In this way the s-index can be seen as the primitive nonconceptual base of the concept 'here'; what might be called 'the phylogenic ancestor' of the fully-fledged concept. Similarly, in temporal cases, the concept 'now' is a complex notion that is based on reflection on perceptual instances, which apply the temporal egocentric index. In this way the concept 'now' is the conceptual heir of the t-index.

Even if this analysis of tensed beliefs is still relatively raw, there is an obvious first objection that we should take care of. The source of the objection I have in mind is the strong connection I am attempting to draw between perceptual instances and tensed beliefs. One might object by doubting the existence of such a strong link, for instance, by imagining a subject with extreme deficiencies in perception having tensed beliefs. It might not be far-fetched to think of the following case:

[PINBALL WIZARD]: Tommy is raised in an insulated environment without any changes in conditions that would lead him to act in a timely manner. Consequently, he never develops a response mechanism to external stimuli; for instance he is never threatened by a large moving object so that he has to run away. Even if Tommy has an egocentric index, he never uses it in the manner required for forming tensed beliefs.

[PINBALL WIZARD] would go against the naïve view in the following direct manner: Tommy never has a perceptual thought incorporating the temporal egocentric index. As a consequence, and if the naïve theory is correct, Tommy will not possess the concept of the present or indeed any concept of tense (since tenses in this account are explained through the concept of the present). Not only will Tommy never be able to communicate with us, he will never be able to have any tensed beliefs. But this should not be a plausible result when we are discussing such a case, the objector would continue. What if Tommy is taught to use tensed verbs or the term 'now' in language by learning its *semantic* properties, for instance by learning that it always names the time of the utterance or that it has a fully spelled-out Kaplanian character? If this is possible, then Tommy could acquire tensed beliefs even though they would not be connected to his unused egocentric index. Hence, the analysis I gave of what it is for Tommy to have a tensed thought will be incorrect, and an analysis close to Kaplan's from chapter 3 would be more applicable.

I think that the correct response to this case would be to bite the bullet and accept that Tommy does not have any tensed beliefs and that he will never acquire them without perception instances that will token his 'now-ish' indexical element. However, it looks as though the bullet we are biting is entirely harmless. This could become obvious when we consider what it actually means for Tommy to never have *any* perception-based thoughts. Not only should Tommy be disconnected visually from his environment; he should be disconnected from any part of the external world and barred from any application of his senses. He cannot see his own limbs or hear any sounds or even have a response to any stimuli. In fact, we would have to suppose that Tommy lacks any propriocentric or kinesthetic perceptions. In addition, if introspection is a form of perception, we might be forced to even assume that he lacks any introspective experiences. Why would we insist in that case that Tommy would be

able to have *any* thought that could be reasonably characterized as a *belief*, much more a *tensed* belief?

What is more pertinent, the second part of the objector's case shall not concern us at all: Tommy can never be taught to use language as teaching requires a teacher and Tommy will never be able to hear or interact with her (or "him" or even "it" in the case of a Matrix-like computer program) in any way. For the case to prove the implausibility of my account it would need something like an extremely convoluted brain in a vat case[154]: Tommy would be a person who could form thoughts and beliefs and engage in rational thought without ever having any kind of veridical experience. But even in this extreme scenario Tommy's tensed beliefs can be explained by pointing to Tommy's *apparent* experiences. For instance, in a normal description of the brain in a vat case there is room for a lab-induced activation of his perception mechanism which could give us the elementary thoughts using y_n that we need. In the absence of such an activation however, I think that Tommy's deficiencies would be so radical that Tommy cannot be deemed able to perform any actions in an agentive way. If this is true Tommy cannot ever be involved in a case like [CLASS] that requires thought and corresponding agentive action; and this turn of events would immediately remove the main source of our troubles.

4.2 Framework Details

Many questions related to psychology and the connection of tensed belief to decision and action might arise from the first description of the account attempted in the previous section. I implore the reader to postpone asking them until section 4.4, as I first need to say a few words about the exact framework of the theory. First and foremost, what exactly is this peculiar *de re* belief category that we are discussing? Why is it applicable to tensed belief and how is this account better or even different than the ones I sketched out in chapters 2 and 3?

Since we need to give an account of the constitutive nature of a tensed belief and its explanatory role in acting in a timely manner, we are interested in psychological explanations. Burge's project of

[154] There might be some problems if a more extreme case is used, such as the Cartesian evil demon scenario. I will not deal with such a case here because, first, I find its conceivability very dubious, and second, because I believe that we can follow a similar strategy using *apparent* experiences against both the Cartesian case and the brain-in-a-vat case.

establishing anti-individualism as a way of *describing thought* seems therefore an ideal place to start. This project is:

> a view about the *natures* of representational mental states and events. 'Nature' is a relaxed, semi-technical term. The traditional term is 'essence'. ... Something's nature remains with it as other properties and relations come and go. […] Something's nature constitutes what it is, without which it could not be. Burge (2006a: 17)

Tensed beliefs by definition are beliefs, which I have assumed since chapter 1 are representational mental states (by representation here I just mean presenting a subject matter as being a certain way). Burge proposes to discover the *nature* of such a state by analyzing exactly the state's *representational content*,

> a structured abstraction that can be evaluated for truth or falsity, or for perceptual correctness or incorrectness. ... Representational content is not only evaluable for veridicality. It helps type-identify the mental state with that content. Or, to put it another way, it is part of the psychological kind that the associated mental state is an instance of. … Psychological kinds typed partly by representational content are cited in psychological explanations. (Burge 2006a: 19)

If tensed beliefs are psychological kinds as I assume, they are typed by representational content. So accounting for the nature of a tensed belief should bring out its representational content, and in this way explain what usually results from having a tensed belief.

In essence, Burge's project is to describe thought in such a way as to get a better grip on, among other things, psychological explanations. It is exactly what I have been looking for in this dissertation, directly answering my research question phrased in Chapter 1 as "the attempt to find a good account of the nature of a tensed belief to explain timely action". In the Burge project, differences in psychological explanatory role between beliefs point to differences in representational content, as this content is supposed to capture the main features of its causal (functional) role, such as (n)'s connection to timely action in [CLASS]. Describing these differences in representational content should give us the account we are looking for.

Note here that the account should go beyond just positing an additional content corresponding to the causal role of peculiar Prior case beliefs like (n) in [CLASS]. Ideally we will find a content that type-identifies *all* tensed beliefs, a representation that is there even if it does not connect causally to actions in an immediately obvious manner in every case. In this way we can avoid circularity

objections like the one I leveled against Perry in 3.2.4.6. It is not that we find a difference in causal role between some thoughts, proceed to posit a generic difference in those thoughts' truth conditions to correspond to the causal role, and call it a day. The enterprise is rather to explain what the relevant content *is* and how it produces the difference in causal role and truth-conditions when it does.

Our first task then is to identify the general differences in representational content between the *de re* belief category and *de dicto* belief. The description preferred by Burge (1977, 2006a and 2006b) posits two main characteristics of *de re* beliefs not shared by *de dicto* beliefs: *de re* beliefs are "relational" and "not completely conceptual". I proceed by analyzing both characteristics and arguing that they are applicable to the type of tensed belief examined so far in this dissertation, but not to the 'non-tensed' belief category. In the process we have to make sure that the Burgean framework accurately describes a tensed belief's truth conditions, the belief's possible connection to context, and its perspectival nature in representation – as required by the previous chapters.

4.2.1. *De re* belief is "not completely conceptual" and "perspectival".

Here are Burge's (2006b) comments in lieu of a definition of the *de re* belief category.

> An attitude is *de dicto* if it is completely conceptualized. An attitude is *de re* if it has a content that is not completely conceptualized (and, it should be added, ... succeeds in referring to a re). … Successfully applied demonstrative or indexical elements in a belief content are the hallmark of *de re* attitudes[155].

Specific perceptual thoughts like the ones mentioned in [ABDUCTION] are the paradigm cases for *de re* beliefs, since for Burge they advert to some non-conceptual content. They are specific applications of thought types to objects via *perceptions*, which carry non-conceptual (non-propositional) content discoverable in the form of veridicality conditions for the perception to be accurate[156]. But in the category of *de re* beliefs we can also put perceptual memories (since they also advert to content from perceptual thoughts), historical beliefs like (p) in [ROOT_CANAL], or self-ascriptions like (I) in

[155] Burge (2006b) p. 67-8.

[156] There is some debate on this exact matter (besides Burge see Campbell (1995), McDowell (1994b), Peacocke (2001b)). For this dissertation I will assume, with Burge, that animals with adequately developed perceptual systems, but not conceptual/propositional abilities, do have perceptions with non-conceptual content. If this is true, it seems that perceptions in humans can have similar non-conceptual content. A complicated inference to the best explanation then would support that perceptions in humans actually have non-conceptual content.

