THE SEMANTICS-PRAGMATICS OF ROUTE DIRECTIONS

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“Language is larger and more solidly human than any formula can make it.”
Robert A. Hipkiss

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CONTENTS

ABSTRACT

Human beings are unique creatures in that they acquire and deploy natural language. This allows them to communicate the organization of the world perceived through the senses. It also enables them to give structure to the social world in which they effect the various actions that belong to ordinary life. Critical to our functioning in the surroundings is our navigational capacity. Without being able to move around in an efficient way, it would be difficult for us to meet our existential needs. Verbal route directions help us accomplish that. Since these route directions bring together two vital aspects of our cognitive achievements – language use and spatial reasoning – they consist in, and thus provide researchers in different fields with, a window to the mechanisms of the mind that urges continuous investigation.

The main thesis of this dissertation is that the semantics-pragmatics of written route directions integrates non-linguistic as well as linguistic aspects. The former have to do with a psychologically oriented knowledge model of the way we apprehend the external world. The latter subsume a discourse model and a dialog model of route directions *qua* verbal behavior.

A knowledge model is needed because, from the language production point of view, the route directions' informant must convert visuospatial and propositional representations of movement around a specific environment retrieved from memory into a verbal message. This will induce the route directions' user to convert the linguistic expressions back into the propositional and visuospatial representations of the motion event at hand. By doing so, the route directions' user can retrace the stretch to be covered from starting point to destination. Here we build on experimental findings in cognitive psychology on the conceptualization of route directions (e.g. Denis 1997, Daniel & Denis 1998, Denis et al. 2001). Based on the distinction between 'prototypical Landmarks'

and ‘Paths proper’ we introduce, we propose an alternative to the Denisian categorization of ‘informational units’. The scheme affords parsing the tokens of the corpus and sorting them into clear and unclear guiding devices as linguistic means to provide navigational assistance.

A discourse model is needed because language use does not happen in isolated sentences. Hence route directions must be investigated at the textual level too. We accomplish that by dissecting them in terms of ‘speech bubbles’ / ‘conceptual worlds’ route directions’ informant and user erect in their mind to agree on the symbolization of the route at hand, according to a context-anchored cognitive discourse grammar we elaborate on the sketch Werth (1999) advances. The framework, from the point of view of the language interpreter, accounts for the internal dynamics underlying route directions’ understanding with respect to ‘argument structure’, explicitly conveyed, and ‘Frame activation’ plus ‘inferential reasoning’, implicitly conveyed. The outline we put forward fares better than the mental spaces theory in cognitive linguistics (e.g. Fauconnier 1994, 1997) from which it originates: It manages to go beyond the sentential level of analysis. It copes with the task of taking a true global approach to linguistic performance. Our explication of route directions foregrounds the importance of larger-scale linguistic representations.

A dialog model is needed because situated discourse invariably encompasses a partnership between two sides at the communication process: One at the generation end, another one at the reception end. Even though the material we gathered pertains to the written language modality, we demonstrate that a specific informant produces the route directions to a particular addressee *qua* ‘imaginal props’ (H. Clark & Van Der Wege 2002). The presence of this ‘virtual partner’ (H. Clark 1999) – the route directions’ user – albeit immaterial, still contributes to the semiotic construction of the narrative-like message in question. This collaborative teamwork shows an interactive layer of the instances in the corpus that surpasses the data’s strictly monological appearance. The discovery takes the psycholinguistic insights just mentioned a step further, since it points to the essential role imagination plays also in virtual interactions mediated by primarily instructive written language, such as the route directions presently under scrutiny. We then extend Clark & Krych’s (2004) rationale to our object of inquiry in order to make more concretely a case for how the virtual partner’s immaterial presence influences a given route directions’ token’s surface text.

1. Introduction

1.1. The relationship between language and thought

Each individual is born able to acquire a mother tongue and socially ends up particularizing this biological endowment in the most trivial fashion. This feat however, though we take it for granted and usually do not stop to think about it, requires from human beings as a species the aptitude to build an internal representation of linguistic knowledge. This capacity, by its turn, is intimately related to our ability to make sense of the world around us, in terms of the surrounding perceptible reality, as well as of the various psychological states that make out the emotive environment we find ourselves into, and the different patterns of behavior established by our social networks. Such a deed, again, is perhaps only possible because we are phylogenetically equipped with what it takes to set up an internal representation of knowledge about the world: A gift that allows us to apprehend, retain and convey

information about the universe. We manipulate this information essentially through language, but also taking full advantage of the five senses and using other symbolic systems, such as gestures, facial expressions, body language, drawings, colors, arts and crafts, etc. But it seems undoubted that this conceptual knowledge representation potential is drawn upon in ordinary life to sustain our behavior in all sorts of intentional and non-intentional actions and under all kinds of circumstances.

These two traits, namely, the capability for an internal representation of linguistic knowledge and for an internal representation of general conceptual knowledge, which arguably render the human kind the outstanding creatures we are, happen to be so intricately connected that to try to shed light on this interface becomes one of the most urgent queries of present day scientific investigation. There is a need to answer some basic difficult questions concerning the degree to which global conceptualization is based on linguistic representation, (or the other way around?) and on the extent to which it can vary across cultures, across communities, or even from person to person. Is linguistic knowledge universal or particular grammar specific? Does thinking happen in language or are language and thought totally separate and arbitrarily linked through numerous information-translation mappings? Perhaps conceptualization, "the cognitive activity constituting our apprehension of the world" (Langacker 2003:1), is derived from language… Maybe the reverse holds and language is derived from conceptualization… These problems must be addressed should we try to achieve a comprehensive theory of human cognition. However, to set out on quests of such depth is outside the range of the present dissertation. After all, the relationship between language and thought proves more and more to be so complex that it demands that experts tackle it in an ever increasingly

interdisciplinary approach, ranging from philosophy and anthropology, via linguistics and psychology, to neurobiology and artificial intelligence.[1]

1.2. The *locus* of Space in the language-conceptualization interface

Following the footsteps of contemporary work in cognitive science, prominent scholars of various fields have recently undertaken research focusing on the questions the previous section surveys under a particular prism: They have been trying to come to grips with the 'Language of Space'.[2] As a matter of fact, the relationship between Space and Language has become one of the most thoroughly examined windows to the enigmas of the mind. Space not only stands among the highly favored objects of investigation in cognitive linguistics nowadays, but it also makes up a theme especially important in psycholinguistics and cognitive psychology, as well as in geography and computer science.

One can think of a couple of reasons for this prominence of Space as a research topic in the theories of language and mind. Space as a cognitive domain seems to be ubiquitous, and to constitute a core principle supporting conceptualization (i.e., the mental processing which organizes the otherwise chaos that would surround us) as a whole, a fundamental

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[1] For an idea of how linguistics and other disciplines in the cognitive sciences have lately cooperated to elucidate the relationship between language and conceptualization, see e.g. Arrington (1992), Bax, Heusden & Wildgen (2004), Bowerman & Levinson (2001), Carrol, Stutterheim & Nuese (2003), Cienki, Luka & Smith (2001), Fox, Jurafsky & Michaelis (1999), Gentner & Goldin-Meadow (2003), Goldberg (1996), Gumperz & Levinson (1996), Koenig (1998), Marcuschi & Salomão (2004), Margolis & Laurence (1999), Nuyts & Pederson (1997), and Tomasello (1998, 1999, 2003).

