TARDIS & TAME: an Essay on Natural Language Meaning and Metaphysics

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Abstract

This paper theoretically approaches the relationship between the instances of time and space as far as natural language conveys their manifestation, focusing on meaning, majorly represented by the subdiscipline of Semantics, along with some insights on Syntax and Pragmatics. The outset-designed ontology is mainly composed by categories of TAME (tense, aspect, mood and evidentiality/eventology) instantiated by linguistic phenomena that yields anchoring, displacement and aboutness properties. To achieve this wide range of linguistic manifestations the scope takes over the verbal semantics of Brazilian Portuguese (henceforth BrP), pursuing to manage the lexical nature of entries in this language and its metaphysical counterpart in meaning. This sort of approach intends to illustrate the proper balance for the formal device of a semantic component regarding these language parameters on TAME and their principles correlation on human language by means of what this paper intends to coin as TARDIS (Time and Relative Dimensions in Space). This paper presents three sections: a) theoretical, introducing the properties of each category of TAME, throughout history of Linguistics and Semantics; b) methodological, characterizing the lexical/metaphysical dualism for Formal Semantic approaches and their correlation to time and space and some other non-logical privileged concepts entertained by semantic knowledge;

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c) epistemological and analytical, considering BrP as parameters for TARDIS' properties conveyed by natural language meaning throughout different categories of TAME and its correlation to some principles which seem to regard human cognition, focusing mainly on modality.

Keywords: Modality. Semantic Categories. Displacement. Anchoring. Aboutness.

TARDIS & TAME: um ensaio sobre o significado e a metafísica da linguagem natural

Resumo

Este artigo aborda a relação teórica entre as instâncias de tempo/espaço a partir da linguagem natural como vetor de sua manifestação, concentrando-se no significado, majoritariamente representando a subárea de Semântica, com algumas incursões sobre a Sintaxe e a Pragmática. O design ontológico de partida é composto principalmente pelas categorias de TAME (tense, aspecto, modo e evidencialidade/eventologia) instanciadas por fenômenos linguísticos que ilustram as propriedades de deslocamento, ancoragem e aboutness. A fim de atingir essa ampla gama de manifestações linguísticas, o escopo se detém na Semântica Verbal do Português Brasileiro (PB), buscando abordar a natureza lexical das entradas nessa língua e sua contraparte metafísica em significado. Esse tipo de abordagem se presta a ilustrar o equilíbrio adequado do dispositivo formal do componente semântico no que diz respeito aos parâmetros de ambas das línguas em relação ao TAME, correlacionando-os aos princípios mais amplos da linguagem humana via o que se pretende cunhar neste trabalho como TARDIS (Tempo e Dimensões Relativas no Espaço). Este trabalho apresenta-se em três seções: a) teórica, introduzindo as propriedades de cada

categoria de TAME ao longo da história da Linguística e da Semântica; b) metodológica, caracterizando o dualismo léxico/metafísica para as abordagens de Semântica Formal e sua correlação com tempo e espaço além de outros conceitos não lógicos privilegiados e sensíveis ao conhecimento semântico; c) epistemológica e analítica, considerando os parâmetros do Português em relação à veiculação das propriedades de TARDIS ao longo das diferentes categorias de TAME e sua correlação com princípios que parecem correlacionar-se com a cognição humana, focando sobretudo na modalidade.

Palavras-chave: Modalidade. Categorias semânticas. Deslocamento. Ancoragem. Aboutness.

1 The untamed TAME

Before the chomskyan turn would take place in linguistic theory, Semantics and all its phenomenological branches would rely mainly in the field of Logic and Philosophy. Although one would realize that sense, intension or thought could have something to do with ordinary language, before that time it still was not easy to know how to treat properly all the inconsistencies that would arise between formal-logic devices and natural language. Thus, it would remain a challenge for linguists to find the better way to treat language and non-language appropriately and in concomitant fashion.

However, during Chomsky's Copernican revolution on Linguistics' paradigm, taking over the dominant Structuralism perspective, Philosophy of Logic and Mathematics would definitely find its way toward natural language description in the hands of Richard Montague, who opposed strongly against chomskyan cognitivist and syntactic-centered approach. For contemporary Formal Semantics and general linguistic theory, Barbara Partee played a major role by converging Chomsky and Montague's foundational approaches as they both alleged to recognize one common device within their theoretical frameworks, namely the Universal Grammar.

Partee's stance would lead many linguists, especially on Semantics field, to reinterpret some formal techniques displayed by Montague along with biological foundations provided by Chomsky concerning language and mind/brain instantiation. Some theorists, as Bach (1989), adopted a generative approach for natural language semantics as they gathered compatible background from both Universal Grammar hypotheses for a

new perspective on Semantics. This sort of methodological scope would account for several phenomena with some instance on grammar structure that would remain a problem regarding logical-semantic interpretation, such as deixis, anaphora, propositional attitudes, quantifiers, speech-report among others.