[MESS][157]. All of these cases are *not completely conceptual* because they always depend on a demonstrative/indexical element that points to the context in an immediate way, even if they also always include a non-primitive attributive element (for instance some concept like is a person in belief (I)). The formulations from (1977) and my 4.1 make this evident, as they depict the demonstrative/indexical element in the representational content by the free variables y,y_h and y_n.

In the spirit of a critical evaluation of the framework we should proceed by asking what exactly these free variables are (and more precisely what content they model). Some thinkers have interpreted them as free variables in traditional semantics. They have therefore interpreted the Burge position as the view that *de re* beliefs are open sentences, or 'gappy' sentences. Open sentences however cannot carry a definite truth value; at most they can be true or false of individuals or objects. This would mean that the representational content supposed to be modeled by the formulations cannot be true/false or even correct/incorrect; then we can *only* say that a particular *de re* belief is correct-as-regards-to an object 'filling the gap' of the sentence. Intuitively though we would all agree that (n) in [CLASS] or (I) in [MESS] can be true, and indeed **are** true in the context of the case (note that in 3.3.2 I used this fact as my argument against Oaklander's (1994) view that all tensed beliefs are false).

Burge's reply is that the representational contents formalized in 4.1 are not exactly 'gappy'. They are true or false *in a given context*, not just true or false of specific res.

> In actual *de re* beliefs the free variables, the formal counterparts of demonstratives and indexicals, are contextually applied, or 'assigned', to an object by the believer. (Burge 2006a: 22)

This *application* or *assigning* is actually part of the full representational content of an actual *de re* belief had by the subject; the idea was phrased in Burge (1977) as the view that *de re* beliefs represent *applied* demonstratives. In indexical beliefs these applications are the non-conceptual elements in the beliefs' representational contents. So indeed beliefs are true or false, and so are *de re* beliefs (and so are tensed beliefs). They contain the demonstrative or indexical type y (an element with some cognitive content that could be conceptual) *and* its contextual application in the representational content which is non-conceptual. Beliefs usually expressed by indexicals in language are paradigmatic

[157] Indexicals in general, and particularly proper indexicals, are a big motive of the Burge project (see Burge (2009), Baker & Wald (1979)).

in this sense, as they indicate the context involved by way of the constant relation of the indexical term to the context. In this way they *are* indexical modes of thinking. Tensed belief is one such mode, as indicated by our working definition (DF)[158]. Additionally, the belief's truth conditions are the correctness conditions of this entire representational content. For instance in the paradigm context of [CLASS], (n) is true iff the class is starting at the time assigned to the variable y_n, which in this case is the time at which the thought occurs. In the general case the context 'enters' the content of a *de re* belief to pick out the *res*, as without it we would only have generic modes of presentation, resembling gappy sentences without definite truth value. In a strict sense, all this means that if we need to describe the full representational content of an actual (tokened) *de re* belief [like (n) in, say, 12/12/10, 10:30am] we would need to mention the exact context involved. But in a general description schema of (n)-type beliefs the y_n element can be an adequate shorthand depicting the content and context. An important question for this dissertation of course is how this actually happens for tensed beliefs through the egocentric indexes mentioned in 4.1 - I return to this issue in section 4.4.

Examining these demonstrative/ indexical parts of the representation content of a *de re* belief reveals an additional detail that will help explain tensed belief:

> Individuals cannot think (or perceive) objects neat. They must think of them from a perspective – 'intentionally' or representationally.[159]

For Burge all *de re* beliefs proceed by way of an element (y) in the belief's representational content. This y in every formalization of a *de re* belief is not just a formal trick or indeed a 'gap' – it points to the way the res is presented to the subject. In tensed belief the special (y) I termed y_n is the elusive 'private perspective' that I indicated in Chapter 2 is essential in describing tensed beliefs, the 'nowish' indexical element missing from a Lewisian account of tensed belief. So the account of tensed belief we have can be called 'Fregean', but only in the sense that there is a non-descriptive mode of presentation, indicated with y_n in (n), that represents a referent – here the time.

[158] From 1.3: (DF) "a tensed belief is one the believer could and would normally express by using a temporal indexical".
[159] Burge (2006b: 77)

To bring this chapter's account into full view: tensed beliefs are not completely conceptual because their content includes the now-ish indexical component y_n , the privileged perspective connected to context and experience. The element is tied somehow to the indexical term 'now' used in expressions of tensed beliefs. There is an irreducible occurrence-based, non-conceptual element in tensed thought (which I have called in 4.1 an application of a temporal egocentric index) as required to be in the *de re* belief category. Non-tensed beliefs, on the other hand, do not have that element. The representational content of beliefs like (n*) do not include a demonstrative/indexical element. Their truth-conditions do not mention the notion of an element applied in a context. In fact, the temporal context does not enter into the content of the belief at all. Non-tensed beliefs like (n*) are completely conceptualized, therefore *de dicto*. The content of (n*) represents the time of the class in the descriptive non-contextual way in which (I*) represents the object Vasilis.

Note here that *de re* belief, and hence tensed belief, *on the whole* cannot be described as non-conceptual in this sense. There are many conceptual elements even inside the formulations of 4.1 – for instance the application of the general concept class to the particular class in question which I used in formulation (nB). So the view does not posit that animals can have *de re* beliefs or even tensed beliefs. They probably cannot, since they lack some of the conceptual apparatus usually encountered in a *de re* belief[160].

4.2.3. *De re* belief is relational.

If our tensed beliefs are *de re* beliefs á la Burge, they should exhibit the second basic characteristic of *de re* beliefs, their relational nature: "[in *de re* beliefs] the believer has a contextual, non-conceptual relation to the object of his belief"[161]. In the paradigmatic cases of perceptual beliefs, the believer is in a 'direct' way related to the object of his belief. By virtue of our perceptions we are 'en rapport' to our

[160] I did not mention here an additional requirement of *de re* belief. It is that when beliefs fail to refer they cannot be *de re*. Burge for instance nominates demonstrative thoughts in illusion cases (where no res actually exists) as not *de re*. His general comment is that most o the times reference failure indicates some failure of a de dicto belief (fictional names or gappy propositions). This is not a problem in our case because tensed beliefs do not fail to refer to temporal re's, since the indexical 'now' never fails to refer, exactly like 'I' never fails to refer. It is tied to the time of the context which every belief token will have.

[161] Burge (1977: 346).

spatial locations and objects in our environment every time we have a perceptual belief. In the cases of *de re* 'here'-like beliefs – beliefs about our own spatial locations- the res is involved in the *de re* belief, not by some conceptual description of its features, but because it features in direct non-conceptual perceptions. Perceptions then constitute the relation we hold towards the objects in our environment that the *de re* beliefs are about. And this relation is contextual and non-conceptual: it depends largely on causal relations between the perceptual system and certain environmental entities. I assume here that spatial locations are *re's* and that *de re* 'here'-beliefs like (h) are uncontroversially about them.

But if we have a relation to spatial locations based on perceptions, it seems unproblematic to have similar relations to temporal locations as well. Perceptions occur in space and at a time; the perceptual systems are related to the space they function to represent as much as they are related to the time they function to represent. My personal view is that perceptions carry temporal information as much as they carry spatial information (I elaborate on this in 4.4.1 below), but this is not essential in the present point. All that is required is that we be en rapport with the time of our perceptions. Then tensed beliefs are relational in the sense that they relate the believer to his temporal location, exactly like 'here'-beliefs relate the believer to his spatial location (I assume again here that temporal locations are times, hence particulars). The relation is 'direct' (contextual, non-conceptual) because it is based on perceptions happening at the relevant spatial and temporal locations. It encodes the believer's relation to the environment as much as its spatial analogue does. If the reader feels that a more detailed description of the nature of the relation is needed, he could consult my comments about egocentric indexes (ECIs) in 4.4.1.

4.2.4. On tenses

While discussing the account of tensed belief I extrapolated from Kaplan in 3.1.2.1 I mentioned a question arising when we remove the term "now" from the description of belief (n) in [CLASS]. Belief (n) could be expressed without an explicit indexical by, for instance, the subject uttering (S*) "the class is starting". When we have tensed beliefs not explicitly using indexical singular terms in

their expressions, can we still say that they are *de re* in the Burge sense? As in 3.1.2.1, the reply is that the expressions of beliefs should not really matter, since we are aiming for a description of thought and not the language expressing it. More to the point, it is not far-fetched to posit that any present tense-expressed belief's representational content *usually* includes an indexical element like y_n. My current belief that it is cold for instance depends as much to the context (here: the time) of my situation as my belief that it is now cold. The present tense represents said time in an indexical manner similar (in thought) to now. In normal cases both beliefs also have the same psychological significance. I think that they normally have the same representational content. So even if the subject utters (S*) in (n), her belief should still be modeled as (nB) (B_r(S, <now>, ⌜Starts-at(class, y_n)⌝). Now-beliefs can be expressed in different ways; and indeed *are* expressed in different ways when the subjects speak a different language.