[2] Cf. for example Bloom et al. (1996), Carlson & Van Der Zee (2005), Freksa & Habel (1990), Gattis (2001), Levinson (2003a), Matsunaka & Shinohara (2004), Ó Nualláin (2000), Pourcel (2004), Pütz & Dirven (1996), Regier (1996), Svorou (1994), and Zlatev (forthcoming).

basis for overall thinking in Language and through Language in every corner of human behavior. For instance, Landau & Jackendoff (1993) explore the similarities in the stock of spatial terms (words used to describe topological layouts[3] and motion events) that crop up across languages. The Landau-Jackendoff argument is that the nature of spatial language can reveal insights about the nature of general spatial knowledge. I.e., investigating the linguistic representation of Space can shed light on the nonlinguistic conceptual representation of this domain. Landau & Jackendoff sustain that the number of words to express spatial relations among objects is relatively small cross-linguistically. By contrast, they point out, the number of words to express which objects find themselves in a certain spatial relation to each other is cross-linguistically large, since most concrete nouns include some information about shape. Shape, Landau & Jackendoff stress, is a key trait in object identification. From observing this structure of spatial linguistic expressions, Landau & Jackendoff draw conclusions about the cognitive encoding of Space with respect to the "what" and "where" systems (Ungerleider & Mishkin, 1982). Ungerleider & Mishkin discovered two different cortical systems related to visual perception: The ventral or anterior system – located in the inferior temporal lobes – is specialized for object perception (it identifies what an object is). The dorsal system – located in the posterior parietal lobes – is specialized for spatial perception (locating where an object is). Landau & Jackendoff see a homology between this division of labor in the brain with respect to the visual system, and the correspondence between the words used to identify objects and to refer to their spatial relation in most languages of the world, and how the mind – allegedly universally[4] – represents Space as a conceptual domain.

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[3] On how English prepositions fulfill this and other functions, see Tyler & Evans (2003).

[4] More recently Landau, at least, seems to have withdrawn from this strong position, as Munnich, Landau & Dosher (1997), and Newcombe & Huttenlocher (2000:186) attest.

Another reason for the importance of Space in the theory of language and mind is that people, independently from the native language they happen to speak, seem to use Space in order to metaphorically deal with even more abstract dimensions of human reasoning, such as Time, for instance, as at least many scholars would claim or agree.[5]

In the same vein as Landau & Jackendoff (1993), although somewhat modifying the argument,[6] Peterson et al. (1996) review neurological and behavioral studies on spatial cognition, and the implications of this evidence to a human language faculty. As a result, they support a universal view on the relationship between Language and Space. Peterson et al. adopt Jackendoff's (1983, 1987) framework as a last-word consensus on the 'Language of Space' issue. In Jackendoff's terms, the fact that we can talk about Space means that we can use language representations in order to express spatial representations, because these two cognitive domains – Space and Language – interface *via* their corresponding internal representations at conceptual level. When they consider the effects of experience in the cross-mappings among spatial representation, linguistic representation, and conceptual representation, Peterson et al. take a non-Whorfian stance. They recognize however, that, to some degree, different languages and/or cultures influence how cognition treats the spatial domain.

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[5] See, e.g., in this regard Gould (1986), Pontes (1986/1990), Radden (1997), Boroditsky (2000), and Gentner (2001). Note that Habel & Eschenbach (1997) have a different explanation for this kind of usage: Instead of analogy mappings, they propose an abstract structure common to both domains of physical Space and Time.

[6] Peterson et al. partly reject the equivalence space/closed class and category/open class Landau & Jackendoff (1993) defended. I.e., they do not completely agree with the view that prepositions and nouns correlate with different sorts of spatial representations in language so that the latter map onto a "what" system that encodes objects in terms of shape. Instead, they propose that nouns map onto conceptual representations that are non-spatial, and therefore can include notions like 'day' and 'joke'.

Key to the framework Peterson et al. accept as foundational is the notion of 'conceptual structure' Jackendoff (1983:17) makes the case for: "There is a single level of mental representation, *conceptual structure*, at which linguistic, sensory, and motor information are compatible." Here are some of the most important characteristics Jackendoff attributes to this notion: Conceptual structure subsumes semantic structure, i.e., the semantic and conceptual levels coincide.[7] The lexicon feeds into conceptual structure. Conceptual structure receives input from the visual, haptic, and auditory systems too. Besides, conceptual structure is the source module of and target module to the 'pragmatics and rules of inference' constituent. It also links the syntactic structures component *via* correspondence rules to the motor system. These connections lead us to a particular proposal of how language "hooks onto" the world.

Human beings, as, incidentally, Lyons (1979, 1982) and Schieber (2004) suggest, could perhaps be best defined as animals that can talk. And they talk about everything.[8] In doing so, they give structure to the world they perceive around them in which they carry out on a regular basis the most disparate deeds one can think of. Language is a highly peculiar semiotic system. It is intertwined with the other cognitive capacities in a fashion that remains far from well understood. However, after Jackendoff (1983), it sounds reasonable to conceive of linguistic expressions interacting with our visual system and with our motor action system so that natural language will serve the purpose of transmitting

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[7] Frawley (1992:50-5) evaluates in a succinct but sharp fashion this and other kernel tenets of Jackendoffian conceptual semantics. For a first reaction to Jackendoff (1983), see also Werth (1987). Deane (1996) is, by its turn, a worth reading critique of Jackendoff (1990).

[8] Such a rethinking-Descartes '*Loquor, ergo sum*' stance taken by Lyons – more critical of the French philosopher's contributions to contemporary cognitive science than Schieber's position – has *pendants* in other disciplines: In cognitive psychology, as the line of research Tomasello and associates conduct shows; in certain anthropology-oriented evolutionary biology theories, e.g. Ridley (1996); as well as in social psychology, as Wilson (2004) corroborates. More about this last aspect in this dissertation's chapter 4 below.

information not about the world "out there", but rather about the way the mind unconsciously arranges material reality. Jackendoff (1983:29, italics in original) espouses the Kantian stance that we cannot know the world as it is in itself. We necessarily experience the world as a phenomenon. We grasp material reality according to some principles identified by Gestalt theorists that process the sensorial *stimuli* and automatically shape them into a 'projected world':

> "(W)e must take issue with the naïve position that the information conveyed by language is about the real world. We have conscious access only to the projected world – the world as unconsciously organized by the mind; and we can talk about things only insofar as they have achieved mental representation through these processes of organization. Hence *the information conveyed by language must be about the projected world*."

In other words, this dissertation embraces as a core assumption the impossibility of language to talk about physical reality *per se*. Definitely, this does not mean that we adopt solipsism. We simply agree with Jackendoff (1983) that the human mind is so designed that it unavoidably converts the perceptual input into a conceptual level of representation, from which we then derive the linguistic expressions to put into words what we see "out there". Jackendoff argues cogently that – as Gestalt theorists such as Wertheimer (1923), Köhler (1929) and Koffka (1935) have demonstrated – the mental processes that mold the sensorial *stimuli* into the projected world are inescapable and paramount. They only allow for voluntary control insofar as an individual can choose to construe the world "out there" in this or that way, by attributing to a particular perceptual input this or that interpretation. However, these alternatives for different organizations of the environmental input are themselves pre-determined by the architecture of the mind.

Although we assume this to be indeed the case, this dissertation also follows Taylor's (1995) emphasis on the notion of 'construal',[9] borrowed from Langacker's cognitive grammar. Langacker (1987:487-8) defines the term 'construal' as "the relationship between a speaker (or hearer) and a situation that he conceptualizes and portrays, involving focal adjustments and imagery." This assigns to the language user a more active role in organizing and structuring objective reality, if we compare it with the more passive part in this enterprise the Jackendoffian/Gestaltian stance assigns to the linguistic cognizer. As Taylor remarks, the language user may for example choose from different levels of granularity to describe a scene; opt for different hedges while characterizing a situation;[10] or trigger different Idealized Cognitive Models (cf. Lakoff, 1987) by deciding on this or that wording. Besides, the language user can select between presenting a certain state of affairs in a straightforward vs. in a more roundabout manner; and between depicting an event as an atemporal "thing" or as a temporal "process" *via* different grammatical constructions. Not to mention the various perspective-taking stances available to the language user that different linguistic coding possibilities incorporate, in terms of figure/ground distinctions, deixis, and viewpoint. Therefore, there are many different "mental routes" (Taylor 1995:5) a language user can take in favoring a particular phrasing to construe/make sense of the world.