This brief presentation may well point to the scope of something that many linguists nowadays call TAME, acronym for tense, aspect, mood and eventuality or, if one prefers, eventology. TAME matters for linguistic theory and more specifically to semantic theories for it comprehends a wide range of things that are something else than language, something that may be found in some state of affairs of the world and then be referred by means of language, and still could be grammatically mapped. These are some cornerstone ideas that are important to the development of this paper, arguing in favor of the TAME approach the authors intend to present, discuss and evaluate. Thus, from now on the current section outlines only the theoretical foundation relevant for this work.

TAME is much like a device, properly designed for humans to go back and forth in time and space. Humans are able to talk about things that are not necessarily happening here, but somewhere else; mention events that took place in the past; wonder which events can take place in the future; run over probabilities when referring to entities that do not even exist; express orders, desires and the like. TAME is par excellence a semantic device, expressing by each intensional category some degree of commitment to metaphysical properties such as time and space.

The relationship between language, time and space has been constantly updated from a theoretical viewpoint, even from

the most common topics of ordinary knowledge. According to the guidelines of the Principles and Parameters and Minimalist Programs, the human language is subject to all the laws of nature applicable to reality, being therefore sensitive to the relativity of space-time. For Biolinguistics, the human language has developed exaptively as a spandrel, representing a discrete infinitude, which suggests that the linguistic machinery of Homo apiens produces an uncountable number of sentences from a finite set of rules, whose symbolic representational elements are presented in a discrete way, each entity corresponding to a distinct and singular unit.

In the literature of contemporary Linguistics, Bach (1981, 1986, 1989, 2013), as mentioned before, is recognized as an authority on the metaphysics of natural language, enriching the foundations of Semantics as a linguistic subfield responsible mostly for dealing with this type of phenomenon. Above all, Bach is interested in how temporality manifests itself in natural language, in the properties by which it does so and in the similarities and differences that exist throughout natural languages with respect to this representation. Indeed, Bach is concerned with redefining the categorical concept of aspect, introduced by Vendler (1967) in the linguistic literature, also presenting, in doing so, the notion of event and time schemata as major insights for the semantic study.

Some years before, Reichenbach (1947) stood as a pioneer by his attempt to offer logical-linguistic treatment to propositional operators, established in both logical systems and natural languages. By conveying the notion of temporality encoded by means of verbal flexion and temporal projection according to the linguistic structure, and by distinguishing between speech,

event and reference time, he showed the conceptual richness that the notion of time engenders and the heteromorphy of natural languages in hosting and expressing these notions. Currently, Brinton (2006) proposes a broader view about the idea of aspect, which is not restricted to traditional concepts (such as perfectivity/imperfectivity, telicity, etc.), normally limited to the description of verbs. According to Brinton, the idea of aspect would rather expand in an aspectual system that also contemplates the inherent meaning of verbs (Aktionsart), which is, arguably, ignored or mistakenly confused with the very idea of verbal aspect.

Tense is perhaps the most discussed category of TAME, playing a heavy role on major traditional literature on language description and prescription as the very heart of time when it comes to its expression and manifestation on human languages. However, it is notable among crosslinguistic studies that the category of tense is not sufficiently effective in describing and relating events temporally. Thus, the study of aspect, despite its complexities and wide variation of concepts and terminology/ nomenclatures to describe similar phenomena, remains an indispensable temporal category for a broader understanding of the manifestation of temporality through natural language, as stated by Brinton (2006) and Klein (2009).

The notion of displacement, in turn, is introduced in Linguistics by Hockett (1960), arguing that human language allows to refer beyond the here and the now. Some years later, Kratzer's framework (1977, 1981, 1991, 2013), expressed mainly, but not only, from the category of modality, addresses this topic throughout semantic categories. From the notion of possible worlds, inherited from Kripke (1980) and Lewis

(1973), Kratzer institutes a robust research program, guided by the analytical reasoning of Formal Semantics, compatible with Predicate Logic, yet dynamic as regards the foundations of Modal Logic, notably recognized as a model of Semantics of Possible worlds:

> Kratzer's model is singular by unifying the areas of human language descriptive-explanatory studies, as it establishes an intricate relationship between the logical-semantic machinery that represents part of a conceptual-intensive component in the Faculty of language and grammar and contextual factors. By approaching modality as a central element of his enterprise, Kratzer is willing to combine properties in a relationship between grammar and logical-formal meaning[1]:[the representations] do not only determine the modals' argument structure and their truth-conditional contribution. They are also explicit hypotheses about the way grammar collaborates with other cognitive modules in the interpretation of modals. Grammar provides expressions of a λ-calculus constructed from variables and logical and non-logical constants. The non-logical constants establish a connection with cognitive modules outside of grammar […] (2013, p. 194)

in the very same proportion as she associates such logical-formal properties to context-dependency aspects:

> From the time I started my dissertation work in New Zealand […] I have been interested in context dependent semantic phenomena, in particular tense, modals, conditionals, quantifiers, and attitude ascriptions. One way of looking at this old interest from a more contemporary perspective is to see it as an interest in how the human language faculty interacts with nonlinguistic cognitive modules, some of which we may share with other species. The guiding idea behind this research is that most lexical items come with pointers to particular kinds of information that they request to

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[1] As modality stands in the center of this work, it shall be approached more specifically in the next section.

be recruited from other cognitive components. The question is how those pointers are realized in natural languages, what kind of information they recruit, and how that information is ultimately integrated into the computation of meanings. (KRATZER, 2014, website).

Finally, the last category of TAME presents an elementary ontological distinction in its constitution. While Bach (2013) assumes eventualities or eventologies as genuine categories of grammatical analysis in relation to linguistic meaning, Dahl (2013) proposes to characterize the fourth category as represented by evidentiality. In fact, the fourth category of semantic analysis is relatively new in the literature, and both authors present good arguments in favor of their different characterizations.

Chao and Bach (2012) introduce the term "eventology" for the first time, in an article whose title clearly resembles the unique work of Bach (1986) years before. Chao and Bach explicitly address the metaphysics of natural languages, not just natural language in a broad sense. In fact, Bach's work since the beginning of its insertion in the literature on Formal Semantics insists on the notion of events within the field of linguistic theory and analysis, for he already presents the term "eventuality" in Informal Lectures on Formal Semantics (1989).

As mentioned before, Bach (1981) proposes an alternative distinction between accomplishments and achievements for events, subdividing them in turn into prolonged and instantaneous events respectively. For the author, the distinction meets the very nature of temporality as a phenomenon denoted by occasional verbs, making it possible to understand prolonged events as composed of atomic episodes that, taken together, constitute the entire event, and instantaneous events as episodes whose nucleus is single. Bach takes events as refined spatiotemporal structures

that are closely linked to the nature of the aspectual unfolding denoted by verbs in natural languages, even coming to establish the distinction between states, processes and events for aspect classification, as opposed to Vendler's original contribution (1967).

Competing with eventology, there is Östen Dahl's alternative proposal, pointing to evidentiality as a grammatical category on semantic analysis. In his work, Dahl (2013) assumes to exist an interaction between the grammatical components of TAME and the organization of human memory, suggesting a very strong narrowing between basic components of Grammar and the other modules of human cognition. This specific category concerns the indexing of evidence for the attribution of the proposition truth-value expressed by some element, which can be an affix or clitic, for instance.

Aikhenvald (2003, 2004) emerges as an eminent and pioneer authority regarding the treatment of this specific category, emphasizing the typological nature of its interaction with other grammatical categories of meaning. Evidentiality is, in fact, one of the most prominent categories in Dahl's work, given its intimate relationship with cognition according to the nature of human memory. The author seems to endorse Aikhenvald's argument that despite the attempt to keep the category free from any element whose specification is lexical, therefore not grammatical, many lexical items across languages are still indicative about the source of information without being true evidentials. Such entries operate as a continent of the evidence as a secondary meaning, requiring the assumption of non-evidential categories as if they were endowed with evidential extension expressing meanings that behave as such.

2 A TARDIS for a TAME

The last section was devoted to present a very brief panorama concerning the rising of Semantics within a naturalist framework, providing proper grounding for the development of structural categories of TAME. From an intensional perspective, these categories sustain many aspects on the logical interpretation of reality that underlie natural language and are somehow instantiated by grammar. From a Formal Semantics framework in both naturalist and formalist perspectives, the Faculty of Language is interpreted in its broad sense, still endorsing the Universal Grammar hypothesis as it conceives semantic machinery from a conceptual-intensional interface regarding human cognition. This endeavor is favored by many ingenious insights, for it addresses two major roles in descriptive and explanatory purposes: in one hand, it covers more ground in linguistic phenomena throughout subfields of Syntax and Pragmatics as well; on the other hand, it presents reasonable plausibility for the Faculty of Language in a broad sense as it regards cognitive principles related to linguistic ones.

These are quite the guidelines for Kratzer's enterprise, from which the next topics will be addressed. The major interest in this section lies in the clash between properties of linguistic meaning as they are, on the one hand, instantiated in grammar and, on the other hand, also referential to states, kinds of things, processes, events, time, space, people and whatever else. Three major properties are classic from literature and shall be aligned in order to properly outline such a topic about the constitution of TAME: a) universalism, b) intensional referentialism and c) compositionality.

