Book Review

Kasia M. Jaszczolt and Louis de Saussure (eds.). 2013. *Time: Language, cognition and reality*, Oxford Studies of Time in Language & Thought. Oxford: Oxford University Press, 295pp. ISBN 978-0-1995-8987-6

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The book *Time: Language, cognition and reality* is the opening volume of a new series of publications on the theme of time called Oxford Studies of Time in Language and Thought. The need to create a series dedicated to the topic of the expression and representation of time in language and thought demonstrates the persistent interest in this matter. Of course, as this volume and *The Oxford handbook of tense and aspect*, edited by R. Binnick (2012), so well illustrate, we speak about multidisciplinary and interdisciplinary interests.

Regarding the multidisciplinary interest, one can enumerate research areas such as linguistics, philosophy, psychology, translation studies, sociology, anthropology, and artificial intelligence. Obviously, within each of these research areas, more-specific accounts of time are provided. For example, as far as linguistics is concerned, one can distinguish between typology, morphology, syntax, semantics, pragmatics, discourse, and language acquisition, among others (see Binnick 2012). As for the interdisciplinary perspective, for example, linguistics and computational linguistics aim at proposing semantic and pragmatic models of temporality in discourse that can be implemented automatically and used for improving the results of statistical machine translation systems (see, for example, Meyer et al. 2013). Another interdisciplinary perspective is, for example, between linguistics, psycholinguistics, and neurolinguistics, aimed at investigating human processing of temporal information by looking at online processes in healthy speakers and brain-damaged patients through experimental methods such as electroencephalograms and reaction times (see, for example, Bastiaanse et al. 2011; Bos et al. 2013; Dragoy et al. 2012; Qiu and Zhou 2012). Interdisciplinary work is advantageous for all parties: Neurolinguistics benefits from theoretical input while linguistics benefits from the validation or amendment of its theories.

In this volume, Jaszczolt and de Saussure focus on the linguistic and philosophical perspectives on time. Specifically, they address three main issues around which the book is organized, namely temporal reference, time and modality, and finally, the metaphysics of time and the linguistic expression of temporality. The authors described the essence of their book in the following words (p. 5):

> What we have tried to emphasize in the, by necessity very limited, "taster" represented by this introductory volume are the foundational issues, such as that linguistic means of conveying time, be they grammatical or lexical, cannot be considered in isolation from the semantic factor of sentence compositionality; from pragmatic factors such as contextual relevance and the process of utterance interpretation (including pragmatic inference); or from philosophical and psychological factors such as the relation of the concept of time to the "reality of time" on the one hand, and to the expression of temporality on the other.

The first issue considered is the question of temporal reference in discourse, first suggested by Arnauld and Lancelot (1975 [1660]; known as *The Port-Royal grammar*), followed by Beauzée (1973 [1767]), Reichenbach (1947), Montague (1974), and Prior (1957, 1967), and developed in the formal semantics domain by Dowty (1979), Kamp (1979), Kamp and Reyle (1993), Partee (1973), Steedman (1997), and Hornstein (1990). Contemporary developments of this first issue consist of current theoretical assumptions about sentence compositionality as developed in discourse representation theory (DRT) and segmented discourse representation theory (SDRT) frameworks (e. g., Asher: Ch. 1, this volume; ter Meulen: Ch. 2, this volume). The issue of temporal reference was further investigated in cognitive post-Gricean pragmatics, specifically connected to relevance theory (Sperber and Wilson 1995 [1986]; Wilson and Sperber 2004), which is a pragmatic-cognitive theory focusing on the relation between cognitive effort and effects, the distinction between procedural and conceptual information (Blakemore 1987; Wilson and Sperber 1993 and Wilson and Sperber 1998). In this framework, tense, whose main function is to express temporal reference in discourse, is a procedural marker. Tenses provide instructions about how to saturate the temporal variables (i. e., Reichenbachian coordinates speech moment S, reference time R, and event moment E) they encode in order to establish temporal reference for temporal discourse entities. These instructions constrain the inferential phase of interpretation through diverting the less accessible contextual hypotheses about the speaker's intended meaning. The hypothesis that tense is a procedural marker that expresses temporal reference is not incompatible with the observation that in some cases, verbal tenses express other than temporal meanings. De Saussure's claim (Ch. 3, this volume) is that the temporal meaning of a tense is traded under the pressure of other linguistic, nonlinguistic, and contextual information.