That means, while recognizing a difference in focus between Jackendoff (1983) and Taylor (1995), we grant the validity of both positions. Following the former, we claim that objective reality is just the ultimate source of environmental input for conceptualization. Natural language cannot directly talk about physical reality. Because due to the

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[9] Which persists in the linguist's scholarly work throughout, as J. Taylor (1996a,b, 2000, 2002, 2003/1995b) attest.

[10] As, for instance, Almeida (1998) demonstrates with respect to Brazilian Portuguese.

structure of the mind itself, as exemplified by the findings in Gestalt psychology about how it functions, our biological endowment automatically processes the material world, erecting the projected world (conceptual level) from which linguistic expressions are then produced. Following the latter, we acknowledge that by choosing a vantage point[11] from which to describe a given scene/event, or to present a particular portion of the universe attended to, the language user plays quite a substantial part in structuring the overwhelming perceived reality insofar as verbalizing it in this or that manner, thus "having more of a say" in how the world "out there" is linguistically organized and made sense of.

The notion of 'construal' makes a bridge between the 'Language/ Grammar of Space' subfield of research and the two features section 1.1 mentioned that arguably render us a unique species: The two capabilities that nature and nurture fine-tune to distinguish us from the other higher primates, namely, the internal representation of linguistic knowledge talent, and the internal representation of general conceptual knowledge talent. This is because 'construal' shows how we constantly relate the cognitive domain of Space to our two representational capacities. In other words, it makes visible how pervasively spatial our deploying of these two abilities is. After all, once the language user has determined a *vantage point* from which s/he decides to look at a scene, i.e., a *vantage point* from which to conceptualize a scene, to make sense of it, s/he will choose the linguistic means to talk about the scene construed in this way. But s/he could always have chosen another *vantage point* to grasp and observe the event in question from, which would have meant a different way of organizing and structuring that piece of the universe and then conveying it through language accordingly.

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[11] Regarding the notions 'subjectivity', 'subjectification' and 'subjectivisation', intimately related to the ideas of 'construal' and 'vantage point'/'point of view', see among others, Langacker (1989), Scheibman (2002), Stein & Wright (2003).

On the one hand then, Space is uniformly reflected in the lexicon and syntax of any natural language. One could even argue that Space surfaces as a Universal Grammar constituent or trait in the form of place deictic markers, for instance. However, on the other hand, Space may be handled as a 'domain' (roughly, any relevant knowledge structure being attended to; as Dirven & Verspoor (2004:36) put it, "any coherent area of conceptualization") quite differently by the various cultures around the globe. This becomes especially conspicuous if we look at non-Indo-European languages. In many Mayan languages (e.g. Tzeltal) and in some Oceanic languages, such as Guugu Yimithirr, for example, the so-called 'absolute reference frame' preempts the 'egocentric' and 'intrinsic' alternatives preferred by the Indo-European family group to predicate the location of a given entity (Levinson 1996a,b; Haviland 1998, Pederson et al. 1998, Pederson 2003). We look closer at reference frames later.

Likewise, apart from coordinate systems, Particular Grammars may treat the cognitive spatial domain in a startling way, if the observer is an Indo-European language native speaker. Taylor (1996), for instance – as an application of the theoretical stance on space cognition that the author had advocated in his (1991) and (1994) articles – demonstrates how the South African language Zulu expresses spatial relations by "locativizing" nouns, i.e., by converting a 'thing' into a 'place' in a manner that a Westerner finds quite peculiar, since the process is absolutely devoid of any directionality-relatable shade of meaning. Another example is how Japanese, an Uralo-Altaic language, conceptualizes the strongly spatial notion HOME ("UCHI"). It attains that in a way totally different from, say, how Portuguese treats its equivalent "LAR". Note that by this we do not mean the permission to extend the scope this concept may refer to from where one lives and feels at ease to one's school, company, suburb, city, or country. But in Japanese, the idea of one's being at home or not triggers a set of rigid socially established parameters that force one into very specific politeness adjustments. The dial subsumes four different levels: Familiar/intimate, plain formal or neutral polite, humble polite, and honorific polite. These, by their turn,

coerce one into an array of lexical item choices and morpho-syntactical molds to fit this or that addressee. In a word, the language use must change considerably from one specific interaction (moment) to the other, based on the current position of the interlocutors within the range of the same "UCHI" or not.

1.3. Route Directions within the Language of Space

The last two paragraphs give an idea of the variability according to which different languages may treat some aspects of Space. This notwithstanding, the present dissertation focuses on a more basic aspect of the 'Grammar of Space': Its object of inquiry is the communication of what is known in the literature as itinerary descriptions, wayfinding instructions, or route directions, concerning their cognitive and semantic-pragmatic characteristics. It is high time we spelled out our stance on the matter that the hyphenated wording already in the title of the dissertation mirrors. Indeed, the traditional view holds that semantics and pragmatics are two different components that deal with truth conditional and non-truth conditional aspects of linguistic meaning, respectively. Among those who defend the distinction are notably Bierwisch (1983), Grice (1975), and Levinson (1983). However, following a standard practice in contemporary cognitive linguistics (e.g. Goldberg, 1996; Taylor 2002; Croft & Cruse, 2004), we view the classical borderline between semantics and pragmatics as being so blurred, that they constantly merge into each other.[12] Thus, instead of maintaining two separate realms of meaning, one dealing with content, the other with use, we advocate that they form a continuum. Our position is congruent with a general notion of conceptual structure, which subsumes inferential computations, that despite

[12] Such an "integrationalist" approach to the issue is also in a way or another taken by, *inter alia*, Bertucceli-Papi, Coulson, Fauconnier, Fonseca, Kasher, Koch, Morato, Pontes, Rajagopalan, Shibatani, Turner, Thomas, Thompson, and Yule.

considerable architectural differences, e.g. Lakoff (1987), Langacker (1987), and Jackendoff (1990) advocate. Now coming back to the theme of the dissertation, **Route Directions, henceforth RD**, presumably occur in all natural languages in a more or less similar pattern. Briefly, RD consist in a sequence of steps a person A teaches a person B, that should enable B to go from a place X (the Source) to a place Y (the Goal) in an unfamiliar environment.

It is easy to see how important RD must have been to communities who constantly roved around in search for produce to gather and animals to prey on. Therefore, it is not difficult to realize how RD have most likely been essential to our species throughout the evolution of the human race. Tversky & Lee (1998:171) support this reasoning: "(I)ndividuals often set out alone to forage or hunt, so that developing ways to communicate route directions is useful in communal living." Montello (1995: 492, our italics) further substantiates the hypothesis by mentioning as the first among nine reasons for one to believe spatial cognition to be significantly universal the "existence and functionality of cognitive maps, as evidenced by the ability to remember features, *routes*, *distances, directions*, and make spatial inferences (detours and shortcuts)."

Another argument for the universality of RD in the Language of Space involves coordinate systems. Even if we consider the frame of reference languages like Tzeltal usually opt for – as the anthropology-driven work by Levinson and colleagues mentioned above registers – the room for discrepancy in the conception, encoding in speech, and understanding of RD cross-linguistically still proves quite little in the end. Levinson (2003b:135, our emphasis) attests this:

> "In summary, then, the semantic distinctions made in spatial descriptions vary quite widely across the world's languages. (…) Nevertheless, there seem to be underlying constraints on the semantic spaces involved in each subdomain, such that, for example, the topological space seems universally specified as a single similarity space, *languages can draw from only three*

frames of reference, each based on polar coordinates, and so on."