Assuming it is relevant for TAME to be taken as a semantic device, these three properties assign a main role between grammar and logic/cognitive spheres, as they regard a proper ontology for Semantics to be compatible with its own foundations. First, the universalism factor refers to the natural language itself, with no regards to any specific features of any particular language; this is a very interesting insight, for it refers to whatever underlies human languages as a whole, the principles they hold and share and the possibilities they assign (some languages are tenseless, compensating temporality by means of aspect, etc.). Intensional referentialism stands as a crucial predisposition of natural language to encode the notions of reference and truth by means of intensional ontology, running over abstract situations, entities, worlds and so on. Compositionality is perhaps the major role semantics plays as a context-free component, calculating the meaning of complex expressions by the meaning of all its components plus the manner such components are put together.

One of the most important intersections between these triadic properties rely in Chomsky's viewpoint about natural language development in a biological perspective, endorsing François Jacob's arguments:

> "The quality of language that makes it unique does not seem to be so much its role in communicating directives for action" or other common features of animal communication, Jacob continues, but rather "its role in symbolizing, in evoking cognitive images," in "molding" our notion of reality and yielding our capacity for thought and planning, through its unique property of allowing "infinite combinations of symbols" and therefore "mental creation of possible worlds". (CHOMSKY, 2004, website):

Inserting here a small parenthesis, Costa (2007) claims, from a metatheoretical perspective, that Linguistics is defined according to the interdisciplinary foundations they recur to in order to explain phenomena. Taking Saussure, Chomsky and Montague as distinctive theoretical contributors, the author assumes them as the cornerstone for social-communicative, biological-cognitive and formal-logic methodologies respectively geared towards description of human language. This is to affirm, according to Costa, that the human language would be phenomenologically explained in quite distinctive perspectives for it plays specific roles according to different purposes: to communicate, to know and to think.

Despite the fact that this metatheoretical topic belongs to the Philosophy of Linguistics, it is very enlightening in order to understand the Formal Semantics methodology and its correlation to all sorts of linguistic phenomena TAME entertains, the ways and the reasons to approach them, and, moreover, to properly entertain the properties of universalism, intensional referentialism and compositionality in this agenda. Bach (1989) claims that in order to properly deliver a formal-semantic machinery compatible with the Faculty of Language it must conceive an interpretable formal calculus for natural language sentences, conjoining then chomskyan and montaguean approaches. Schiffer (2015) also claims that there is no opposition between the semantic theories as they derive from both mathematical and psychological foundations. That is the path which may lead to the intersection between those three properties of universalism, compositionality and intensional referentialism, and human language from a biological viewpoint.

Taken in either a broad or a narrow sense, the Faculty of

Language must present some psychological plausibility for reasonable (and reasoning) purposes:[2]

> Much human thought, esp., abstract thought, thought about the past and the future, planning and theorizing, takes place in inner speech. This inner speech is imagistic. Current evidence supports the view that this speech imaging consists both of auditory images of spoken natural language, as well as subvocalization, which includes kinesthetic imaging of speech production. (COLE, p. 1, 2019).

According to Chomsky (1988) any native speaker of a particular language has developed a certain system of knowledge, which is represented somehow in the mind/brain. How knowledge, from a linguistic perspective or related to any other cognitive faculty, is actually related to language and reality remains an issue regarding reference, and, in this specific matter, intensional reference: how can natural language, from lexical representations, build complex specified meanings gathering information related to the most different categories from other systems of cognition?

Ludlow (1999) discusses the role of the temporal phenomenon throughout its expression on natural language by distinguishing between internal and external language, assuming that distinctive world representations by means of human perception as lexical items are not generative entities and natural languages are social products. What matters the most to his enterprise is to determine how internal language expresses the

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2   This matters mainly because, on the one hand, it presents the interface between grammar and properties of meaning and sound structure, on the other hand, correlates to knowledge beyond linguistic boundaries that yet interacts with language.

formal apparatus of any referential phenomenology, including temporality.

Ludlow in fact puts in evidence the privileged perspective concerning the fact that the internal language could be actually the language of thought. He also argues that not all human cognition takes place as internal language, as there are other modules specialized to their specificities; he addresses relevant points as this: "[…] when we have thought about the world, are those thoughts simply interpreted I-language tokens, or are they tokens to be found elsewhere in our cognitive architecture?" (LUDLOW, 1999, p. 22). According to him, the language of thought is either isomorphic to the internal language or its properties are algorithmically recoverable from internal language representations; either way then, the natural language would carry all the necessary information it would take to serve as the language of thought.