Of course, this does not at all entail that the *meaning* of a tensed statement is always equivalent to the meaning of a statement that explicitly uses indexicals accompanying the tense. Let's see the examples of 3.2.1.2 where I mentioned that this is definitely not true:

(1) (Love*): 'In 2005 you will hug the one you **love**' vs.

(Love) 'In 2015 you will hug the one you **now love**'

(2) (Sitting*) 'Tomorrow you will realize that **David is sitting**' vs.

(Sitting) 'Tomorrow you will realize that **David is now sitting**'

(3) (Ars*) 'Arsenal **are dominating** the game' [pointing to a video of the 2007 FA Cup final] vs.

(Ars) 'Arsenal **are dominating** the game' [now]

With respect to the bold portions of the statements, a belief usually expressed with (Love), (Sitting) or (Ars) is indexical, and its representational content includes a y_n that points to the time of the context of utterance (or thought). On the other hand, a belief usually expressed with the *-marked statements is not indexical with respect to the bold portions, as it does not point to the time of the context of

utterance (or thought)[162]. The former beliefs then are now-beliefs while the latter are not. So the existence of a present tense in a belief's expression does not commit us to characterizing it as a now-belief; it is only the existence of y_n in the belief's representational content that does. This is why, back in the [CLASS] case, the existence of the indexical element (y_n) was stated as the clear difference between (n) and (n*). Even if the subject in both cases uses a present tense and no indexicals in expressing the beliefs, (n) is *de re* and (n*) is *de dicto*.

I think that we can still say that *normally* the use of tenses indicates indexical *de re* beliefs, as tenses *normally* encode the private temporal perspective, exactly like the indexical now does. But natural language is not tenseless, so the non-tensed belief (n*) cannot be expressed in a natural language tenselessly. Natural language also uses tenses in a variety of ways, e.g. to encode temporal discourse anaphora in the case of (Ars*) or aspect in the case of mixed tenses. The moral of the story, as in 1.3 and 3.1.2.1, should be that describing the nature of tensed beliefs should remain at the level of belief. On the other hand, this does not mean that the question of how the indexical thought elements are **normally encoded** by tenses in language is not a valid question for investigation. The story would have to be more complicated than what this dissertation needs or can provide; but I think that a good start is taken up in 4.4.2, where I discuss the relation of demonstrative/indexical elements to the human concepts of past, present and the future.

4.3 Virtues of a tensed belief theory based on Burge's framework

I hope that the previous comments have shed some more light on the framework details of the account proposed. However, they might not be conclusive, in the sense that I still have not made explicit how the account differs from the competing frameworks described in chapters 2 and 3. In fact, the accounts of Lewis, Perry, Kaplan, and Recanati seem to be similarly open to describing tensed beliefs as relational *de re* beliefs. Lewis has the directness to the re, while Kaplan and Perry point to special

[162] These beliefs are not indexical even if they might *refer* to other indexical beliefs. For instance (2*)'s truth conditions refer to an indexical thought the hearer will have tomorrow and might possibly express by saying "David is now sitting". If the hearer does not have such a thought tomorrow, then my belief (Sitting*) is false. However, it is controversial that this makes the *latter* belief indexical. In addition, it might be an accident of the case, since (Love*) does not necessarily involve any explicit indexical belief on the hearer's part.

(indexical) modes of presentation – which *in essence* is what our account does too. Note however that a very important methodological requirement for this dissertation is Requirement 11 – to explain how and what the belief *represents*. No account but Perry's abides by this requirement; and Perry's attempt is incomplete, as the discussion on cognitive buffers is vague and too general. This section shows both the similarities and the differences between this chapter's account and the previous ones by checking how the new framework and theory fares concerning the requirements outlined.[163] The primary aim is to establish that my account abides by all the requirements, so it is a good account of the nature of tensed beliefs.

4.3.1. Definition:

The theory should be consistent with my Chapter 1 characterization of a tensed belief, as (DF): one the believer could and would normally express by using a temporal indexical.

Reply: like Perry, this chapter's account takes indexicality seriously and can explain the connection between tensed belief and the temporal indexicals in statements usually expressing them. So the account is consistent with (DF).

4.3.3. Tenseless Facts and Properties:

The account should use only tenseless (B-theoretic) facts and properties. A-facts or A-properties should not be treated as fundamental.

Reply: as shown in 4.1, the account does not use A-facts or A-properties in any step of the explanation. So it is not metaphysically committed to their existence, and could be taken up by a B-theorist about time.

4.3.4. Untranslatability:

[163] I actually believe that the Burge project might not be incompatible with the Perry or self-ascription frameworks (though it looks at the outset incompatible with the theory I have extrapolated from Kaplan in 3.2), as it just moves the analysis in a different direction. I leave this option as intriguing for further research, but I do not need to prove their compatibility here so I will not attempt to do it. I also believe that the account can be combined with an account such as Salmon (2003) or King (2003) as far as the semantics of attitude ascriptions or linguistically tensed statements go. Indeed I think it *should*, as these two accounts seem to me the best options for doing semantics of tenses. The proviso always is to not use these theories as the last word on cognitive significance or psychological explanations.

The account should not be sentence-relative or utterance-relative (as a subject might not utter anything and still have a tensed belief). Translatability or meaning equivalence claims should therefore be avoided.

Reply: the account abides by the requirement by dispensing altogether with a need for translatability or linguistic meaning equivalence. As explicitly stated in 4.2.4 the subject could express a tensed belief by using a variety of non-equivalent linguistic expressions. It is only what is in the belief's representational content that defines tensed belief.

4.3.4a. Cross-linguistic Variation:

The account should not just rely on explaining the *verb mechanism* utilized in linguistic expressions of the belief in English, as the explanation of tensed belief should not be tied to a particular language. In essence we are looking for an account of what it is to believe or think in a tensed way, not just to state something using verbal tenses.

Reply: since the descriptions of tensed beliefs in 4.1 are tied to perception and non-conceptual indexes, not to linguistic processes, cross-linguistic variation is at least probable. As a feature of a perceptual system, the temporal egocentric index modeled by y_n should exist in any speaker who is – or has been in the past- a perceiver. Some parts of tensed beliefs are of course not perceptual, so they can be more closely tied to language – for instance the attributive conceptual parts involved in (nB). But the y_n element is what makes a tensed belief tensed, so any perceiver thinking through y_n can have tensed beliefs. To argue that the account does not abide by Requirement 4a, one would need something like an extreme Whorfian hypothesis: individuals' thinking differs across linguistic communities due to the different representational systems provided by different linguistic structures. For tense this would mean that subjects may not have tensed beliefs exactly because they do not have language structures to capture the present/past/future distinction (note here that this is exactly what Whorf (1956) had argued about the speakers of the 'tenseless' Hopi language). In general however

this hypothesis is widely discredited[164]. In particular, it is implausible if we model the tensed belief's representational content by referring to perceptual structures rather than linguistic structures.

4.3.5. Non-descriptivism:

Perry's work on the essential indexical dictates the avoidance of a particular type of descriptivism.

Reply: the account is by definition non-descriptive. It might posit distinct representations or modes of presentation to explain tensed belief, but these secure their referents through contextual, non-conceptual mechanisms, not by descriptively specifying those referents. The anti-individualistic strains of the account (4.2.3) make this more evident, as descriptive accounts cannot but *be* individualistic.

4.3.6. Uncontroversial 'here'-Belief Contents:

The account should not posit foundational 'here' semantic values as belief objects in our theory. For instance a 'here'-proposition that changes truth-value according to the location of the context should not be *the* content of my belief that it is raining [here].

Reply: my belief (R) that it is raining here could be modeled by the Burgean *de re* framework as the *de re* belief (RB): (B_r(S, <here>, ⌜Raining (y_h)⌝). As mentioned in 4.1, (y_h) is related to a spatial egocentric index occurring in a perceptual system. The here–like element is just one part of the representational vehicle, not 'what is expressed' by the belief. Hence it cannot be the sole 'belief object' of (R). The account implies that there are no 'here' propositions playing the role of the belief objects either, as they are nowhere to be found in (RB) above.

4.3.8. Proposition Neutrality:

The account should allow eternal propositions as the bearers of truth-value.

Reply: the account does allow fully conceptual eternal propositions carrying truth values. In one sense of course the account dispenses with eternal propositions as having any basic role to play during a tensed belief episode. Notice however that if my comments on tenses (4.2.4) are valid, there can be no such thing as *tensed* propositions to be believed, exactly like in Requirement 6 above there are no

[164] Even if developmental psychology has shown that language particulars probably do constrain some (cognitive) learning processes (Hickmann, 2003:34), Whorf-like results are always restricted to developmental & acquisition handicaps, not cognitive deficits in a normally functioning adult.

'here'-propositions to be believed. So *eternal* propositions become, by default, the bearers of truth-value for *de dicto*, non-tensed beliefs, such as belief (n*) that the class starts at 10:30am.