True, RD cannot nowadays be indissociably connected to our adaptive skills for the survival of the fittest any longer. Nevertheless, they remain quite ecologically recurrent in everyday language performance.[13] And they bring together all the same two of our most essential mental achievements: Spatial cognition and language use. Each of us has for sure already experienced the situation of giving or receiving directions for a certain place. We therefore know that sometimes RD are perfectly successful in leading someone to a new location. Other times, however, RD fail as guiding devices, or at least do not provide smooth navigational aid. Why is that so? What are the cognitive mechanisms involved in RD' production that make some tokens more effective than others? How does the understanding of RD involve mental operations that run at the implicit, textual plane of semiosis, beyond the explicit, sentential scope of representation? To which extent can we observe that even RD transpiring with / emerging from written language show an "other-orientedness" that assigns to them a dialogical feature? What are the relevant components/characteristics of the internal representation of RD at knowledge structure, discourse structure, and dialog structure levels? These are the questions the present dissertation sets out to answer.

RD, as we have already pointed out, constitute a recurrent spatial discourse type in ordinary language use. Sometimes they come

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[13] A caveat regarding this technical term is in order. The current dissertation does not intend it to signify the narrow/strict generative sense of the word, as, e.g. Salkie (2000:234), or Geier (1998:145 ff.) invoke. I.e., whenever we allude to 'performance', instead of merely meaning the side of the competence/performance "coin" that syntactically-driven strands within the scientific study of language have been treating as epiphenomenon since Chomsky's (1965) elaboration on Saussure's (1916) 'Langue' vs. 'Parole' distinction, we mean a much richer content load: 'Performance' will be used as a shorthand for language use from a cognitive discourse approach to verbal behavior (Werth, 1999). Our artifice amounts to invoking 'communicative competence' as Hymes (1972) proposes. Besides, it covers, from a usage-based perspective, as broad a range of skills and phenomena as the four dimensions (grammatical, sociolinguistic, discourse, and strategic) that Canale (1983) already subsumes under this concept.

accompanied by sketches or drawings, sometimes not. In face-to-face conversation, they are spontaneously assisted by gestures and gaze. Orally conveyed RD are often eagerly negotiated between speaker and hearer, who fight for the floor in subsequent conversational turns to make sure the message comes across as unambiguously as possible. Spoken language encircles a vast array of concurrent factors, which renders its explanation especially complicated. For methodological/operational reasons, then, this dissertation focuses on data in the written language modality. The corpus it analyzes consists of instances of RD for the navigation on foot within the metropolitan area of Hamburg. The tokens were obtained as native Germans of our acquaintance replied to the request to jot us down on a sheet of paper or to e-mail us instructions to any location in town. Each informant was free to decide on a specific starting point and destination. Therefore, the Source varies considerably from one data token to the other. The Goal though is most of the time a recreational site, such as a bar, a bookshop, a restaurant, or some friend's home itself. The total number of instances amassed was nearly 50. But since our analysis is neither statistical nor experimental, it scopes only over a sample of the gathered data: 10 example instances were selected to support the arguments we advance in order to explain the cognition and semantics-pragmatics of RD as a particular 'spatial discourse type' (Denis 1997, elsewhere). The emphasis, once again, is on the part of the RD having to do with wayfinding behavior on foot. The part of the RD in the sample tokens having to do with navigation by train/subway is only considered from the point of getting off the wagon onto the platform onwards. Any amassed RD' token having to do with navigation by car, bicycle or mainly using public transport was not focused on as an object of examination.

1.4. The structure of the dissertation

After the present introductory sections, chapter 2 explores the experimental work on the conceptualization and verbalization of RD conducted by the cognitive psychologist Denis alone and together with his

colleagues. By way of illustration, the Denisian tradition is reflected in the following publications: Denis (1997), Denis & Briffault (1997), Daniel & Denis (1998, 2003), Fontaine & Denis (1999), Denis et al. (1999, 2001), Michon & Denis (2001), and Tom & Denis (2003). Basically, the outline defended by these scholars makes the case for three cognitive operations to model the production of RD: Activating relevant spatial knowledge, determining a route through the activated representation, and formulating a procedural verbal output.[14] It proposes that two major components can be isolated in the content peculiar to RD: Action prescription, and reference to landmarks. Moreover, it posits that the structure of RD is amenable to parsing into the fundamental triplet of progression instruction, landmark announcement, and reorientation of the RD' user.

Denis (1997) not only pins down the cognitive operations involved in the production of RD, but also the core content and structure of this discourse type, while defending what Allen (2000) calls a 'reduction to essentials strategy'. RD in the oral language modality for a single specific route are collected from different informants. The various RD' instances that Denis tape-records, which he calls 'protocols', are transcribed and formatted into 'propositional expressions', i.e., minimal combinations of one predicate and its required arguments. The standardized data is then completely listed up, which generates the so-called 'mega descriptions'. Later a group of different informants familiar with the environment judges the mega-descriptions and removes from them every piece of information they consider not to be indispensable for effective real world wayfinding situations. The output of this selection is called 'skeletal descriptions'. A set of skeletal descriptions is supposed to embody the necessary and sufficient information for ideal navigation in an unfamiliar environment along a particular route. This provides the researcher with an objective means to rate a RD' token as a good or poor description of an itinerary. A

[14] The Denisian scheme follows closely the model of RD' generation that Klein (1979/1977) and Wunderlich (1978) advanced, as pioneers in linguistics for the analysis of this discourse type.

token close to this reference norm should provide efficient wayfinding assistance. The farther from the reference norm a token, the less efficient the wayfinding assistance it should provide.

As a first step, Denis (1997) qualitatively compares RD rated as good and RD rated as poor by informants familiar with the environment at hand with the skeletal descriptions that a different group of "experts in the surroundings", i.e., other people who knew the area around the route well, have produced for the route in question. For this comparison the propositional expressions of the skeletal descriptions are classified according to their content into five categories, yielding a typology of informational units any RD' token can be allegedly parsed into. Denis (1997) proves that good RD are not only similar to the skeletal description for that route in length, but also as far as this fundamental informational units' typology is concerned. Subsequent studies to this 1997 paper back up these findings: Daniel & Denis (1998) by enlarging the analysis to incorporate written language data as well; Fontaine & Denis (1999) by checking whether informants integrate easily or not the vertical relation between the subway part and the street level part of a route; Denis et al. (1999) by testing RD' quality behaviorally while measuring the amount of progression errors, hesitations and requirement for further help each token leads to, and so on.