The second issue considered in Jaszczolt and de Saussure's volume is the relation between time and modality. Specifically, times, be they past or future, can seem closer or more distant in time. This temporal distance has a cognitive connection with epistemic certainty. Past, present, and future are temporal values correlated with different degrees of epistemic commitment on behalf of the speaker. Another viewpoint is that of cognitive grammar, where the speaker

is the conceptualizer who decides whether an event is an accepted part of her/ his reality at the moment of speaking; in other words, the event is presented in terms of necessity.

The third and final issue addressed in this book is the metaphysics of time and the linguistic expression of temporality. The philosophical question of whether tense is projected onto a tenseless world by the human conception of time, or whether tense in language reflects an objective tensed reality, animated a long-standing debate between A-theorists and B-theorists. According to the former group, reality is tensed; the concepts of pastness, presentness, and futureness are properties of times, and they are reflected by linguistic tense. The latter group assumes the contrary, specifically, that reality is tenseless and the concepts of pastness, presentness, and futureness reflect only precedence, simultaneity, and, respectively, posteriority relations regarding a reference point.

The volume *Time: Language, cognition and reality* consists of 12 chapters, which are subdivided into an introduction and three parts. Each part gives an account of one of the three main theoretical issues described above. Part I (Chapters 1–3) is entitled "Time, tense, and temporal reference in discourse" and contains two papers in formal semantics with illustrations from English and one in pragmatics with illustrations mainly from French. Part II (Chapters 4–6) is entitled "Time and modality" and contains three case studies: Dutch, French, and Italian. Part III (Chapters 7–11) is entitled "Cognition and metaphysics of time" and contains five papers providing a selection of views on the epistemology, metaphysics, and cognitive processing of temporal reference with illustrations from English.

The introduction ("Introduction: Time, temporality, and tense") is outstanding and represents the state of the art, very rich in references regarding what was and currently is the expression of time in language and cognition. The authors give themselves all the necessary means for introducing the necessary issues that are at the heart of our understanding of the topics discussed in their volume. They set the general background knowledge about time, temporality, and tense and highlight the various facets that, considered together, lead the reader toward understanding the complexity of the expression of time. The forewarning that the book will interest scholars and advanced students of time and temporal reference is welcome since a noninitiated reader would miss the main line of argumentation.

Chapter 1 ("Temporal modification") gives an account of the interaction between verbal phrases and temporal adverbials developed in a discourse semantics framework, specifically SDRT. Asher explains the difference in interpretation of each possible sentence listed in examples (1)–(4) in terms of *meaning composition* and *coercion*. He argues that the effects of verbal modification

through temporal adverbials go beyond difference in aspectual classes (Dowty 1979; Vendler 1957; Verkuyl 1972) as in (1) and (2) and regard the establishment of the meaning of the sentences through coercion, that is, determining the arguments of a predicate based on the types presupposed by the predicate accommodated in a given context. Cases of mismatch between the type presupposed by the predicate and the argument type represent a semantic composition crash, as illustrated by the two variants of sentences in (3) and (4).

(1) John wrote a letter/in an hour/for an hour.

(2) John kissed Mary at ten in the morning/for an hour.

(3) She left her husband at the airport five minutes ago/five years ago.

(4) She left the school five minutes ago/five years ago.

But the sentences in (3) and (4) are perfectly understandable for hearers, so there must be an explanation for how the semantic composition crash was resolved. According to Asher, semantic composition crash is resolved through coercion. He argues against coercion being a pragmatic mechanism – in his words, "You can't relegate the problem of coercion to the pragmatics garbage can" – and suggests a formal theory of lexical meaning. In the relevance-theoretic framework, for example, these cases are explained in terms of inferentially determined aspects of the explicit content of an utterance based on contextual and world knowledge, particularly in the domain of *lexical pragmatics* (Carston 2002 and Carston 2004; Wilson and Sperber 2004). Rejecting the pragmatic account, Asher proposes that shifts in meaning are possible because there is a shift in the way in which the meaning of the arguments and the meaning of the predicate combine. Basically, Asher's model is based on *types*, which are semantic objects, and the way in which types combine. Coercion is explained therefore through the introduction of a special type structure governed by type presuppositions, which are accommodated in order to match the type of the argument expressions.