4.3.9. Level of Thought:

The account should explain the difference in resulting behavior between tensed and tenseless beliefs with some difference in the level of belief.

(9a-Non-randomness)

the difference should not be a random fact specific to the description of the case

(9b-Awareness Ability) the subject should be somehow aware of the difference (he should be able to 'think' or 'grasp' or 'be attuned to' it) – or just *be able to* become aware of it. For instance a mere difference in physical realization of the two beliefs will not do.

Reply: By now it should be clear that the account avoids language in describing the nature of a tensed belief; so it clearly remains at the level of belief (Req. 9). The difference between *de re* belief and *de dicto* belief is not a random fact of the described cases, since all cases of tensed belief involve the privileged temporal perspective modeled as y_n in the belief's representational content (Req. 9a). Moreover, precisely because the difference is *in* the representational content, the awareness ability (Req. 9b) is secured. Representational contents are always representations *to* a subject, so the subject should be able to at least be attuned to the differences between tensed belief representations and non-tensed belief ones.

4.3.10. Time Representation:

We need some representation of temporal information in thought to explain timely action.

Reply: this requirement was stated as the element missing from -or incompletely explained by- the Lewis and Mellor accounts in sections 1.8 and 2.4.2. In essence both accounts were just positing short-hands for successful temporal representations. Mellor for instance denies any need to talk about representations by (possibly inconsistently) saying that timely action caused by a tensed belief is (i) a biological feature of human organisms (Mellor 1998b) and/or (ii) secured by the time of tensed belief tokens being the same as the time of the action tokens (Mellor 1991 and 1998a). Neither explanation captures or even models the private perpective involved in a tensed belief. The first relegates the

explanation of timely action to biological functions and the latter to causation-explanations; hence they are both non-psychological, non-representational explanations[165]. My account differs in that the representational content and its veridicality conditions are explicitly pictured. If correct, they bring us closer to understanding *why* timely actions happen and why they seem rational to the subject. Abiding by Requirement 10 is the main difference of my account from the chapter 2 accounts, as well as 3.3.1 and 3.3.2.

4.3.11: Perception Priority:

The ideal account should give priority to temporal information gained in an immediate way from the environment akin to the spatial information gained in instances of perception (when I see a tiger running at me my perceptual representation is immediately associated with the timely action of fleeing).

Reply: the comments from 4.1 about the similarity between spatial and temporal egocentric indexes and their existence in perceptions are the way to account for this requirement. The action of *fleeing a tiger on time* cannot be explained by the 'hyper-intellectualized' accounts of chapter 3 (see 3.4 for a summary of this point). The action is not a result of any conceptual processing, such as reflecting on properties of belief tokens á la Mellor, or on 'the time of this thought' á la Higginbotham, or characters of indexicals á la Kaplan. This fact is only adequately explained by this chapter's account's focus on ECIs – see also 4.4.1 below on this point. On pain of repetition, I have to note here that immediate timely actions such as the one described are all-pervasive and absolutely crucial for a living organism. Humans use them while playing sports or music, driving a car, or while producing speech; lower organisms for basic survival.

[165] If one interprets Mellor (1998a) as the individual **acknowledging** the time of the belief tokens in thought, the account is in a sense representational; but then the representation has no explanatory role in causing the action. This is because the action has already happened before (or is happening at the same time as) the representation/acknowledgment of the belief token's time properties.

4.3.12: Richard Immunity:

The account should be able to cleanly handle the set of Richard-inspired counterexamples posed in section 3.1.4, 3.2.4 and 3.3.4.

Reply: initially, it looks like the counterexamples posed against the theories I have extrapolated from Kaplan's view are avoided simply because there is no conceptual 'character' or 'buffer' involved. Hence we cannot drive conceptual wedges between grasping the appropriate character and actually having the required tensed belief, as happens with Maria the 'precognitive experiencer'. In my account the (successful) application of the demonstrative/indexical element y_n seen in 4.1 and 4.2.1 is part of the tensed belief's representational content. So whenever a subject's belief satisfies the anti-individualist conditions of having a tensed belief, the subject *will* have a tensed belief. Misapplications of temporal demonstrative elements (when possible) on the other hand could be just reference failures of *de dicto*, hence non-tensed, beliefs. Abiding with Requirement 12 and Requirement 11 (see 4.3.11 above) is the difference between the accounts of chapter 3 and this chapter's account.

4.3.2. Uncontroversial Simple Contents:

The theory should be able to *at least* give the content of a simple present belief, let's say belief

(Pr) that Obama is president,

as well as simple past belief (Pr_p) that W. was president,

and future belief (Pr_f) that Jeb Bush will be president

Reply: on a first level, the beliefs can be modeled as

(PrB) (B_r(S, <now>, ⌜President (Obama, y_n)⌝),

(Pr_pB) (B_r(S, <now>, ⌜President (W., before y_n)⌝), and

(Pr_fB) (B_r(S, <now>, ⌜President (Jeb Bush, after y_n)⌝).

As I described such models in 4.1 and 4.2, they point to beliefs that are all: (i) connected to the now indexical element (y_n), (ii) *de re*, and (iii) tensed beliefs. Burge for instance calls Pr_pB a 'historical *de re*' belief. A proviso here is that to 'analyze' their full representational content one has to analyze

specific tokens of each belief to include their context – the formulations above are just schemas for the belief type.

One might wonder at this point what the difference would be between (Pr_fB) and (Pr_fB) above and possible alternative formulations

(Pr_pB') (B_r(S, <**past**>, ⌜President (W., y_p)⌝) and

(Pr_fB') (B_r(S, <**future**>, ⌜President (Jeb Bush, y_f)⌝).

If these formulations capture the same belief types as (Pr_pB) and (Pr_fB), are the concepts of <u>past</u> or <u>future</u> constitutively connected to <u>now</u>? I think that they are, and some comments on how this is secured appear in section 4.4.2 below. But I think that a full answer is not necessary for the success of my account, as I can insist that the first formulations adequately capture the belief's representational content.

4.3.7. Decision Rationality:

The account should count instances of timely decisions as rational.

<u>Reply.</u>

The short answer to this requirement is the one I gave in 4.1: egocentric indexes are connected to timely action in the perceptual system level. Their heirs like the indexical element y_n retain the connection, so the tensed belief is systematically and successfully connected to timely action. But questions might remain. First and foremost: how is this actually done? And, subsequently, how does it secure *rationality*?

The first question is taken up in the next section. But if we assume a good reply to it can be given, the distance to rationality may not be that far, since all our cases involve a decision *to act*. We are thus talking about *practical rationality*, which involves systematic connections of perceptions to successful actions. I believe that my account can secure practical rationality through the story given at the end of 4.4.1[166]. Actually, if my 4.3.11 comments on the Perception Priority Requirement are correct, this account fares better overall in the issue of practical rationality than the previous accounts that were

[166] The sketch of the explanation is that perceptual beliefs, memories of them, intentions to act, and proprioceptional and perceptual thoughts tracking the outcome of the action are matched in the psychology of the agent to secure successful action through exactly the application of the primitive perspectival index I have been describing.

leaving many perception cases unexplained. It is of course true that a part of explaining the practical rationality in cases like [CLASS] would be to evaluate the *epistemic* rationality of the first tensed thought (n) that forms the basis for making the decision to act in a timely manner. This raises issues of epistemic warrant that a more complete account of tensed belief should be able to adequately resolve. Since the tensed beliefs are very primitive, this would probably have to be done by a kind of *entitlement* in the Burge (2003b) sense. Length considerations necessitate that I not delve into such a complicated story at this point. I can note however that the issue is not peculiar to my account of tensed beliefs, as it is faced with *any* account that deals with non-conceptual contents, and *any* beliefs that depend on them.

4.4. From perception of time to thoughts, actions and concepts

So far we have an adequate framework that abides by most of the requirements for a good account of tensed belief we have outlined in the previous chapters. But in order to empirically support our description of tensed belief episodes and avoid criticisms of the theory as 'magical' (in the way I criticized the attempts of chapters 2 and 3[167]) we have to enter into the territory of human psychology and cognition to discover the exact role of the temporal egocentric index mentioned in 4.1. How and why is it constantly related to agency, and how does it connect to other fully conceptual beliefs? Section 4.4.1 takes up 4.1's 'naïve theory' by bringing to bear some psychological work on egocentric indexes and temporal information obtained through perception with a view to establishing their connection to the 'now-ish' indexical element in representation. In 4.4.2 I make a first attempt in discussing how these indexical elements might be related to specific concepts, like the concepts encoded by tenses in a natural language.

4.4.1 Perception of Time

For the account to be a good explanation it is important to first analyze the primitive temporal elements in perceptions that I postulated enter into the representational content of a tensed belief. The

[167] This dissertation's sections 2.4.2, 3.1.4.2, 3.2.4.2.

study of perception has shown that there are such primitive elements that represent spatial locations and objects in space. But are there such primitive elements that represent *time*? One could outright reject this claim by taking up at least two theoretical positions.