After reviewing the legacy of the Denisian tradition to the RD' research field, we advance some elaboration suggestions on its original outline, mainly as encapsulated in Denis (1997), and in Daniel & Denis (1998). Mendes (2002, 2004) represents a preliminary step towards this aim, which the current dissertation builds on. In a nutshell, we agree with and adopt the three-cognitive-operation scheme Denis and co-workers identify as the conceptual mechanisms underlying RD' generation. However, we question their treatment of landmarks as a label that subsumes two types of mental entities that to our mind must be kept apart. We maintain the distinction between two kinds of concepts in the internal representation of RD: What we call 'Paths proper' and what we call

'prototypical Landmarks'. The former are 2D entities on which movement can be executed. The latter are 3D entities that serve an orientational purpose to the agent of self-displacement along a particular route. Denis and co-workers lump them together as 'landmarks'. Paths proper include conceptual entities such as sidewalks, cycling tracks, squares, parking lots, etc. Prototypical Landmarks subsume concepts to which the RD' informant attributes a guiding aid function with respect to the navigation of the RD' user. The hedge 'prototypical' shows that some members are more central, while others are more peripheral in this category. For example, a phone booth is a better exemplar of a prototypical Landmark than a sign indicating the way, since the three-dimensionality of the sign – due to its normal thinness – is not so conspicuous. Nevertheless, the RD' informant can use both elements while guiding the agent in the mental representation of the route, in order to show the agent where to go next in the imaginary tour (Klein, 1979) along the trajectory to be covered. Therefore, they both belong to the same class.[15]

As a corollary of the distinction between Paths proper and prototypical Landmarks, we propose an alternative grid of informational units to the five-category typology of propositional expressions the Denisian outline defends. Instead of the five item types Denis (1997) and Daniel & Denis (1998) contend any RD' token can be broken into, we propose two item types to take care of the interactional aspects of RD, together with three "cover classes", each divided into three sub-types of items, to sort out the content conveyed by each informational package a given set of RD instantiates. In addition, we propose a checklist of five key questions as a complementary device to screen for problem segments in the conceptualization/verbalization of a RD' token under scrutiny. These analytical tools allow us not only to make a prediction concerning the fundamental content and structure of RD *qua* discourse type, but also a

[15] For an in-depth introduction to prototype semantics in cognitive linguistics see J. Taylor (1990, 2003/1995b) and Kleiber (1998).

prediction about the possible distribution of different types of prototypical Landmarks in RD. Furthermore, they enable us to evaluate a given RD' token as 'good'/'clear' or 'poor'/'unclear', by checking how unambiguously the RD' informant has planned and verbalized the wayfinding instructions so that the RD' user can reconstrue, from the discourse, the visuospatial representation of the surroundings corresponding to the cognitive map[16] (Tolman, 1948) of the trajectory in question. The outline this dissertation defends is exemplified insofar as we apply it to the analysis of four instances of our corpus sample.

In Chapter 3 the primary focus ceases to be the knowledge structure pertaining to the mental model of the world the RD' informant relies on. It becomes instead the discourse structure that verbalization of the message to the RD' user entails. While chapter 2 focuses on the generation of RD, here we highlight the interpretation of this discourse category/*genre*. In other words, our emphasis switches from the production side to the reception side of RD. Moreover, we leave the realm of the sentence and open up to a truly textual approach. Besides, we face the challenge to account as much as possible for the input Context in all its dimensions contributes to RD' communication *qua* situated discourse, "paying close attention to the details of how human beings employ language to build the social and cultural worlds that they inhabit" Goodwin & Duranti (1992:2). This commitment to thoroughly incorporate contextual import in the analysis is only seldom seen in linguistics research, due to the cost of such an enterprise. Auer & Di Luzio (1992) makes another remarkable exception to this unfortunate rule.

As Van Hoek (1999) summarizes, cognitive linguistics is a relatively recent branch within the scientific study of language, and

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[16] Chapter 2 spells out the relevance of this notion to the conceptualization of RD, as its persistent recurrence e.g. in Lynch (1960), Downs & Stea (1977), Habel, Herweg & Rehkämper (1989), Denis & Zimmer (1992), Franklin (1996), Rickheit & Habel (1999), Golledge (1999), Montello (2001), and Levinson (2003a,c) signals.

subsumes various compatible research programs under a common paradigm rather than constituting one single theory. Among the different theoretical frameworks that exemplify the cognitive linguistics movement Van Hoek reviews, particularly important for us is the thread of investigation Fauconnier and his followers carry out: The Mental Spaces Theory. See among others Fauconnier (1994/1985), Sweetser & Fauconnier (1996), Fauconnier (1997), Fauconnier & Turner (1998, 2002). (For obvious reasons the last of these references was not included in Van Hoek's review). This is because the present dissertation builds on a macro-version of the Mental Spaces Theory, namely the Cognitive Discourse Grammar mainly as sketched by Werth (1995, 1997a, b, 1999, MS). We apply our elaboration on the Werthian proposal, the Speech Bubbles Model, exclusively to RD, in order to come a step further towards our ultimate aim: To clarify the cognitive mechanisms that underlie the use of RD as a textual category, never loosing track of the discourse focus of the analysis. Mendes (2003a, b, c) show incipient attempts in this direction.

Language use does not take place in loose sentences (not firmly fixed in context and background/previous knowledge) or isolate sentences (not in combination with other sentences and anchored in an extra-linguistic interactional situation). Rather, linguistic performance naturally encompasses a number of sentences that are conveyed and understood as belonging together, namely texts. Besides, people are very apt at reading off from a text information it transmits only implicitly. Of course this also holds for the RD in our corpus. Each of its tokens puts across much more content than what the verbal message manifestly expresses. This has to do with activation of encyclopedic knowledge chunks by the language interpreter (the RD' user) as well as inferences, implicit propositions that the propositions explicitly conveyed happen to trigger during the semiotic construction process. Thus, encoded meaning and 'invisible meaning' (Fauconnier, 1990b) invariably go hand in hand. Since Werth's sketch – revolving on the notion of stacked conceptual spaces, mental worlds we construct to make sense of texts – gives prominence to the bridge between

knowledge structures, on the one hand, and the analysis of discourse, on the other (Van Dijk, 2003), it proves a promising tool for us to develop in order to explain RD more globally. In addition, insofar as Werth's outline can be seen as a contribution to a theory of mental modeling alongside, among others, Johnson-Laird's (1983) classic monograph, and Cummins's (1989) interpretive semantics (Pilat, 1998), but one that underlines the import of Context throughout, as well as the necessity of a macro-linguistic approach to language performance, it turns out to be especially appealing as a starting point for us to build on to achieve our purpose: To explain the mental representations of RD on as large a scale as possible.[17]

Now, in a word, Mental Spaces are strings of referential domains that language users erect in their mind to construe different aspects of a particular state of affairs. The key notion in the Cognitive Discourse Grammar Werth proposes is that of a Cognitive World, a textual version of a Mental Space, from which it differs in the crucial weight it attributes to Context in the semiotic construction. Mental Spaces, Werth criticizes – though in principle appreciative of discourse approaches – remain in practice sentence-based. Cognitive Worlds, on the contrary, Werth continues, scope/range over naturally occurring larger stretches of language use, texts, and never forget the contextual import in the conceptual dynamics involving these texts. Therefore, Cognitive Discourse Grammar does not suffer from the sentential upper limit that more often than not constrains the Mental Spaces approach. Nevertheless, Werth manifestly recognizes that Fauconnier's paradigm was the main origin for the Cognitive/Conceptual-Worlds-based proposals he advanced.

In this context, the structure of chapter 3 in itself looks like the following: First we streamline the Werthian sketch so that we render it workable for our current purposes. Originally it purports to model all

[17] Concerning a summary of the central role mental representations play in the linguistic aspects of human cognitive functions confer e.g. Felix, Habel & Rickheit (1994), Habel, Kanngiesser & Rickheit (1996), and Habel & Von Stutterheim (2000).

kinds of texts, not only specifically RD, which is precisely our mission. Furthermore, the machinery as Werth delineated it included many tools that we found could be useful to account for literary texts, but that would be otiose for the explanation of primarily informative discourse, such as RD. Thus we need to scan the components Werth initially advanced, and screen only for those we judge relevant for the function we want the model to serve. We also need to add a few other traits regarding formalization, be it to bring into due relief the role of a certain constituent, be it to strengthen the intimate connection between constituents. Furthermore, we have to assess with more precision the part image-schemas (Lakoff, 1987; Johnson, 1987; Vandeloise, 2003) play in the conceptualization of RD. As a corollary we arrive at a system whose main characteristics are a fractal nature, a "network" mechanics, and a set of discourse meta-principles.