The author also characterizes semantic knowledge of a speaker as whatever one knows about the world by means of the reference systems his language allows. Ludlow conceives for his approach a genuinely tacit knowledge as such instance is represented by the agent in structured data, a semi-stable syntactic state at mind/brain level of this speaker. According to him, the very object of such a semantic knowledge is not its cognitive representation *per se*, it is rather related to such a representation. The knowledge that "galaxy" refers to the galaxy does not consist solely on a galaxy representation, which is, after all, a syntactic object; for the semantic knowledge, the object is the thing itself.

According to Kratzer's (2018) current framework, there is a wide range of natural language variables that are available

to the speaker and actually are related to some non-logical privileged concepts, such as those that regard agency, possession, causation, knowledge, hearsay and also space and time, being the speaker left to wonder about what makes such concepts privileged. Indeed, the natural language is so productive from the compositionality viewpoint, it is quite possible to talk about all sorts of things, things that don't even exist, things that didn't have come to pass, things that certainly will not take place in the actual world.

It is relevant now to present three more major properties, in order to compensate a semantic component of natural language that may relate universalism, compositionality and intensional referentialism to such non-logical privileged concepts: it is about time to displacement, aboutness and anchoring have some space.

Bach (1986) stated that natural language metaphysics was to be taken as "what speakers talk about as if there is"; this turned out to lead contemporary approaches in Semantics to reject heavy metaphysical implications as they would attempt to describe and explain natural language semantics under logical-formal apparatus. It happens that Bach (1986) also stated two main assumptions regarding the ontology of Formal Semantics from any methodological perspective:

a) No semantics without metaphysics!

b) No constructional semantics without lexical semantics!

If Semantics in a formal perspective is built from a metaphysical and a lexical subcomponent, then it is expected these interfaces would benefit from each other in order to deliver a proper treatment on natural language semantics. Now, if TAME is a device that allows lexical entries to go back and forth in time and space, it is expected some device to play such role

on the other way around, something metaphysically predisposed by a speaker whose Faculty of Language operates over TAME, derived from some other cognitive function which interacts with semantic knowledge, something to achieve Time and Relative Dimensions on Space, or a TARDIS, if one prefers.

As it has been affirmed in the previous section, displacement property is introduced in the categories of TAME by Kratzer's enterprise as she institutes a Possible Worlds Semantics properly designed for the treatment of modals as universal and existential quantifiers. By means of modality, a speaker is able to mean things detached from actual reality, something that von Fintel and Heim (2010) characterize as intensional semantics, for natural language authorizes the evaluation of time and space dimensions via displacement. Kratzer argues:

> That factual domain projection can be found in so many subareas of semantics suggests that it is a mechanism that relates to a very basic cognitive ability: a creature's ability to map a part of its own world to a range of worlds representing possible ways that part could be 'extended' to or 'grow into' a complete world. Modal domain projection relies on functions that project modal domains from anchors. (KRATZER, 2013, p. 192).

After Hacquard's PhD dissertation in 2006, semantic theories of Possible Worlds started to focus on anchors in order to determine evaluation contexts selected across possible worlds available from an ordering source. Since 2012, Kratzer's framework has taken the concept of anchoring to map modality by means of events, times and individuals. Despite her filiation to kratzerian approaches, Hacquard (2006; 2009) refines the metaphysical dimension concerning the matter of evaluation geared towards events rather than worlds:

> I propose to cash out this event-relativity by using a Kratzerian semantics, except that modals (and in particular modal bases) are relative to an event of evaluation, rather than a world of evaluation. There are three kinds of events that modals can be anchored to: speech events, VP-events and attitude events. I argue that by relativizing modals to an event rather than a world of evaluation, one gets all and only the attested time-individual pairs: the running time and participants of the events of evaluation. (HACQUARD, 2009, p. 33).

As Kratzer states:

> […] modals choose their anchors from entities that are independently made available during the construction of the verbal projection spine. Different kinds of potential modal anchors become available at different stages of a syntactic derivation, and this explains why there can be a connection between modal flavor and syntactic positions. (KRATZER, 2013, p. 192)

Still, anchors stand for a specificity that leads to the property of aboutness. In the syntactician scenario, Rizzi (2005, 2006, 2015) has been arguing for quite some time that the aboutness property is in fact an argument "about which" the event is denoted in the predicate presented by subject positions realized high on the derivation, precisely above IP. According to him, there are some syntactic phenomena, as passivisation, that are triggered by aboutness, for semantic or phonological interface. By means of factual, norm-guided, and content-related modality, Kratzer distinguishes at least three modal projections from different anchors stablished in the world of evaluation, illustrating her theoretical viewpoint by the contrast between the sentences "this glass is fragile" and "this glass can break easily", in which the former may well be true as the latter may be false in same world.