The first position I have in mind is positing that thinking about time does not involve any primitive perceptual elements, as the concept now or the present can be defined in terms of the concept when I am. On this account one cannot have temporal experiences *before* some conceptual processing has occurred. Whatever information one gets from experience will be modified, at least by the concept of the present. In essence the *individual*, not a perceptual system, will temporally organize his experiences as occurring when he is. Let us call this view 'conceptualism'.

I think that conceptualism is a perfect example of over-intellectualizing what happens in experience. It would be akin to positing that a subject can have 'here' thoughts only after learning that the concept here is the concept where I am. I take it that Evans has adequately discredited this view:

> it is not the case that we first have a clear conception of which material object in the world we are ... and then go on to form a conception of what it is for us to be located at a particular place. It is true that "p = here" is the same thought as "I am at p"; but this does not mean that I identify here as where I am. (Evans 1982:153).

Evans in essence cautions us against positing the conceptual priority of the 'I' concept to the 'here' concept. It might be that the concept I is constitutively connected to being a person, or being the subject of feelings, or even just being a material object. Moreover, for the subject to think where I am thoughts, he has to have a concept of what being at a certain place is. All this sounds implausible for 'here' thoughts accurately describing perceptual thoughts and actions.

I think that for the temporal case an extension of his argument is even more obvious. Tensed thoughts are no more developmentally complex than perceptual thoughts. It would be implausible to think that one needs to have, not only full I-thoughts, but also being at a certain time thoughts to have thoughts about temporal happenings. For instance, when I hear two sounds in succession I can think that one *was* before the other, without having a concept of being a person or what a time point is. The 'conceptualist' view is also empirically unsupported if taken as the picture of how concepts actually arise in a subject's psychology. Developmental psychology literature shows that children do not have

a concept of the time around them until very late in development[168]; but they start using present tenses correctly to describe their perceptions very early (see 4.4.1.4 below). This does not prove that very young children actually have present-tensed thoughts, but it does put the burden of proof on the conceptualist to explain what kind of thoughts they have that are so different from adult present-tensed thoughts, while seemingly having the same role in action and communication.

The 'second intuitive position', perhaps compatible with the first, would be one that posits perception as giving us only instantaneous properties, in a sense snapshot-like perceptual data. Then, higher reasoning processes attributable to the *individual*, rather than the perceptual system, extrapolate temporal properties from this stationary data. It might be a stretch to call this view 'intuitive', but it has been a way often used to account for the experience of *motion*. Its intuitive force rests on an analogy with watching a movie: a movie consists of thousands of still pictures which, when watched in quick succession, produce the illusion of motion. Maybe perception works in that way too. It gives us stationary data about an object's spatial positions and we extrapolate motion or other temporal information through reasoning. In essence, on this view, we never immediately 'perceive' any temporal properties.

It is hard to evaluate such a position through a priori arguments without giving enough details of the specific philosophy of mind supporting it[169]. But we can make empirical arguments against such a view by noticing that a basic deficiency of any such theory is that it is, by definition, "hyper-intellectualized". If there is a higher cognitive process doing all the work needed to extrapolate temporal information from a series of perceptual stationary data, non-human organisms should only perceive those stationary data and not motion – but this sounds extremely implausible. Considering the movie analogy should give us some pause as well. It seems that even in watching a movie humans (and perhaps animals too) immediately perceive the images as moving. We can remember a stationary perception as stationary when we have one – but it seems that we can never remember one frame of

[168] Hickman (2003) puts this at about 6 yrs old.

[169] Locke and Husserl can be seen as arguing for such a view. Locke talks about tracking time through tracking inner representations. Phenomenologists sometimes say that we can only perceive what is *momentarily present* in experience. For them there is no representation of this present-ness either, bringing the account extremely close to Prior, Lewis & Mellor's views described in chapter 2. Mellor (1981a) & Falk (2003) have a similar view. There is no space here to go into the details of any of these theories, except the Mellor (1981a) theory for the perception of temporal order, discussed in section 4.4.1.2.

the movie as stationary after, or while, watching a movie. So if there are stationary pictures as data in some sub-section of the visual system, the output to any conceptual reasoning process already includes a motion representation.[170] Moreover, even if such a view is correct in describing the experience of motion, we do seem to perceive *temporal order* in a fairly immediate manner (see 4.4.1.2 below). Finally, movie analogies do not seem to apply to auditory stimuli that are always perceived as extended in time. But auditory stimuli are unquestionably parts of perceptions. So it is not at all clear how the snapshot idea can be applied to auditory perception. I conclude that the 'second intuitive position' is at least empirically inadequate to establish that there are no primitive temporal elements in perceptions.

I believe that humans actually perceive time, as they perceive space and objects *in* space-time. I cannot of course anticipate any theory that defends the opposite; but what I can do is look at what current science tells us about the matter. I believe that a foray into the psychological literature can give empirical support for my overall account of tensed beliefs by identifying primitive (sub-personal) temporal representational elements in the following cognitive areas: perceiving motion, perceiving temporal properties such as order, cycles or intervals, temporal frameworks (ECIs) operative in perception in general, and memory's role in storing/transforming information gathered by perception. I go into the details below.

4.4.1.1. Durations, Cycles and Intervals

Recent literature on the perception of temporal properties has shown the existence of sub-personal mechanisms or even separate modules[171] keeping track of various temporal information such as time

[170] Several cases of 'akinetopsia'or 'motion blindness' might be given as proof that at some stage of vision we do perceive moving objects as stationary. Subjects with akinetopsia describe perceiving only stationary data and not motion. As subject LD in the most famous case (Zihl et al, 1983) describes it: "people were suddenly here or there but I have not seen them moving". However, akinetopsia cases cannot support a 'second intuitive' view like I explained it, as they are seen as deficiencies of the perceptual system itself, not some 'reasoning' higher cognitive capacity deriving temporal information from stationary data.

[171] Trying to minimize philosophical assumptions when examining results of science is always a tricky matter. In psychology, for instance, current research supports *modularist* approaches in describing human psychological capacities. According to such approaches, human capacities are largely independent of each other, each forming a self-contained module (Hickmann (2003:31-32); Fodor (1983); Chomsky (1984)). Modules can be sub-personal, in the sense that they do not wholly belong to –or cannot be consciously controlled by- the individual. Holistic views sometimes disagree by stating that all modules are inter-related, and human behavior belongs to complex networks. There is some support for such a view in the developmental psychology literature. I think however that this support is not conclusive. For instance, language and

intervals and durations. Indeed there seems to be many of them, each involved in different kinds of time tracking, that are connected to each other and to final temporal judgments accessible to the individuals' psychology. Some of them can be called "internal clocks" or "counters", as they directly measure temporal intervals, durations and cycles. The mechanisms do not belong to the individual in the sense that their activities are not regulated, and they are not consciously accessible by the individual. They have also been shown to exist in lower animals without conceptual capabilities[172].

The most often-cited such mechanism is a circadian oscillator tracking 12- or 24-hour cycles by being set and reset as the environment changes, through the organism's ability to sense external light and the absence of it – a mechanism clearly mapped for instance in the *Drosophila* nervous system (Hoerl & McCormack 2001). Mammalian bodies have many more circadian oscillators responsive to different environmental cues (Eagleman et al. 2005). But circadian oscillators are not the only neural mechanisms mediating temporal judgments. Temporal feedback models coordinating oscillators have been proposed at higher (but still non-conceptual) levels[173]. A general sense of how much objective time has passed can also be the product of subpersonal mechanisms independent of oscillators. Tse et al. (2004) have proposed the existence of an internal "central timing" mechanism counting elapsed time by calculating "the approximate constant rate of the brain's own information processing" as the only way to account for experiences of time 'slowing down'. Buonomano & Merzenich (2002) have shown that in short intervals the neural networks themselves 'remember' the rate of network changes. For them this shows that "time is encoded as a temporal object in a high-dimensional network state"[174].

All of these views support the idea that some time information is encoded in the organism by very primitive mechanisms. These regulate timing, hence are connected with immediate actions in the

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cognition are undoubtedly inter-related during development, but can and probably do evolve toward modular systems in a fully functioning adult.

[172] Space considerations necessitate that I just mention here without discussion Hoerl & McCormack's (2001:11-12) review of the literature. Examples include bees returning to a certain location every day at the same time (*phase sense*), and experiments where the animal counts elapsed time and exhibits "something like the ability to measure intervals of time and to store representations of such intervals in memory" (*interval sense*).

[173] Grondin (2001) pictures four such models ('clock', 'scalar timing', 'multiple clock' & 'dynamic attending' models) experimentally being tested at the moment – at least one of them comes from animal timing research.