Very briefly, the first kernel quality of the model, its fractal nature, means that it has a layered look. It is composed of three levels of mental representation embedded in each other, that consist in the same constellation of elements arranged in similar fashion, and that can recur as long as the discourse in question requires: Discourse World, Text World,[18] and Sub-World. Each of these worlds takes care of the symbolization of different facets of the communicative event a set of RD encompasses. The second core property of the model, its "network" mechanics, means that it runs according to four (quasi) concurrent information-handling processes: World Building and Function Advancing (more semantics-oriented, in a traditional sense of the term), as well as Knowledge Framing and Inferential Reasoning (more pragmatics-oriented, if again we adopt the classical watertight semantics vs. pragmatics dichotomy for the sake of expository clarity). The third major property of the model consists in

[18] Werth (1999: 20-4) acknowledges having borrowed the term from Van Dijk (e.g. 1977), who, by his turn, ultimately attributes it to research in the functional linguistics tradition in text studies / text grammar, more concretely, Petöfi (e.g. 1974, 1976).

assuming that there are three golden rules of discourse that the interactants in a given RD' verbal semiotic construction event are always taken to abide by: Communicativeness, cooperativeness, and coherence. Not to mention the paramount maxim form underspecifies meaning the model inherits from the Mental Spaces Theory (cf. Fauconnier 1990b, 1994/1985, 2004, elsewhere).

Though at first blush the outline may look rather simplified and straightforward, more careful inspection reveals a model which is quite intricate, and whose ramifications chapter 3 surely details. Only as a preview – although we warn the reader that the complexity of the model renders it impossible to summarize in a single paragraph – these ramifications include: "Attentional spotlight" vs. "shadow" in the construal of an event, since the RD' user recognizes the mental entities selected by the RD' informant as those salient – the focus of attention, so to say – for the conceptualization of the communicative act in question. They also comprise the interplay between motion predications and description predications to represent the main function of the discourse at hand, i.e. the RD themselves, as an 'argument structure' combining the concepts relevant to the symbolization in a propositional-like chart. Besides, they involve temporary deictic, epistemic and attitudinal suspensions of those parameters that have been introduced to set up a given world currently in focus. They also subsume activation of encyclopedic knowledge chunks in the sense of Scenes and Frames Semantics (Fillmore, 1975, 1982, 1985), adding semantic-pragmatic content to the lexical entries that constitute the verbal message. Plus, the outline includes follow-up computations of deductive and non-deductive nature, the latter as suggested by Levinson (2000), yielding semantic-pragmatic overlay understood implicitly to the propositional meaning explicitly transmitted by the linguistic output. Last but not least the model encompasses the mental operation of image-schemas, to pick out the ultimate referents of some elements in the motion event's internal representation that happen to be exclusively provided by the situation of language use.

After determining what the overview of the Speech Bubbles Model we develop inspired in the Werthian scheme should look like, the chapter confirms its lineage from the Mental Spaces Theory. Once we give evidence for this inheritance, we examine whether the most recent proposals in the Mental Spaces framework, i.e. the Conceptual Integration Networks/Blending Theory as represented in Fauconnier & Turner (2002), copes better than its previous variants with being able to go beyond the mere sentential level of analysis. We conclude that, though closer to a discourse approach than ever, the state of the art in the Mental Spaces Theory is still heavily tied to linguistic explanation at sentence scope. A Blending representation of RD at a highly ideational level, corresponding to a general statement performance dimension – in a way reminding us of Wittgenstein's (1953, 1960) Language Games, and of Levinson's (1979) Activity Types – illustrates this evaluation. The chapter ends as we apply the elaboration on the programmatic sketch Werth advances, the Speech Bubbles Model we put forward, to other four RD' instances of our corpus data sample.

Chapter 4 aims at uniting the two perspectives chapters 2 and 3 handle: The focus on the RD' generation – the emphasis on the production side of this discourse type – on the one hand, and the focus on the RD' comprehension – the emphasis on the reception side of this discourse type – on the other. The elaboration on the Werthian scheme in chapter 3 paves the way for this exploratory unification. This is because one of the theoretical foundations of the Speech Bubbles Model is the collaborative teamwork between discourse interactants as espoused in psycholinguistics by H. Clark (e.g. 1992, 1994, 1996, 1997, 2004).

H. Clark's work is deeply committed to studying real language use. His research underscores that communicative acts take cooperation between an addressee and a speaker for their felicitous meaning construction process. He is worried about utterances: What people actually speak, write, hear or read when they use language in everyday social behavior. Grice's (1957, 1982) 'speaker's meaning' is thus anchored in

concrete situations of linguistic performance. For H. Clark, linguistic expressions can never be considered separately from their discourse underpinnings. It is the sum of various factors – the participants, time, place and circumstances peculiar to a given communicative event – that will determine the content of what happens to be conveyed and understood. Moreover, discourse participants are seen as undertakers of a 'joint project'. They engage in actions in order to achieve a particular purpose together. This enterprise relies primarily on their establishing an initial Common Ground when they decide to take up a certain 'joint project', and on their keeping tabs on Common Ground updating as time proceeds/as their interaction progresses. Common Ground is ultimately the foundation of information the discourse participants know, believe, or assume to be mutually shared and relevant to the communicative event in question.

In a nutshell, H. Clark stresses that language users constantly and naturally adjust their utterances to their addressees and to specific occasions. Besides, specific speakers/writers must continuously assess how much background knowledge can be assumed as mutually shared with their particular listeners/readers. After all, both parties work together to arrive at the same meaning construction.

In this context, Chapter 4 defends RD as one more 'arena of language use' – if we may borrow H. Clark's felicitous phrasing – where this partnership phenomenon takes place. We recognize, following Fillmore (1981) and H. Clark (2004), that such cooperation is most blatantly observable at oral instances of verbal behavior. However, we maintain that the writer and the reader of the RD' tokens we deal with here also keep – at a distance – this coordination. We contend that the way the writer, the RD' informant, chooses to adjust to the interlocutor, the RD' user, involves engineering the verbal output for the conceptualization of the route at hand as 'mimetic/imaginal props' (H. Clark & Van Der Wege 2001, 2002). That is, we see the communication of the RD' instances under scrutiny as an ordinary and improvised kind of

storytelling. The RD would be an informal narrative/tale, whose text is the single means the author has to engross the only-person audience in imagining a story. The plot of such a story is how this very person whom the text is individually addressed to can move around an unknown environment from a location X to another location Y. If the "playwright" (the RD' informant) manages to come up with a good "script" (set of RD), "the only person sitting in the audience" (the RD' user) should have no trouble to enact in a fictional scene the role of a traveler from the Source to the Goal the RD/story happen to connect. Should the RD' informant deliver his lines well, the RD' user will imagine exactly the self-displacement from starting point to destination the stretch in question covers, reorienting oneself appropriately at the nodes along the trajectory that may elicit navigational confusion. This is because the RD' informant will have depicted and pointed to mental objects such as Paths proper and prototypical Landmarks in the fictional world so vividly that the agent will be able to recognize them with no difficulty and to react to them appropriately. The configuration of these internal entities, mainly at or close to intersections of Paths proper providing more than one direction to proceed, will have been carefully described by means of prototypical Landmarks or otherwise, so that the right decision about where to go next will have been easily taken.