Kratzer's point relies on the different sort of modal domain projection from which both anchors are mapped, illustrated by David Lewis' (1997) story of the Sorcerer and the Glass, according to which a sorcerer becomes very fond of a particular fragile glass, which is still quite similar to any other glass from the production line; the sorcerer does not change the nature nor the disposition of the glass, but he foresees that, if the glass eventually ends up struck, he will cast a spell upon it, preventing it from breaking, which sets the glass as no longer fragile, due to a disposition related to the sorcerer, not properly to the glass. This, according to Kratzer, would virtually assure that both modal projections would be selected and constructed from quite different modal alternatives according to each sentence.

As neither Kratzer nor Hacquard assume any stance regarding aboutness, at least not explicitly as their work mutually developed on contemporaneity, the relationship this semantic property would establish with anchoring and displacement is rather assumed in this paper, as much as it is to propose that these three properties constitute a basis for a TARDIS, which, by means of any lexical entry provided by TAME, may be instantiated towards the actual world and all the possible worlds relevant for their evaluative counterparts. TARDIS is committed to all those non-logic privileged concepts that regard human cognition in more general terms and play a role in linguistic meaning thanks to semantic knowledge, unifying grammar, lexical idiosyncrasies and context-dependency. The reason modality stands in the center of TAME for this sort of predisposition to be operated by a TARDIS is given by Kratzer as she states that:

> If the Modal Anchor Hypothesis is true, and if modal domains can be projected from any part of a world (individuals, events, situations), any type of expression that has an individual, event, or situation argument can introduce modal displacement. Since any non-referential expression has at least a situation argument in a situation semantics, modality should indeed be everywhere. Since modality comes in different flavors depending on where it originates, it should be a major source for semantic microvariation. My talk will document that this is indeed so, with case studies tracking modal displacement sublexically, with voice, aspect, tense, and evidential systems, in attitude ascriptions, and with indefinites. (KRATZER, 2013, p. 198)

3 Anchoring the aboutness of displacement

The present section argues that a TARDIS only works for a TAME throughout the meeting of those certain properties mentioned on last section. Now it is time to explicitly discuss the methodological approach presented above under an epistemological perspective, analytically applied.

Hacquard's dissertation, in general terms, offers an interesting insight for the very topic approached in here as a whole: as modality is everywhere, just like Kratzer states, anchoring as well is not strictly devoted to modality at all, operating as a productive element towards all the categories of TAME. In this section, some data from BrP is presented to illustrate the integration between semantic categories of TAME[3] and also to corroborate the argument that, although such categories are parameter-sensitive, TARDIS is presupposed to assure this

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[3] Regarding this integration between semantic categories of TAME illustrated by BrP data, check Oliveira (2019) and Ferreira (2020).

integration by means of anchoring, displacement and aboutness[4] related to universal semantic properties of intensional reference and compositionality.

First of all, Hacquard (2006) assumes that modality seems not to be anchored just to worlds, but also to individuals and times as well. All the following examples take place on the expression of modality, recurring to events, evidence and temporality to represent incursion throughout all other semantic categories; the examples displayed and discussed are meant to solely illustrate how BrP instantiates TARDIS by some of its TAME elements. As Hacquard's[5] approach represents a contemporary intent to congregate semantic categories, the available anchors under discussion follow her lead concerning modals that are either anchored to: a) the speaker at the speech-time, very high in the derivation, b) the attitude holder at the attitude time or c) a participant of the VP event at the time of the VP-event, thus provided by T.

Considering the interaction between tense and modality, BrP is a very illustrative language to the debate between syntacticians and semanticists concerning root vs. epistemic modals as it presents intense sensibility for morphological-marking inflection:

(1) Ele   deve   ter   sido   chamado   a   depor[6]
    he PRES must 3rd SING. PERS. have been called to testify
(2) Ele   deveria   ter   sido   chamado   a   depor[7]
    he IMPERF should 3rd SING. PERS. have been called to testify

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4   Previous considerations on this approach are briefly mentioned in Penz (2020).
5   Also Kratzer (2013), Portner (2009) and many others.
6   "He must have been called to testify."
7   "He should have been called to testify."