Chapter 2 ("Temporal reasoning as indexical reference") investigates aspectual adverbials in English (such as *still*, *already*, *not yet*, *no longer*, and *not anymore*), suggesting that they affect inference rules for temporal reasoning in natural languages, similar to the well-described cases of tense and aspect. For example, the two sentences in (5) illustrate that from a simple past tense accomplishment, one can infer its present perfect form. On the other hand, there is no inferential rule that validates the transition from a past progressive accomplishment to its present perfect progressive tense, as the sentences in (6) illustrate.

(5)   John walked/has walked to school.

(6)   John was walking to school/* has been walking to school, when a bus hit him.

Ter Meulen aims to add to this temporal reasoning pattern the case of aspectual adverbials. She points out that from the sentence in (7), one cannot infer any further information about what is going on, what has happened, or what may happen. This is nevertheless possible in the two sentences in (8), and it is due to the adverbs *still* and *already* respectively. A second point is that these aspectual adverbials can potentially trigger scalar implicatures. Ter Meulen writes, "The numerical scale, counting in this example how many students there are, induced by the aspectual adverb *still* is hence decreasing into the future, whereas for *already* it is increasing" (p. 41). Ter Meulen's suggestion is that these aspectual adverbs play a role for determining information structure. Aspectual adverbials convey background assumptions that provide two focus alternatives: one varying over the cardinality of the set of students who are present, and the other varying over moments of time corresponding to the number of students who are, were, or will be present.

(7)   There are three students here.

(8)   There are *still*/*already* three students here.

    Chapter 3 ("Perspectival interpretation of tenses") proposes a pragmatic account of the link between tense and temporal reference in discourse, or more precisely, lack of temporal reference. De Saussure therefore investigates cases where tenses do not, or do not only, refer to the times(s) as one would expect according to their intuitive semantics. Three cases are discussed: narrative and other nonbackground uses of the French past imperfective tense (imparfait), future-time reference with the French composed past (passé composé), and epistemic futures displayed by French, English, Italian, and many other languages. His main argument is that these cases can be accounted for through general pragmatic principles: One of the components of the temporal representation (the deictic point, the reference point, or the eventuality moment) is modified under the pressure of contextual consistency or relevance. Here are some examples:

(9)   A huit heures, Marie *trouvait* ses clés et sortait.

(10)   'At eight, Mary found her keys and left.'

(11) Le train quitta Londres. Une heure plus tard, il *entrait* déjà [surprise] en gare de Birmingham.

(12) 'The train left London. One hour later, it enter-IMP already [surprise] in Birmingham station.'

(13) Dans un an, j'*ai fini* ma thèse.

(14) 'In a year, I will be done with my thesis.'

(15) That *will* be the postman.

(16) Ce *sera* le facteur.

De Saussure argues that the imparfait in (9) and (10) changes its behavior (which is similar to the English progressive, except it does not imply dynamicity) under contextual constraints of boundedness and temporal sequencing in (9) and of a third-party subjective perspective on the eventuality (as the contextual instantiation of the R point) in (10). The sentence carrying the presumption of its own relevance, its interpretation must be consistent with the contextual assumptions. And this happens through a pragmatic modulation of the temporal interpretation associated with the imparfait. The situation is similar for the interpretation of the passé composé in (11), where the representation of the eventuality is pragmatically shifted into the future, from where it is conceived as past. This shift occurs under the pressure of a future-time adverb positioning the projected point R as corresponding to a third party's viewpoint. Finally, the epistemic future in (12) causes a change in how the eventuality is conceived: "It is interpreted as *verification of the eventuality* [emphasis added], or, as we suggested, *grasping of the eventuality as being true* [emphasis added]; this evaluation is understood, we claim, as performed from a subjective perspective, that is, again, a third party from the speaker at S" (p. 67).

Chapter 4 ("Modal auxiliaries and tense: The case of Dutch") takes the reader into a different framework from those assumed in Part I, that of the *cognitive-functional* approach, and its application to the interaction between modality and tense. Byloo and Nuyts support their theoretical hypotheses with corpus data from Dutch. The chapter introduces the basics of the cognitive-functional approach: (a) The linguistic systems in cognition are closely inter-related with the cognitive systems responsible for storing world knowledge and reasoning with it (the principle of depth), and (b) the linguistic system is

dynamic, that is, context sensitive, flexible, and adaptive (the principle of dynamism). In other words, "coding conceptual meanings into linguistic form is something that speakers must work out dynamically, on every communicative communication" (p. 75).