Furthermore, inspired by H. Clark (1999) – we thank Thora Tenbrink for referring us to this paper – chapter 4 proposes that coordination between interactants with respect to the RD' tokens of our corpus can be maintained provided that we see the RD' user as a virtual, but in this way still active partner to the RD' informant in their collaborative meaning construction process. The role of this virtual partner, we argue, is to constantly urge from the RD' informant a self-monitoring posture, to urge that the informant always pay attention to the clarity of the RD he/she contributes. Another role the virtual partner plays, we maintain, is to demand that the RD' informant be all the time aware of his/her immaterial presence as an addressee whose personal profile requires adjustments in the lines that constitute the RD as a whole. But

keeping in mind how much Common Ground can be assumed as shared knowledge with the RD' user also allows the informant to be concise in the verbalization of the route. For example, to a certain extent, the informant can count on the user's ability to leap to conclusions from meaning that is not explicitly conveyed by the linguistic expressions that communicate the route in question. So on the one hand, the presence of the RD' user as a virtual partner lightens the load of the task that the RD' informant has to perform. But on the other hand, this virtual presence constitutes a burden for the RD' informant, since it obliges the informant to care for the comprehensibility of the itinerary descriptions and the specific preferences/character of the virtual partner. It requires, for example, that the verbal message be mostly produced obeying the spatiotemporal order that describes Paths proper and prototypical Landmarks in configurations of internal entities that match the sequence of their projected-world anchors in material reality, as actual navigation in the unfamiliar environment at stake would/will eventually yield.

Chapter 4 then supports the claims the last two paragraphs make with psychological experimental work as reported in Allen (2000): The principle-based practice of reducing uncertainty at choice points along the route, as well as the principle-based practice of carefully selecting 'delimiters', i.e., "verbal devices that constrain or define communicative statements or provide discriminative information about environmental features" (Allen 2000:334). These principle-based best practices are reported as facilitators for the remembering and following RD, that arise from Allen's application of H. Clark's notions of mutual knowledge / Common Ground to the domain of itinerary descriptions. Then we extend Clark & Krych's (2004) insights and see the communication of RD emerging from written language use also in a bilateral perspective. By doing so, the role that the RD's user as a virtual partner plays in helping to shape the RD's token's surface text is made clearer. Afterwards we suggest how Pascual's (2002) concept of 'fictive interaction' can provide further evidence for our case that the RD we investigate somehow also possess dialogical features. The chapter ends as we exemplify the dialog

facet of the proposals this dissertation puts forth, insofar as we apply the development of the Clarkian scheme we advance to two more tokens of our corpus sample.

The number 5, and last, chapter of the present dissertation serves to recapitulate the conclusions of our research project. It summarizes how the semantics-pragmatics of RD involves a knowledge model, insofar as the RD' informant must convert his/her visuospatial and propositional representations of a motion event retrieved from memory into a verbal message. This verbal message then induces the RD' user to reconstitute this internal representation of the route in a mental journey from Source to Goal. It sums up that the alternative to the Denisian scheme we advance, based on the distinction between 'prototypical Landmarks' and 'Paths proper', a eleven-class typology of 'informational units' and a supplementary five-question checklist kit, yields parsing the tokens of the corpus, predicting the distribution of different types of Landmarks in RD, and sorting the data instances into more promising and less promising navigational aids.

The chapter reviews how the semantics-pragmatics of RD involves a discourse model, insofar as the RD in our corpus constitute blocks of sentences that must be accounted for *qua* texts "upholstered" in omnipresent Context. The RD' user, as a reader, makes sense of the verbal message that the RD consist in by mentally erecting a string of rich conceptual domains, Discourse World, Text World, and Sub-World(s), each able to symbolize different aspects of the communicative event the RD happen to trigger. The process surpasses the "argument structure" that the "propositions" underlying each sentence of the RD instantiate. It invariably links to Frame activation and inferential reasoning, thus demanding an analysis as the one we defend, which stresses the importance of larger-scale linguistic representations. We also look back at how the Speech Bubbles outline we elaborate on Werth's sketch of a Cognitive Discourse Grammar fares better than a Blending scheme in dissecting the mental mechanisms that belong to RD' understanding. It

ranges over texts rather than sentences, while foregrounding contextual import (of verbal, situational, or informational nature) as globally as feasible. In short, the 'elasticity', as it were, of our proposal is reassessed.

Chapter 5, finally, reiterates that the semantics-pragmatics of RD also involves a dialog model, insofar as careful scrutiny allows one to recognize – by means of a deft use of discourse markers and sentential signalers the RD' informant resorts to – a partnership between language producer and language interpreter in the semiotic construction process. Even though the data we gathered for analysis pertain to the written language modality. The RD' informant generates the sequence of wayfinding instructions to a particular addressee as imaginal props. And the RD' user, *via* his/her immaterial presence, exerts considerable influence as an incorporeal partner over the formulation of the RD that happen to be transmitted. We show once again how, by combining H. Clark & associates' case for virtual partners, imagination in narrative discourse, and bilateral perspective to communicative events that do not transpire with face-to-face interaction, we can reveal an important aspect of the RD under perscrutation, namely, that their informant and user do coordinate at a distance. This argues for the hidden dialogical nature pertaining to the RD in our corpus. Last but not least, the concluding remarks suggest a few research topics related to this dissertation's investigation results for our own (or others') future work.

2. A Knowledge Model for Route Directions

2.1. Core theoretical assumptions

Suppose a person A does not know how to reach an intended destination. S/He decides to solve this problem by asking another person B for help. Basically there are three ways for B to provide A with the information A has requested (Denis et al. 2001): A behavioral response (B leads A to the intended destination), a pictorial response (B draws A a sketch to the intended destination), or a linguistic response (B gives A verbal instructions to the intended destination). A variant of this third situation, as the last paragraph in section 1.3 delimits, constitutes our present object of inquiry.

Route Directions (RD), once again, consist in a sequence of steps a person A teaches another person B that should enable B to execute self-displacement in an unfamiliar environment from a location X, the Source,

to a location Y, the Goal.[19] The RD' instances this dissertation analyses, we repeat, are tokens of wayfinding instructions for the navigation on foot within the metropolitan area of Hamburg, Germany. Remember that the data were collected as the informants either spontaneously, i.e., on their own initiative, or reacting to our previous request wrote us down on a sheet of paper / e-mailed us how to arrive at a certain place in town. In any case, the informant was free to choose the Source and the Goal of the itinerary descriptions he/she contributed to our corpus.

Our work owes much to the two models of RD' generation that pioneered the linguistic analysis of this type of spatial discourse: Klein (1979/1977, 1982, 1983), and Wunderlich (1978), Wunderlich & Reinelt (1982). According to Klein, the conversation between RD' informant and RD' user can be segmented into three phases: Introduction, central sequence, and conclusion. At the introduction the RD' user opens the conversation and clearly poses to the RD' informant the task to produce a given set of itinerary descriptions. During the central sequence, the RD proper are conveyed, i.e., the RD' informant plans and delivers the requested information. The conclusion ends the conversation, as the RD' user signals to the RD' informant that the description of the path was transmitted successfully. Of particular interest to us is the central sequence phase, since the material available for our scrutiny belongs to the written language modality, where the RD' informant clearly leads the interaction.

Klein's approach divides the central sequence into two stages: Primary planning and secondary planning. Each stage is structured by a different organizational principle. Primary planning consists in accessing the raw material out of which the RD will ultimately be generated. The

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[19] A kind of intentional self-displacement no doubt congenial with what the neurobiologists Vogeley & Fink (2003:39) – though scholars not particularly concerned with the investigation of RD, but rather whose research agenda includes how movement in general, *qua* causer of changes in bodily states mental representation, relates to the anchorage of self-consciousness in the brain's physiology – call "translocation of the egocentric viewpoint."

organizational principle it obeys is the activation of a 'cognitive map'[20]: An image of the spatial characteristics of the world with respect to the area that encircles the Source and the Goal of the route in question. However, this image is too detailed. It includes much irrelevant information to the problem the RD' informant was asked to solve. Secondary planning, therefore, consists in cutting down on superfluous. The RD' informant decides on a condensed amount of relevant information that the verbal message into which the cognitive map must be converted has to contain. The encoding of this streamlined cognitive map into a linguistic format obeys the organizational principle of the 'imaginary journey'.[21] That means, the verbal message gradually takes the RD' user on a mental tour along the trajectory of the route in question from the Source, past intermediate landmarks, to the Goal. It describes the configuration of what Klein calls 'fixed points' – basically, salient streets and buildings selected from the primary planning – the traveler in this imaginary journey comes across, in the same order the objects in the real world that these mental entities correspond to are positioned in relation to each other. And the verbal message also prescribes the actions that must be undertaken along the way at each fixed point of the imaginary journey so that the destination can be, step by step, successfully reached.