Whereas (1) only delivers an epistemic interpretation, (2) could present deontic or bouletic flavors according to context, but never an epistemic reading. As other languages, BrP allows only epistemic readings to scope over root ones:

(3) Ele deve$_{epis}$ poder$_{deon}$ voltar ao país no próximo governo[8]
    he PRES must$_{epis}$ can$_{deon}$ 3rd SING. PERS. return to-the country in-the next government

(4) *Ele deve$_{deon}$ poder$_{epis}$ voltar ao país no próximo governo
    he PRES must$_{deon}$ can$_{epis}$ 3rd SING. PERS. return to-the country in-the next government

Unaware of how sentence (4) would even sound in English, it is a complete disaster in terms of meaning in BrP, which unlocks two major properties concerning TARDIS and TAME interaction: on the one hand, compositionality determines the meaning of the whole by all its components and the way in which they are composed; on the other, there is the aboutness property, preventing the anchor on the VP-event to be realized above TP at the speech time, where Mood$_{epis}$P is realized in (3).

There seems to be a very close connection between anchoring and aboutness, despite of compositionality, and not necessarily related to displacement; it has to do with the nature of epistemic reasoning. According to Stephany (1986), modal expressions of a deontic nature are commonly acquired earlier than their epistemic counterpart, which seems to suggest an ontogenetic predisposition to reason about actions rather than more abstract propositions. Papafragou (1998) believes that a refined metacognitive development, like the theory of mind,

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8   "He must be able to return to the country on the next government."

underlies the full emergence of epistemic modals in children's speech. It is the ability of the speaker to assume and assign mental states to other speakers, performing deductive operations on highly abstract propositions. Related to this topic of language acquisition, Lunguinho (2014) presents some data from BrP that attest these theoretical assumptions.

Moving forth now, considering the contrast between (5) and (6):

(5) Não sei como é que pode vocês dar(em) audiência para esse tipo de conteúdo[9]
1st. SING. PERS not know how is that can 2nd. PL. PERS. you INF give audience to this sort of content

(6) Não sei como é que vocês podem dar audiência para esse tipo de conteúdo[10]
1st. SING. PERS not know how is that 2nd. PL. PERS. you can INF give audience to this sort of content

They look very similar, despite the fact anchoring is taking place in two different syntactic positions on the construction of the structural spine: (5) only expresses an epistemic reading related to the modal, as it is realized right above TP of the embedded sentence and is related to the speech-time of the speaker; (6) expresses a root interpretation of dynamic flavor (ability) on the other hand as the modal is realized below TP of the embedding and takes place on nominative case and checks all Φ-features.

Both sentences are quite acceptable in BrP, but they differ explicitly in meaning even though it may sound subtle to a naïve speaker: in (5) the audience will rather displace to the world of

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9   "I don't know how it is possible that you give this sort of content an audience."

10   "I don't know how you can give audience for this sort of content."

evaluation where the modal is anchored according to the beliefs of the speaker (what he believes or more specifically refuses to believe to be the case) whereas in (6) the audience displacement moves to worlds evaluated by the anchor according to the agents of the event denoted by the matrix verb. Most likely the speaker is ignorant toward such contrasts in the syntax and the semantics of (5) and (6) examples, but its Faculty of Language is not. What happens is that the displacement required for the anchoring to take place is sensitive to what the events denoted are about in both sentences, a difference that is evident in BrP thanks to its morphosyntactic system for inflectional tense and its infinitive embedding specificities.

Coincidentally, both (5) and (6) expresses each one more access reading non-related to modality anchoring that take place below the matrix verb, which represents the third case of modal anchor provided by Hacquard, that is related to verbs of propositional attitude, like "to know". BrP indeed presents some interesting cases regarding these verbs and the sentential complement these verbs construct under a NegP, as (7), (8) and (9) may illustrate:

(7) Jorge não sabe se/que Jane está em casa[11]
Jorge not 3rd SING. PERS. know if/that Jane is at home
(8) Cristina não lembra se/que deixou os seus óculos no gabinete[12]
Cristina not 3rd SING. PERS. remember if/that *pro* left the her glasses at-the office
(9) Eu não tenho certeza se/de que quero voltar a Edimburgo[13]
I not 1st SING. PERS. have certainty if/of that *pro* want go back to Edinburgh'

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11 "Jorge doesn't know if/that Jane is at home."
12 "Cristina doesn't' recall if/that she left her glasses in the office."
13 "I am not sure if/that I want to go back to Edinburgh."

Sentences from (7) to (9) present "se" as COMP as they construct their arguments,[14] which would not be so for their declarative counterparts, ascribing accusative cases introduced by "que". These sentences explicitly differ in meaning, however, from some other set of counterparts in which the structure [NEG [VP [COMP]]] is preserved but the lexical entry is actually "que" instead of "se". This is a very interesting and illustrative circumstance, for it seems that the argument headed by "se" or by "que" would rather select different anchors from different modal domain projects. Apparently, "se" in such a context, operates as a specialized[15] conditional primitive operator that is syntactically provided by VP and then submitted to all the accusative effects the structure imposes; "que", on the other hand, presents no special grammaticalized adaptation, except for the fact that it is unusual to occur in the domain of negation.