Byloo and Nuyts aim to investigate "multiple mappings" between semantic categories and formal categories, or more precisely, cases where the meaning of modal verb changes in function of the tense. They considered three modals in Dutch – *kunnen* 'can', *mogen* 'may', and *moeten* 'must' – and analyzed their meaning in 400 occurrences per modal, 1,200 occurrences in total. The authors discuss the possible combinations between the three modals, the types of modality (dynamic, deontic, epistemic, and evidentiality), and the tenses (simple and complex tenses). They conclude that dynamic meanings (when they are possible) are systematically sensitive to the tense forms when these indicate time and have grammatical scope over the modal; deontic modals are most often insensitive to perfective or future auxiliaries when these express time and they push the preterit into counterfactuality; and finally, epistemic and evidential modals are insensitive to tense, which cannot have grammatical scope over them. Byloo and Nuyts conclude their paper by pointing out that, as the case study showed, "one cannot assume a one-to-one relationship between form and meaning in language" (p. 97).

It is appreciable that Byloo and Nuyts (and also Rocci in Chapter 6) belong to the rapidly growing group of linguists who provide a consistent and objective empirical basis for their theoretical models. Byloo and Nuyts's paper is a corpus-based study that makes use of a scientific methodology, specifically a randomly selected and representative sample of data (Gries 2009), a sense disambiguation task done by two to four researchers (since the considered categories presupposed advanced knowledge of modality), and discussion of cases of disagreement and ambiguities (Artstein and Poesio 2008; Carletta 1996; Grisot and Moeschler 2014; Sanders and Spooren 2009). Their evaluation of the results is based on both quantitative and qualitative analyses according to the theoretical hierarchy proposed by Nuyts in previous research (2001, 2008).

Chapter 5 ("Semantic and pragmatic aspects of the interaction of time and modality in French: An interval-based account") is the second paper in this volume aimed at investigating the complex interactions between tense and modality. Gosselin argues against the classical view in French linguistics about tense and modality being strictly separated categories, and proposes an account of the two categories in a unique framework based on a Reichenbach-inspired model, where point coordinates are replaced by intervals. This provides a wide range of possible combinations that represent both tense and aspectual viewpoint (known as grammatical aspect). The second inspiration for Gosselin's

model is the so-called *asymmetrical modal structure* (Vet 1981), according to which the modal change occurs at the referent point R. Consequently, "the past and the present pertain to the *irrevocable* ('historical necessity'), while the future is conceived as open, undetermined, simply *possible*" (p. 102).

His model makes the following predictions: (a) Time, aspect, and modality are essential components of all utterances, and (ii) all eventualities are situated in time, more or less precisely, but also presented under a certain aspect and according to a specific type of modality. The main hypothesis is that the connection between tense and modality is achieved at the semantic level of the aspectual viewpoint. Accordingly, the aspectual viewpoint defined by the position of the reference interval R relative to that of the eventuality R determines the position of the modal breakpoint that opposes the possible to the irrevocable. Both Gosselin and de Saussure's models grant importance to what Reichenbach called reference point R. De Saussure linked the existence of special usages of tenses to different types of contextual instantiations of R, whereas Gosselin attaches both aspectual and modal values to R, which is an interval.

Chapter 6 ("Modal conversational backgrounds and evidential bases in predictions: The view from the Italian modals") investigates the interaction between future-time reference with evidentiality and modality through the semantics of three modal verbs in Italian (*dovere* 'must', *potere* 'can, may') in a specific type of utterance, namely *predictions*. His main working hypothesis comes from Searle and Vanderveken's (1985) characterization of predictions as types of speech acts where the speaker asserts that the propositional content is future with respect to the time of utterance and that the speaker has indirect evidence in support of the proposition (p. 129). Explicitly, Rocci's hypothesis is that modal verbs in Italian function as evidential strategies in prediction speech acts and as anaphoric or cataphoric pointers toward other discourse utterances where the evidence is expressed explicitly. In the latter case, the modals play the role of "argumentative discourse relations between a predictive standpoint and the argument that supports it" (p. 129). For Rocci, the modal *dovere*, on the one hand, signals that the proposition over which it takes scope is the result of an inferential process (encoding procedural information that instructs the hearer to recover the required evidence on the context) and, on the other, constrains the types of source of evidence (encoding conceptual information). The inferential reading of *dovere* is accessible in the present, imperfect, and remote past tenses, but it is blocked when the proposition refers to a future state of affairs. Likewise, the Italian future tense (which is diachronically a modal) has an inferential evidential reading when the proposition does not refer to a future state of affairs, and therefore not in prediction speech acts. Based on quantitative and qualitative analyses of a corpus of prediction speech acts from Italian economic