[174] Eagleman (2005), p. 10370

way I have explained in 4.3.11(Perception Priority) and other sections. Timing regulators can be classified as perceptual components because they are related to the environment in an immediate way (oscillators or neural memories are causally triggered by external factors), they inform temporal judgments, and they can be inaccurate. Mechanism timing errors (distortions) range from the simple (jetlag effects are partly blamed to recalibrations of circadian oscillators) to the extremely complex: aphasia, dyslexia, Parkinson's Disease, as well as certain types of schizophrenia have been shown to involve deficits of time perception (Eagleman (2005); Efron (1963); Davalos et al., (2003)).

When the outputs of these mechanisms directly inform temporal judgments about the world (e.g. judging if a 24-hour cycle has passed or if the traffic light in front of me is about to turn green), they can be modeled as being part of the basis for a judgment. A representation occurring within such a system can be taken up by the (y) element in a belief's representational content, as construed in a Burgean account. The fact that they reside in sub-personal levels and are immediately related to the environment also supports an anti-individualistic description of the belief incorporating them.

4.4.1.2. Temporal Order and Motion

One might think that the mechanisms described above do not explicitly relate to the description of tensed belief I have proposed. It would be better if we could empirically support the primitiveness of perceiving *temporal order* in the world around us. After all, durations and cycles do not show up in the formulations I proposed in 4.3.2, but temporal "before" and "after" thought elements do. Admittedly, perceiving temporal order between events is hard to conceive, because it is hard to imagine how a perceptual system can represent (intuitively, *at once*) two events happening at different times as well as the ordering relation between them. An important attempt to discount perception of temporal order on such a priori grounds is Mellor (1985)[175], who argues that our representation of the temporal order of two events as not primitive, but arises only from the temporal order of our experiences of those events. Mellor's account would make our representation of temporal order a

[175] Mellor's (1981a) *Real Time*, defended by Roache (1999).

function of the individual rather than primitive perceptual systems. I come back to Mellor at the end of this section 4.4.1.2.

Empirically, however, it seems that temporal order representation is ubiquitous during perception; especially the perception of auditory stimuli. The perception of the order of sounds is crucial in understanding speech: hearing the word 'SEAL' uttered in a conversation about 1980's singers rests on having an immediate grasp of the temporal order of phoneme segments. It is harder to find clear support for the perception of temporal order during visual perception, although various studies are now taken to have shown that this happens for very rapid adjacent visual stimuli (as in Westhener & McKee (1977); PÖppel (1978)). What might be more important, visual stimuli seem to co-ordinate seamlessly with auditory stimuli in an organism to represent features of events. An event is often presented concurrently through two senses. When two events producing concurrent visual and auditory stimuli happen in rapid succession, it would be implausible to hold that their acoustical properties are perceived as having temporal order but their visual properties are not[176].

Abilities to immediately distinguish temporal order also enter into the perception of motion, which is primarily visual. We discussed some aspects of the perception of motion above when discussing the 'second intuitive position'. What needs to be added here is that perceiving motion is absolutely crucial to perception in general, so it has to be included in some aspect of the perceptual system which functions to individuate objects and coordinate action:

> The processes involved in indexing or individuating an object and in retrieving its spatio-temporal features are not cognitively accessible in any form. One does not "know" or "believe" that an object moves in continuous paths or that it persists in time, though one uses this information to index and follow the object. … This information is not *conceptually* represented. (Raftopoulos 2009: 218, my emphasis)

> Temporal and spatial orienting interact synergistically to potentiate attentional mechanisms during early perceptual analysis. (Eagleman 2005: 10371)

It is exactly this use of temporal order information in perception that enables us to model it as a primitive element in the first place. I believe that it is essential in perception to perceive motion; and for perceiving motion it is essential to perceive the temporal order of the object's being at distinct

[176] Actually, Sternberg & Knoll (1973: 633) have reported that "with few exceptions, stimulus pairs from the same sensory modality-auditory, visual, or tactile - **or from any of the three possible modality pairs** give rise to temporal order judgments of approximately the same precision", my emphasis.

spatial locations ("*first* it was there [e.g. on the grass] and *then* it was there [e.g. on the porch]"). So some representation of temporal order has to be primitive[177].

If, as we are trying to show, temporal order can be perceived by a perceptual system, it has to be possible for the system to misrepresent temporal relations. It also must exist in lower-level organisms with non-conceptual abilities. Many instances of the former have been experimentally established. The temporal order between stimuli is often identified wrongly when there is a rapid interval between them. (Westhener & McKee (1977) and Sternberg & Knoll (1973)) show that mistakes are frequent in humans at intervals of 20 -40 ms. Patients with specific lesions to the brain and aphasia are wrong even when the interval is longer (Ulbrich et al., 2010). Priming of timing mechanisms through consistent injected delays and subsequent shortening of delay duration produces inaccurate representations of temporal order (Stetson et al., 2005). Very early sensory feedback on an action taken, and proprioceptively perceived, by a subject produces the illusion that the feedback has occurred before the action (Dennett (1991)). As regards lower animals, experiments have shown that rats can respond to the order in which different sources provide food, without learning when the sources do that, or what time intervals separate the occurrences (Carr & Wilkie (1997); Hoerl (1998: ft.9)). Direct perception of the temporal order of events not only occurs, but is probably crucial in animal life in the way depicted in the previous section: it is necessary to coordinate movements and perceive motion, as when keeping track of moving predators.

Armed with these empirical details, we can return to the argument of Mellor's mentioned at the beginning of this section. Let's assume, with Mellor, that perceptions are inherently unsuited to represent temporal order; all they do is represent instantaneous states of the environment. Call such perceptions M-perceptions. Now let's suppose a subject has 2 M-perceptions (of 2 separate events), and immediately thinks that one event happens after the other. That temporal order for Mellor is just the temporal order of the M-perceptions – no temporal order in the world has been M-perceived. But

[177] Hoerl (1998: 166) extends the arguments from motion to indicate that the following experiences provide direct support for the perception of temporal order: perceiving the traffic light changing from red to green, feeling raindrops falling down my face, and hearing a musical piece being played at very slow speed.

now let's notice that in all the cases I described in this section the *individual* does not reflect on the temporal order of M-perceptions; the brain orders them in an immediate non-accessible way, which information is available to subsequent processes and judgments. Let's call the brain mechanism "checking" the time-stamps of M-perceptions (and informing judgments and processes about the temporal order of M-perceived events) a V-perceptual system, and its output a V-perception[178]. Then the V-perceptual system transmits *some* information with temporal representational content to judgments such as "the tiger was at x and *then* it was at y" or "I just heard the word 'SEAL'". We still have a sub-personal system representing temporal order, constituting a non-conceptual, contextual relation to the objective temporal order of things. So a belief based on it is still belief *de re*.

4.4.1.3. ECIs, memory and temporal framing

We have seen that perception does involve capacities to represent temporal information. Representations of temporal order (4.4.1.2 above) are crucial, since they give us a sense of the perceptual analogues of before-after judgments mentioned in 4.1 and 4.3.2. But in order to complete the description we need something more: a primitive representational content resembling <u>now,</u> that can be combined with temporal order perceptions to form something resembling <u>before now</u> (found in the formulation of past tensed beliefs in 4.3.2). I mentioned in 4.1 that the analogue I am aiming for is the spatial egocentric index. In the case of space, the existence of this egocentric index is supported by current science. Are there such mental constructs for time? The vital question for my account is whether something like a temporal egocentric index (ECI), an egocentric temporal framework, exists in perception and whether it can be related to tensed beliefs.

First, some words on egocentric indexes. An egocentric index (or *de se* marker) needs to have two characteristics: "It represents an origin for a representational framework, such as a spatial or temporal

[178] This is actually closer to some models currently proposed (see Grondin 2001) to account for the perception of temporal order that diverge from the 'central timing' brain mechanism mentioned in 4.4.1.1. It seems that many neural mechanisms can influence judgments of temporal order – short-term memory and attention processes seem to be ubiquitous in such judgments, for instance. Ulbrich et al. (2010) seems to prove that deficits in these areas usually account for wrong impressions of temporal order. But a 'perceptual mechanism' in the way I am using the term in this dissertation is *also* dependent on various distinct neural mechanisms. It coordinates sensory input from more than one sense, or is involved in complex feedback occurring in the visual system. So a complex feedback model accounting for V-perceiving temporal order can still be called a perceptual mechanism.

origin from which the individual's perspective occurs. It also marks the origin as of immediate ego-significance for the individual's motivation or for the wider perspective of the individual."[179] The first requirement means that the anchor of the framework represents the perceiver's own position and constitutes his *perspective*. In the case of space, objects or events perceived are indexed in relation to the anchor as to the left of (here), in front of (here), or even just here. In the temporal case, objects or events would have to be indexed in relation to the anchor as before (now), after (now), or just now[180]. I should note at this point that the anchors need not represent points in space or time – they can represent specious sections of space or time, as indeed happens with the indexing of spatial information as 'here' – the 'here' of my perceptions is always larger than a point in space.