So while the "que" version of any of the sentences from (7) to (9) is anchored in the actual world by means of factual domain projection, "se" would rather be anchored in worlds of evaluation compatible with the possibility of the events being congruent with the beliefs of the attitude holder (as Jane being or not in home; Cristina's forgotten her glasses or not in her office; the speaker's desire to go back to Edinburgh or not). The "que" versions counterparts, however, presents an interesting report contrast, for the knowledge possessed by the speaker is not shared with the attitude holder, except in (9), for they are the same entity with presumably the same identity. In this regard, it is relevant to notice that "que"-sentences (7) and (8) may as well set two different anchors each above the IP domain, one

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14 This is not very common in Portuguese, and perhaps in English as well, occurring only with attitudinal verbs or verbs that express some sort of content of thought or inner state.

15 In the sense that this kind of structure occurs in the domain of negation regarding attitude verbs.

regarding the speaker who utters and the other regarding the local attitude holder, what seems to be trackable and plausible via aboutness, given the subject position. (9), by instance, most likely will set only one anchor above Tense, yet would rather yield the same differences between "se/que" from the modal projection domain viewpoint: "se" seems to introduce the event of coming back to Edinburgh as one possibility among others, which may not even be feasible according to speaker's evidence of this outcome; "que", on the other hand, is mapped from the factual domain on actual world, supporting the interpretation that there is evidence that the speaker is capable/authorized/entitled to go back to Edinburgh, even though he is not sure he wants to do so.

These more general regards seem to correlate to grammar in specific manners, as Hacquard's anchoring proposal for epistemic modals suggest and Left-Periphery approaches in Syntax has been describing for the last two decades. As Cinque (1999, 2006) characterized epistemic modals as functional heads positioned very high at the derivation, given crosslinguistic data, Rizzi (2015) describes left-periphery elements to be assigned for phonological or semantic purposes via aboutness.

BrP is a very tolerant language when it comes to adverbial movement, specially to the left-periphery of the sentence, increasing the aboutness development as a specialized device for topicalization structure in this language; as BrP lack evidential system by means of lexical entries or any particles devoted solely to the expression of this category, it is also important to remember that some languages are tenseless or lacks aspectual system, compensating their expression of temporality by different approaches. Left-periphery, though, is a very fruitful arena for

the development of semi-evidential particles, specialized in conveying this sort of special meaning; for instance, (10) and (11):

(10) É provável que ele nem se lembre disso[16]
PRES 3rd SING. PERS. [it] is likely that he even himself
SUBJ. remember of-this

(11) #É provável que ele nem se lembra disso
PRES 3rd SING. PERS. [it] is likely that he even himself
IND. remember of-this

It is possible to map evidentiality from the anchor which is set in the null-subject position of both (10) and (11); BrP, unlike English, does not check for an overt expletive pronoun in Spec position; however, the speaker committed to either (10) or (11) is allegedly basing his assumptions in some factual domain which sustains his beliefs for the assertion. The embedded verb in both cases is "lembrar-se"[17] for the whole sentence operates as sentential complement of the matrix verb "é provável", which, as a raising verb, may as well host a subject position of the predication via aboutness, as the complement sentence realizes the nominative case and properly checks Φ-features. The oddness attested for (11) may come from the indicative mood embedded from a speaker anchor whose modal domain is not the actual world;[18] although the evidence the speaker presumably disposes may well come from the factual world, the anchor of

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16 "It is likely that he doesn't even remember this."

17 This is the infinitive form "lembrar" for the verb inflected ("lembre") plus its accusative complement as the oblique pronoun "se".

18 An anonymous reviewer claimed that find this sentence acceptable in terms of Pimpão (1999) and Pimpão & Santos (2018) analysis, stating that this contrast may as well be explained as a grammar/variety difference. Nevertheless, this reviewer also stated to believe the explanation we offer still holds for the possibility of the use of the indicative in this context. We would like to thank the reviewer for this thoughtful consideration.

the prejacent[19] set on VP-event is running over worlds that are compatible to the speaker evidence and belief concerning the mental state of the participant of the event.

Although all the examples intend to solely illustrate how some instantiations of TAME may recur to more than one semantic category in other to be properly expressed in terms of its meaning, hopefully this paper could set the agenda for TARDIS and TAME investigation on BrP as a new enterprise in linguistic theory and analysis field. Modality has played a center role in this work; perhaps temporality, evidence or events could play a major role on other papers, interacting towards mood and modality in order to properly describe and explain phenomena. Thanks to TAME, TARDIS can not only take us there, but also take everyone everywhere without even leaving the here and the now.

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19   Considering that the proposition could be modalized as in "He might not even remember this".

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