financial news, Rocci shows that (a) the future and conditional forms of the modal verbs *dovere* and *potere* are highly frequent, (b) future-time reference imposes precise and finely grained epistemological constraints on what can be accepted as types of evidence, and (c) conditional forms of the modals give rise to a limited set of complex evidence types that support predictions.

Chapter 7 ("Experience, thought, and the metaphysics of time") is the opening chapter of Part III, dedicated to "Cognition and metaphysics of time." Philosophers are interested in the relation between tense and time regarding the question of whether tense is projected onto a tenseless world by the human conception of time, or whether tense in language reflects an objective tensed reality. In this chapter, Prosser addresses the question of the relation between the *reality of tense* and the notion of *time that passes*. He underlines that the way in which this relation is envisaged modifies our understanding of both the metaphysics of time and the semantics of tenses. The major philosophical debate regarding this question is between *A-theory* (also known as the *tensed* theory) and *B-theory* (also known as the *tenseless* theory) of time. *Pastness*, *presentness*, and *futureness* are therefore properties of times, and they change as time passes. The direct consequence is that "if time passes then every time has every A-property" (p. 158). By contrast, in B-theory, times are ordered through three relations: *being earlier than*, *being later than*, or *being simultaneous with*. No time is objectively *past*, *present*, or *future*, and the apparent passage of time is an illusion. Prosser explores the advantages and the limits of the two theories regarding several criteria: (a) our perception of the passage of time, (b) time in thought, and (c) time in language.

According to A-theorists, humans are able to perceive the passage of time and therefore the properties of time (pastness, presentness, and futureness). Prosser argues against this claim: "Contrary to the apparent nature of our experiencing, and whether or not time really passes, we are not aware of it passing" (p. 160). His argument is that A-theorists fail to explain how we can experience the passage of time (i. e., how we know "what it is like" to have the experience) since there is no comparison point. For example, we know that we have a visual experience of red in that it differs from having a visual experience of blue. According to A-theorists, the properties of time could figure in the semantic values of linguistic utterances. Prosser continues his argument against A-theory of time, explaining that if temporal properties cannot be perceived, then we cannot refer to them (in language) or think about them (in thought). As far as B-theory is concerned, it has its own challenges regarding these criteria. Prosser argues that the major challenge is to explain the way in which we experience time with respect to states of affairs, such as, for example, a surgery. The day before the surgery, one is anxious about *tomorrow*, and the day

after the surgery, one is relieved because the surgery is *over* (from Prior 1959). According to B-theory, thinking about the surgery at different times should always be the same, since the passage of time is an illusion and reality and thought are tenseless.

Chapter 8 ("Tensism") continues the reflection about the relation between tense and time with respect to language, thought, and reality initiated by Prosser. In this chapter, Ludlow focuses on the philosophic trend that assumes that tense is an irreducible and real feature of the world (the A-theory). He speaks about *metaphysical* and *linguistic tensism*. The former states that reality is tensed and that it cannot be reduced to more-basic untensed facts. The latter states that natural language is tensed and linguistic tense is not reducible to more-basic untensed facts about language. One argument in favor of meta-physical tensism is that the notion of tense is expressed through various linguistic expressions in world languages (such as tense markers, aspect, evidential markers, modals, and spatial predicates). This corresponds to what is called *metaphysical tense*. As for linguistic tensism, it regards the semantics of tensed expressions, that is, the way in which they are used to refer to the world.