The second requirement means that an ECI marks, at its anchor point, immediately applicable cognitive and practical abilities like fleeing. For instance, since a spatial ECI is a *de se* marker, it is 'ego-ish' as well as 'here-ish', so there needs to be a constant association between it and first-person feelings (e.g. I feel cold when I perceive cold here). A constant psychological association must also exist between an ECI and actions taken by the individual, since the actions need a first-person intention to act (e.g. I intend to wear my sunglasses when I perceive sun here). Constancies between perceptions and perceptual memories are also secured by the ECI indexing them. If the subject does not change his spatial location for five seconds, he will remember that it was sunny at the spatial origin of his ECI, because he had a perception that it was sunny at the spatial origin of his ECI. The perceptual memory in this case retains the spatial *de se* marking of the perception – and my thought is still associated with my intention of wearing my sunglasses. If the subject perceives himself moving, however, the ECI information in memory is immediately recalibrated through perception, and perceptual memories update the indexed spatial location of the remembered perception. Hence, if the perceiver of sunnyness above perceives himself moving one step to the right, the perceptual memory will represent that it was sunny to the left of the spatial origin of his ECI. In general, ECIs in perception will have ego-related implications connecting here-thoughts to all other aspects of the thinker's psychology - needs, motivations, memories, and practical attitudes.

[179] Burge (2009: 256)

[180] By [now] or [here] in this section I am referring to the anchor of the primitive ECI, **not** the concepts here and now.

I think that a temporal ECI is operative in perception and can be observed in perceptual thoughts, perceptual memories and the like. First, the perceptions themselves are temporally *de se* marked – they are 'time-stamped' (so to say) with the perception's relation to the temporal anchor. During perception, perceived objects or events are indexed as simultaneous with the temporal origin of the ECI, analogous to a perceived object being indexed as perceived here. The perceiver might index various other thoughts with the same 'now-stamp', such as my belief that I am perceiving now or (PRED) my belief that I need to flee from threatening predators now. The ego-related implications will thus be the same as those of a spatial perception *de se* indexed. The ECI will mark, at its *de se* anchor point, immediately applicable cognitive and practical abilities like fleeing. These abilities might go as far back as the evolutionary instinct for self-preservation. The *de se* marked intention to flee now if being chased by a predator temporally close to now arises. Moreover, similarly to the spatial case, if a time lapse is perceived between perceptions, or between perceptions and other thoughts, the perceptual memory will be recalibrated to update the represented temporal position according to the new anchor point. So if the subject perceives some interval of time passing since the original perception of a predator running at him (e.g., a perceptual representation with roughly the content approaching predator at my temporal position), the perceptual memory of the episode will be tagged as *having happened* - it will take the form approaching predator before my temporal position. Depending on how much time has elapsed (compare: how far in space I have moved) the new thought will be associated with beliefs and actions relevant to my new position. If the sun and the predator are too far in space or time and my thoughts have succeeded in representing these facts, I will not flee or wear my sunglasses.

What do we need to show as actual in a perceiver's cognitive organization to support this chapter's account? We have seen in the sections before that a subject can perceive time lapses, motion, events, and some temporal order. The only additional thing we need is to show that the perceptions are temporally tagged ego-centrically, that memories work in the way I postulated in the previous paragraph, and that other aspects in the perceiver's psychology are similarly temporally ego-centrically tagged. I think I can make good on this demand. First, the role of the egocentric cognitive

map as a sort of spatial framework ECI in visual perception can be played in my temporal ECI case by the central internal counter mentioned in 4.4.1.1- or just a different regulator keeping track and coordinating the various other temporal bodily or brain counters[181]. More plausibly, the temporal framework could be a complicated feedback mechanism incorporating such internal clocks *and* episodic memory (see 4.1 and footnote of 4.4.1.2). The requirement that event perceptions be tagged with an ego-centric time-stamp is not more demanding than object perceptions being tagged with an ego-centric spatial location stamp. I think that my description of how memories work is not that controversial either.

More importantly, it seems that if the whole psychology of the agent is to be explained, it might be necessary that perceptions be temporally tagged *in the same way* as other mental happenings in the agent's psychology. This is because, as was shown in Chapter 2, the agent will not act in a timely manner if he does not somehow 'grasp' the temporal relations among his perceptions, his motivations, his needs, and his intentions to act. He also needs to be aware of the proprioceptory and perceptual information assuring him that his action was carried out, his feelings are related to the environment, and the things that he sees and perceives actually are happening at the same time as his perceptions of them. A functioning agent's psychology needs to perform various matches between mental events. How would this matching be performed if they do not carry any information of when they have occurred? It is a psychological necessity that mental events take time – matching takes time, reflections take time, and even unconscious cognitive processes take time. Co-ordinations of mental events having occurred with some temporal distance (and usually also *thought of* as having a temporal distance) would be impossible if not for a mechanism that functions to date and order events. This necessary mechanism is what I called 'a temporal ECI'.[182] Some would object that I am unnecessary multiplying mental objects where they do not exist. No 'mental temporal framework' exists, they

[181] To refresh the memory, two different models for a central timing counter accounting for various timing phenomena and distortions are postulated by Tse et al. (2004) and Buonomano & Merzenich (2002). Brewer (1994) agrees that, in as far as episodic memory relies on internal timing mechanisms, they can constitute something like "the spatial ECI of visual perception".

[182] I have since realized that Burge (2010 p.518- 529) contains a version of this argument for the importance of primitive analogues of indexicals like now in perception and action. The premises and reasoning are too complex to compare it here to mine. An early version of the same idea occurs in Burge (2003a).

might say: the coordination of the various mental events happens in a sense "automatically" through the workings of memory, its relation to perceptual systems, and various causal chains securing that they all happen in the correct temporal order. But if this is true, it is not a defect but a *reaffirmation of the theory presented in this chapter*. There are of course causal relations among perception, perceptual thoughts and memories; but there are also contentful relations among them. These states have veridicality conditions and they do share temporal information. This whole network then is what constitutes the temporal ego-centric index. This chapter's account is not committed to anything more than this idea. As a conclusion, it is my view that a temporal ECI is not only actual in living organisms; it is absolutely necessary for an organism to be a perceiver and an agent.

4.4.1.4. Perception of time during cognitive development

Usually when cognitive elements are more primitive than concepts, they show up earlier in the development of the human organism. If temporal representations are primitive, as I have supposed, their existence should be noticed prior to the development of more conceptual structures, such as temporal linguistic abilities. Hickmann's (2003) long and deep review of the developmental psychology literature on space and time shows results confirming this hypothesis. It has been found, for instance, that "children mark at first only aspect and not tense in language. ... The defective tense hypothesis says that children associate particular markings with particular event types, because their cognitive immaturity leads them to focus on the immediately perceptible results of events." (2003: 16) This hypothesis, he argues, is supported by considerable literature identifying "the child's language as being first egocentric before becoming social" (2003: 32). After reviewing the literature on developmental psycholinguistics he concludes that children first anchor speech in the 'here-and-now' and only later go through a process of 'de-contextualization', freeing themselves from immediate perception (2003: 47). The general picture is that use of the present tense as anchoring events to immediate perception is the first stage of tense acquisition, followed by aspect (past tenses at first encode only boundedness – 2003:327), modality (children at first use the non-past as a kind of *irrealis* marking), and far later, at 6 yrs old, full-blown tense (2003:155). This general picture gives some

further support for my stated primacy of perception *vis à vis* the underlying cognitive structures of tensed beliefs related to time.

4.4.2. Towards Tenses and Concepts

I argued in the previous section (4.4.1) that human organisms have perceptions of temporal properties, that temporal orienting is similar to spatial orienting, and that the temporal information we get from perception plays a vital role in thought and timely actions. All this supports this chapter's account: tensed beliefs are *de re*, they carry a non-conceptual element related to representations involved in perceptions, and they are related to the environment in an immediate way. In order to complete the account, however, one might argue that we need to show how these comments connect to a belief apparently making use of a full concept like now or concepts corresponding to indexically-used tenses like the past tense.

The "naïve theory" of section 4.1 posited that the *concept* now can be just a reflection on a temporal ECI application. I think this has been adequately supported for simple perceptually acquired now-beliefs like it is cold now. If it is true that "conceptually mature, informed reflection, that elaborates the animal's perspective, would yield first-person memory beliefs" (Burge 2003a: 293), then it is true that conceptually mature, informed reflection that elaborates the animal's *temporal* perspective, shown to exist in 4.4.1, would yield now-beliefs. The comments on tense (4.2.4) also support the account for tensed beliefs expressed with only a present tense marking (and not using the indexical now). The tense in my belief that it is raining can represent a reflection on the y_n perceptual element occurring in the perceptual rain-thought, even though 'now' does not appear in the belief's expression.