Ludlow points out (following Prior 1959) that tensed utterances provide more cognitive significance than untensed ones and that this difference should be available in the semantics of the utterances. In previous research he proposed the model of the *dynamic lexicon*, according to which word meanings are dynamic (i. e., it is not the referent of a temporal expression such as *now* that shifts from a context to another but the senses of *now* that can shift across time). Ludlow's hypothesis is that the metaphysical tense can be understood as an "egocentric perspective property" (i. e., regarding our explanation of actions and emotions) (p. 181). It is this property that induces the difference between tensed and untensed utterances regarding their contribution to cognitive significance. In relevance theory, which is a cognitive-pragmatic theory focusing on the relation between cognitive effort and effects, tense is a linguistic expression that plays a crucial role in guiding the hearer toward the intended cognitive effects signaled by the meaning of the utterance. Grisot and Moeschler (2014) suggest that one type of procedural information encoded by tense is related to the notion of *subjectivity* (Banfield 1982; Fleischman 1990 and Fleischman 1995; Pit 2003; C. Smith 2003; Talmy 1988; Traugott 1989 and Traugott 1995), and it instructs the hearer to determine whether the utterance is organized around the speaker's psychological state (Grisot 2015). De Saussure (Ch. 3, this volume) and Gosselin (Ch. 5, this volume) as well attach the notion of *perspective* to the semantics of tense; however, their use of the notion is with respect to various instantiations of the reference point R.

Chapter 9 ("Temporality and epistemic commitment: An unresolved question") offers a new perspective on the human temporal concept of pastness, presentness, and futureness compared to those suggested in the previous two chapters. Jaszczolt assumes that "on the underlying level of basic concepts, temporality is epistemic modality, where our temporal concepts of past, present, and future eventualities alike are founded on the degrees of commitment to the truth of the proposition (or the proposition-like construct) expressing that eventuality" (p. 193). In previous research Jaszczolt (2009, 2010) argued in favor of the *modal supervenience of temporality*, which means that the concept of internal, psychological time is determined by the concept of epistemic detachment and also by the concept of real time (which is under debate between A-theorists and B-theorists as discussed in Prosser's and Ludlow's chapters). In other words, the supervenience thesis predicts that a temporal difference in meaning is necessarily accompanied by a modal difference.

Jaszczolt's concern in this chapter is to give an account of how to translate the qualitative difference between past, present, and future into quantitative differences with the purpose of finding the exact correlation between the values of degrees of commitment and values of temporal reference (past, present or *now*, and future). She suggests two possible answers. The first assumes that the difference between past, present, and future *is* a quantitative one rather than a qualitative one. She bases her analysis on Q. Smith's (2002) proposal, which she adopts to the B-theory approach (the modifications are written in brackets):

> The degree to which [a representation of] an item exists [in the agent's mind] is proportional to its [perceived] temporal distance from the [agent's] present; the [agent's] present, which [often] has zero-temporal distance from the [agent's] present, has the highest (logically) possible degree of existence [in the agent's mind]. (p. 203)

Jaszczolt argues that these degrees correspond to the agent's or speaker's conceptualization of time and not to the world. The second possible answer to the question regarding quantitative differences between past, present, and future is the differences are qualitative and the value of the degree of commitment is contextually established. Specifically, lexical, grammatical, and pragmatic means of conveying temporal reference interact, providing the temporal location in the past, present, or future in the light of modal supervenience.

Jaszczolt's second suggestion is very interesting and appealing, recalling some work done in the relevance-theoretic framework on temporal reference in discourse, but which does not specifically consider the relation between modality and tense. For example, Moeschler (2002) argues that the hearer infers the direction of temporal inferences based on several linguistic cues (encoding conceptual and procedural information) and nonlinguistic cues guided by the

cognitive and communicative principles of relevance. He suggests a hierarchical organization of these cues where contextual assumptions are at the top, followed by procedural and finally by conceptual information at the bottom. Escandell-Vidal and Leonetti (2011) discuss the interaction cases of mismatch between contextual assumptions and procedural meaning (resolved through *accommodation* by adding new material in the context, from Beaver and Zeevat 2007), between conceptual and procedural information (for example, between lexical aspect encoding conceptual information and grammatical aspect encoding procedural information resolved through the *modulation* of the existing conceptual content).