I think we can account for some past-tense beliefs in the same way. For instance my belief that it was cold can be a reflection on the perceptual memory's ego-centric temporal tag as before my temporal ECI anchor. If the ECI has a role in 'tagging' perceptions, and memory mechanisms update the tagging in perceptual memories, the past tense can be an indexical element formed as a reflection on perceptual memories, exactly like now or the present tense is formed as a reflection on perceptions.

I proposed a strong position in 4.4.1.3 implying that any belief or thought relevant to an agent's action or history of actions is similarly tagged egocentrically. This would include, for example, my belief, referring to the Winter of 1996, that it was cold in Germany. The temporal analogues for spatial tagging (to the left of (here), to the right (of here)) are**:** before (now), after (now), and at the same time as (now). If the concept to the left is always formed as a reflection on spatial ECI tags, why cannot past-tensed beliefs form in the same way?

The account may be similarly extended to such thoughts as short-term future expectations occurring during perception. Seeing a tiger running from A to B seems to immediately produce such thoughts as it will be at C (a spatial location adjacent to A and B). In elementary thoughts like these it may be that what I am doing is tagging an expectation with a temporal location after my temporal ECI anchor.[183]

There is an obvious objection against the naïve view: it seems that it deals only with beliefs that are very strongly connected to perceptions. Could it be that we are only talking about *perceptual* beliefs and thus leaving out beliefs using the concepts now or the present tense that we nonetheless would like to classify in the tensed category? Then it would seem that we have not made any progress in identifying what the concepts used in a fully conceptual tensed belief really are. My current belief that it is now 11am in Athens, Greece seems to be totally disconnected from perceptions or perceptual memories, since I am in Columbus Ohio. It would be problematic if my account is unable to explain its nature.

To reply: I think that the presence of temporal indexicals and tense in most, if not all, tensed belief expressions and the existence of these same constructs in the expressions of perceptual thoughts and memories is telling us that all tensed beliefs have something essential in common. These conceptual constructs' role in an agent's psychology is to preserve the *de se* character of most beliefs we have, even if some of them seem disconnected from experience. My belief that it is now 11am in Athens *has* to be tagged with the same mechanism as my perceptual beliefs, so that I realize its connection to potential action. For instance if I need to call my mother in Athens 5 minutes after my

[183] Discussing expectations and the future opens a whole new can of worms. The above comments should be seen as just covering immediate thoughts formed in perception.

temporal ECI anchor I need to know what time it is over there 5 minutes after my temporal ECI anchor. Using the full-fledged concepts now, or the past tense, still aims to organize beliefs in a coherent whole and guide action. The basic characteristic of the primitive indexical element y_n is that it models the believer's private temporal perspective. This is what the concept now does in conceptual beliefs, too. In using the concept now the believer organizes the world according to his temporal position. All tensed beliefs contain information about that temporal position, including his perceptual thoughts formed by his immediate environment. So all tensed beliefs are *de re* with respect to it. I admit that I simply cannot think of a tensed belief without an anchor in the believer's temporal private perspective[184].

The claim is not of course the claim that the full concepts of past, present, future or tense are entirely constituted by or on perceptual information. For instance a conceptual element like is a time often enters into beliefs about the past. Hoerl (1998) uses this fact to argue that the concept is a time cannot just rest on information gained through perception, as it tries to describe time as 'objective' or from no particular point of view. Since all perception is *de se*, he thinks it is impossible to acquire such a concept from just the faculties of perception. But objections such as these are not objections to this chapter's account[185]. My claim is only that beliefs utilizing these concepts will also contain a non-conceptual, contextual element connected to the subject's temporal ECI, which in turn is connected to action in an immediate manner. I do not need to explain how the full concepts are learned, or every case of their usage. I just need to explain the element that makes tensed beliefs (and not non-tensed beliefs) tensed.

[184] The recent Burge (2010, especially pp. 523-529) seems to think that it is a priori possible to have fully conceptual temporal thoughts without any anchoring in the *perceptual* present. He invites us to imagine a thinker having only allo-centric temporal representations and never an ego-centric one. If this is the case to imagine, I concede that the subject can think temporal thoughts – but I do not concede that he can have *tensed* thoughts, or what I call in this dissertation tensed beliefs. As I argued for the [PINBALL_WIZARD] case (section 4.1) the subject will not even be able to have intentions to act. All A-concepts are ego-centric, and their use is tied to action or potential action. I should also remind the reader here that there are no A-facts in the world for our concepts to magically latch on to (see 1.5 and 4.5 for a stronger phrasing of this view).

[185] I do however think that Hoerl's worries are overstated. Perception is indeed always *de se*, but if we can perceive some temporal order of events (A happening before B), **and** use memory representations to contrast points of view (something Hoerl mysteriously refuses to consider), I see no reason why we cannot get ideas about objective temporal relations. Communication, language and empathy also help by giving us tools to recognize other people's points of view. I do not wish to make more claims about rich temporal concepts, since the story is definitely extremely complicated – as shown by the 4.4.1.4 fact that it usually takes children 6 years to master these concepts!

I do not know how to analyze the claims I have been making about the concepts involved in tensed beliefs in a more enlightening way. They definitely cannot be analyzed as equivalent to other concepts directly constituting them. For example, now is not when I am, as we saw in 4.4.1. To summarize the claims for this paragraph, I will try to be more concrete, even though this will certainly make the next few sentences false: The concept now is something like this time [pointing to the time of the context through the thinker's temporal ECI]. The concept corresponding to a verb inflected with a present-tense marking, say is starting, is something like starts at this time [pointing to the time of the context through the thinker's temporal ECI]. The concept corresponding to a verb inflected with a past-tense marking, say started, is something like starts before this time [pointing to the time of the context through the thinker's temporal ECI]. The concept corresponding to a verb inflected with a future-tense marking, say will start, is something like starts after this time [pointing to the time of the context through the thinker's temporal ECI]. None of the above sentences is to be understood as advancing meaning-equivalence claims[186]. No other claims about A-concepts like past, present or future are essential to this chapter.

[186] There are definitely authors writing on tense that make similar claims than the ones in this paragraph – for instance that even past tensed thoughts are in a sense *directly about* the present. Peacocke (2001a: 344) agrees that memories have a direct demonstrative/perceptual element, while past thoughts are essentially connected to now-thoughts. He thinks that this is obvious because of the following truth condition of past thoughts: "For any time *t* and utterance or thought *u* occurring at *t* of 'It rains at d', *u* is true iff the time referred to by d at *t* has the same property as any time has to have for an utterance of 'It is now raining' to be true with respect to that time *t*". Tooley (1998) agrees that all tensed statements exhibit now-like indexicality connected to the time of the thought context. Perry (1986) has argued that all tensed sentences have unarticulated 'now'-like constituents. Salmon (2003: 114-115) says that (complete) propositions contain the time of their context, although nothing obvious in the sentence denotes that time. G. E. Moore (from Salmon 2003: 113-114) thought that propositions are always about the time of utterance – and that past-tensed sentences are about past times *in addition to* the time of utterance. Corazza (2002) probably agrees with almost every comment made so far. All these and more besides would be useful to apply here, but only when they do not make tacit or explicit assumptions about meaning equivalences or the existence of a 'language of thought' straightforwardly mapping concepts to meanings of words of the English language.

4.5. The end of a dissertation

Let me take stock by examining the central question of this dissertation: what exactly *is* the nature of a tensed belief? It could be described off-hand as one of the following:

(a) a belief composed entirely of conceptual, tensed, constituting things (like tensed verbs or characters)

(b) a belief that changes its truth value over time

(c) a belief in tensed (A-)facts or properties

(d) a self-ascription with temporal characteristics

(e) a belief with indexical (tensed) content/information.

I have argued that accounting for the nature or *essence* of a tensed belief and thus illuminating its role in timely action can be done successfully only by expanding thesis (e) through a Burge-like account of the temporal indexicality in a tensed belief's representational content. Thesis (a), which is the basis for the accounts of Kaplan and Higginbotham, is vulnerable to Richard-like objections, and does not properly account for the role of a tensed belief in perception. Thesis (b) belongs to semantics or linguistics and does not accurately describe why a tensed belief results in timely action. Thesis (c) is inconsistent with current physics and does not adequately explain the tensed belief's cognitive role, especially the role of past-tensed beliefs. Thesis (d) is closer to explaining the essence of a tensed belief, but the Mellor or Lewis way of giving priority to the self (belief being a self-ascription) is incomplete without mentioning temporal representations in thought. Thesis (e), which is endorsed by Perry and also by my Chapter 4, comes closest to explaining the psychological role of a tensed belief, while also accounting for the aspects unexplained by Theses (a), (b) and (d). Between the latter two theories, my Chapter 4 account, based on Burge's framework of *de re* belief, comes closer to explaining what needs to be explained, avoids technical problems like those plaguing Perry's account, and is supported empirically by current science. So for this dissertation at least it is the favored account.

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