Grisot and Moeschler (2014) argue, based on offline experiments with linguistic judgment tasks, that verbal tenses encode conceptual information, specifically a *proconcept* semantically incomplete and contextually worked out in the form of a specific configuration of temporal coordinates S, R, and E (Reichenbach 1947) under the pressure of contextual consistency or relevance. The contextual value of the proconcept may correspond to past-, present-, or future-time reference of tense or other types of usages (called *perspectival* by de Saussure in Ch. 3, this volume). Grisot and Moeschler's (2014) hypothesis regarding the conceptual content of tenses is supported by recent neurolinguistics findings. For example, Bastiaanse et al. (2011) argue that past-time reference is impaired in agrammatical or Broca's aphasia both in tensed languages (marked through tense) and in tenseless languages like Mandarin Chinese (marked through temporal adverbials and aspectual particles). Grisot (2015) argues that from a pragmatics point of view, these results suggest that it is the *concept of pastness* that is impaired in agrammatical aphasia, a concept conveyed through past-time tenses in tensed languages and through other means in tenseless languages. My suggestion is that these findings seriously challenge the assumption that tenses encode uniquely procedural information (see, for example, Aménos-Pons 2011; Nicolle 1997 and Nicolle 1998; de Saussure 2011) and that temporal location through E, R, and S is of a procedural nature. The predictions of this theoretical model would be that past-time reference should not be impaired in Chinese since this procedural information, which is language specific (see Curcó 2011), is encoded by tense, and Chinese expresses temporal location through temporal adverbials such as *jiangyao* for future and *cengjing* for past (Qiu and Zhou 2012).

Chapter 10 ("An account of English tense and aspect in cognitive grammar") introduces the reader to some basic concepts of cognitive grammar (Langacker 1991, Langacker 1995, and Langacker 2002), on which Brisard builds his analysis of tense and aspect. His main hypothesis is that tenses representing *grounding predications* combined with aspectual markers express the speaker's (i. e., the conceptualizer)

modal concerns, specifically his/her epistemic commitment. The notion of *grounding* is used in cognitive grammar to express the conceptual analogies between the various strategies that speakers can use to refer to nominal and verbal/clausal entities. The notion of a *grounding predicate* is defined as a grounded instance of a nominal or verbal/clausal type of conception. The notion of *ground* is used to refer to the speech event, its participants, and its immediate circumstances (including, for verbal grounding, the moment of speech).

In English, tenses and modal auxiliaries representing clausal grounding predications express the conceptualizer's knowledge about the reality status of certain situations at a given point in time. To be precise, present tense situates an objective proposition within the conceptualizer's *immediate reality* (that is, precisely coinciding with the time of speaking) whereas past tense situates the proposition outside his/her immediate reality (the temporal relation to the ground is of anteriority). They are both accepted as *real* by the conceptualizer. The future does not belong to reality and should be characterized as possible nonreality.

The lexical aspect of the verb (dynamic processes vs. statives) and grammatical aspect (perfective vs. imperfective) modify this functioning of present and past grounding relations. For example, regarding the interaction between grammatical aspect and present tense, Brisard argues that a tense form (even a simple one) is always grammatically perfective and/or imperfective in itself, regardless of whether this is explicitly signaled. The English simple present tense, which is only perfective, indicates a situation that is fully predictable at the time of speaking and accepted by the conceptualizer as a necessary part of reality. This is possible for dynamic verbs because in the conceptualizer's *virtual* representation of the event, it coincides with the ground, even if in reality it is not completely the case. It is the conceptualizer who presents the event as an accepted part of her/his reality at the moment of speaking. According to Brisard, the English simple present can be described in terms of structural necessity whereas the present progressive expresses the opposite, namely *contingency* or lack of necessity. The notion of *contingency in immediate reality* is used as the starting point of a semantic map, which predicts the possible more or less connected temporal and modal meanings of the present progressive in English. The author points out that this description of the semantics of the imperfect does not apply to its combination with past tense, nor can it be transferred to other languages.

Chapter 11 ("Frames of reference and the linguistic conceptualization of time: Present and future") is the last chapter of Part III and ends the volume. Chilton gives a cognitive account of English tense morphemes in relation to conceptual time. He aims at modeling (a) the existence of "default" conceptualizations or semantics

(called *schematic conceptualizations*) associated with tense markers and (b) the cognitive operations that can switch the default time interpretations, given pragmatic input (p. 242). The methodological tool proposed was developed in the framework of deictic space theory (DST) proposed by Chilton (2005, 2007, 2014). The DST postulated the existence of a universal conceptual space consisting of three dimensions: discourse referents on the *d*-axis, conceived time on the *t*-axis, and epistemic modality on the *m*-axis. The three dimensions converge at *S*, which stands for the speaker or the conceptualizer, which is also the zero point of now-here-real. These four elements represent a *frame of reference*. There is a base coordinate system called *R* standing for the reality conceptualized by the speaker. The conceptual space contains for every linguistic expression several frames of reference, treated as copies of R, which are *virtual realities* anchored at different deictic points in S's R (p. 237). The relative distances on each axis represent the speaker's *cognitive distance*. Around S there is a *peripersonal space* standing for the speaker's peripersonal *time*, consisting of the memory of recent past and anticipation and planning for immediate future.

Chilton provides an analysis of the English linguistic means used for expressing future-time reference – simple and progressive present, the periphrastic present *going to*, and simple future *will* – within the framework of DST. Chilton suggests that Jaszczolt's (2009) argument in favor of future-time deictics in English as being modal and expressing a certain degree of detachment from the certainty of *now* does not explain whether and how the core meanings of tenses expressing future-time reference encode modal gradations. In his view, the linguistic means of expressing the future are better analyzed in terms of shifting point of view rather than modal scales, and this is done easily in the geometrical approach formulated in DST. Modal effects may arise, but this occurs through "contextual factors interacting with the conceptual structures built from reference frames" (p. 257). For example, neither the simple present nor the present progressive can refer to the future without extra lexical or pragmatic specification (and therefore extra cognitive structure), such as *this Thursday*. The present progressive "opens a window" into the future, where the conceptualizer's *now* is located at a deictically future time, indicated by the temporal adverb. The future *now* and *this Thursday* are conceptually colocated. The present progressive and the periphrastic *going to* indicate that the situation expressed by the verb is from the speaker's viewpoint out of his/her peripersonal space. As far as the future expressed with *will* is concerned, the DST geometrically models the suggestion that there is a represented verification of a current eventuality, precisely through a new *R'* located at some time in the future of S (of the base frame R). De Saussure and Morency (2012), who proposed this interpretation of the future in French, pointed out

that this viewpoint is *allocentric* – that is, it is distinct from the current speaker in the actual world. Chilton concludes that the reference frames model provides an appropriate means of description and analysis of time-reference expressions using the theoretical principle of perspectival alternation.

I found Chilton's geometrical modelization convincing in that it provides a visual support of the speaker's conceptualization of time. The three-dimensional deictic space, consisting of a base frame with the speaker's here-now-real in the center and the other frames of reference nested in the base system, helps us visualize the complexity of humans' conceptualization of time. Chilton's model integrates fundamental existent assumptions that have been made about tense: (a) Reichenbach's (1947) temporal coordinates, (b) Damourette and Pichon's (1927) observation that language is used to communicate the speaker's psychological attitudes, (c) Jaszczolt's (2009) account of the relation between tense and modal readings, and (d) de Saussure's perspectival interpretation of tenses. Moreover, the distinction between the base system and the frames of reference, which are copies of the base system, allows the modelization of "default" semantics and the meanings triggered by supplementary lexical material or pragmatic factors. Regarding this last observation, I want to point out that in a different framework (i. e., relevance theory), tense (and language in general) is underdetermined and is contextually worked out. It would be then more appropriate to speak about *usage* rather than *meaning*, be it default (i. e., highly frequent) or interpretative (i. e., less frequent), as argued by Grisot and Moeschler (2014). Each usage is characterized by the contextual value of the conceptual core (configuration of E and R with respect to R) and the contextual values of the different types of procedural information. In my view, this pragmatic account of tense is compatible with Chilton's geometrical modelization of the speaker's conceptualization of time. Grisot and Moeschler's model is a model for language comprehension whereas it is unclear whether Chilton aimed to create a model for language production or comprehension, or even for both.

To conclude, I want to point out that all papers contained in Jaszczolt and de Saussure's volume are very interesting regarding the account each proposes of the general topic of the book *Time: Language, cognition and reality*. Notwithstanding the division of the book in three parts, the volume provides a unified image of our knowledge about time. If I were to suggest a metaphor, the volume is a work of art: The reader needs to step back and behold it open-endedly. It was very challenging and very enriching to take the time to follow each author in his/her argumentation. I think that this volume is worth reading and the series *Oxford Studies of Time in Language and Thought* is very promising.

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Bionote

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