Wunderlich & Reinelt's model of RD' generation is similar. It divides a route communication episode into four phases: Initiation, route

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[20] The term comes from Tolman's (1948) article, which, roughly, suggested that men and rats are able to navigate in the world due to their ability to flexibly produce an internal representation of the experienced surroundings. Tolman proposed that this broad mental appreciation of external space includes goals and landmarks simultaneously, as an overall picture that allows the animal to anticipate routes and locations to be visited, and to take shortcuts during locomotion. See also Montello (in press).

[21] This 'imaginary-walk' strategy is naturally imposed on the language producer at the generation of RD to the point of neutralizing the "linearization problem": To decide on how to start a verbal description, what to say second, what to say third, and so on (Levelt 1982, 1989; Habel 1987 in passing). I.e., the verbal output in RD follows what Levelt calls "a default Source to Goal connectivity". For the relationship of the 'mental-tour' strategy and the description of apartments, see Linde & Labov (1975). For the 'gaze-tour' strategy when people describe the layout of a particular room, cf. Ullmer-Ehrich (1982), Ehrich & Koster (1983), and Shanon (1984).

description, securing, and closure. We can approximately view a correspondence between their 'initiation' and Klein's 'introduction', their 'route description' and Klein's 'central sequence', their 'closure' and Klein's 'conclusion'. The authors, much more conspicuously so than Klein, consider RD within an interactional scheme, a general pattern of behavior according to which both parties involved apply certain communicative strategies to achieve their common purpose. In other words, the authors stress the fact that both RD' user – whom they call 'questioner' – and RD' informant contributively act to perform the communicative episode at hand in a satisfactory manner. This emphasis on the interactional side of RD shows in the 'securing' phase the authors propose, which does not have a separate correspondent in Klein's framework.[22] 'Securing' is defined as an optional although common phase, in which the 'questioner' confirms to the informant the RD that the informant conveyed. This can be achieved *via* repetition, summary, paraphrase, etc. Wunderlich and Reinelt (1982:184) recognize *verbatim* this difference in focus:

> "Whereas Klein has been mainly concerned with the ties between cognitive and linguistic processes, we are interested in addition in some of the bonds between interactional and linguistic devices."

Later in the chapter it becomes evident in what way to highlight the importance of the interactional side pertaining to RD is crucial to our own analysis of this discourse type. The same holds for Klein's proposal of a central sequence involving a 'cognitive map' and an 'imaginary tour.' Another theoretical work this dissertation draws closely on – the how, likewise, becomes eventually clear – is the distinction H. Taylor & Tversky (1992, 1996) have contributed to the field between the 'route' and the 'survey' perspectives. Briefly, the former is the construal of spatial

[22] It is possible, though to see Klein's 'conclusion' stage as encompassing both 'securing' and 'closure' in Wunderlich & Reinelt's terms.

knowledge from the viewpoint of a body that – actually or imaginarily – moves along a trajectory. The latter, in contrast, is the construal of spatial knowledge from the static constellation of perceptual entities in itself, that an observer on a lookout tower physically or mentally overviews. Thus it is also usually called 'bird's eye view'. Sometimes the difference between 'route perspective' and 'survey perspective' is referred to as 'procedural knowledge' as opposed to 'configural/configurational knowledge'.[23] Tversky (1993:19) reminds us that the route and survey "perspectives have parallels with two major means of learning about environments, the first through exploration, and the second through maps." She goes on to mention that they are also "linked to the 'procedural' vs. 'declarative' popular and controversial distinction in knowledge representation", but does not comment further on this controversy.

The difference between the 'route' and the 'survey' perspectives has to do with the issue of 'coordinate systems' we have already touched on in chapter 1. When describing the spatial relationship of objects to each other, native speakers of different languages tend to proceed differently: They give preference to different 'reference frames' (Levinson 1996, 1997, 2003a). European languages preempt a 'relative' frame of reference, taking either what in the psycholinguistic literature has come to be known as 'deictic'/'egocentric' perspective, or what is usually called 'inherent'/'intrinsic' perspective. Conversely, many Mayan languages, like Tzeltal, and many Oceanic languages, like Guugu Yimithirr, preempt the 'absolute' frame of reference to predicate the location of a given entity. Following Talmy (1983), Levinson calls the object to be located the *figure*, and the object in relation to which the figure is located the *ground*.

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[23] For this alternative nomenclature, cf. e.g. Golledge & Spector (1978), and Schneider & H. Taylor (1999). Lloyd & Cammack (1996) adopt a still different "mixed" terminology and speak of 'procedural' vs. 'survey' knowledge.

Here is a summary, after Levinson, of the three reference frames that natural languages draw on:

A. Intrinsic: The system of coordinates that establishes the figure's position is determined by facets of the object to be used as the ground (*relatum*). These facets are conceptually assigned by different criteria in different languages. In Indo-European languages, the procedure is largely functional (based on characteristic use of the ground object), but other times based on its canonical orientation/direction of motion. In Tzeltal, for example, the facets are rather based on axial and shape conditions of the ground object. "Tzeltal is a language that lacks 'left', 'right', 'front' and 'back' notions of the kind central to English spatial descriptions; instead it utilizes Absolute coordinates, together with an elaborate and rich system of Intrinsic distinctions." Levinson (1997:34-5)

B. Relative: The system of coordinates that establishes the figure's position is determined by a Viewpoint (a third element in the spatial relation, distinguished from the figure and the ground). Prototypically, it subsumes the deictic/egocentric cases in the psycholinguistic terminology, covering those cases where the position of the figure in relation to the ground is based on the speaker's point of view. However, "the viewer need not be *ego* and need not be a participant in the speech event – take for example, 'Bill kicked the ball to the left of the goal'." Levinson (1996:142)

C. Absolute: The system of coordinates that establishes the figure's position is determined by anchor to fixed bearings, cardinal directions, which always have their origin on the ground object (*relatum*). So we come back to the realm of binary spatial relators, as it was the case in the Intrinsic frame of reference. Here a figure is located in relation to a ground *via* linguistic expressions such as 'uphill' vs. 'downhill', 'inland' vs. 'outland', 'upstream' vs. 'downstream', 'leeward' vs. 'windward', etc, which more or less relate to our idea of cardinal points. But a caveat is necessary: "Indeed, many such systems are clearly abstractions and refinements from environmental gradients (mountain slopes, prevailing wind directions, river drainages, celestial azimuths, etc). These 'cardinal directions' may therefore occur with fixed bearings skewed at various degrees from, and in effect unrelated to, our 'north', 'south', 'east' and 'west'." Levinson (2003a:48)

2.2. The Denisian tradition

The previous section outlines how spatial information is first, acquired by direct perceptual and navigational appreciation of the environment, and second, by the manipulation of maps as symbolic devices. However, it stresses as well that language use is also a common means to apprehend and convey spatial knowledge. RD constitute a specific subset of such spatial discourse. The aim of RD is not merely to describe the static topological arrangement of a given environment, but also, and primarily, to allow the RD' user to accomplish self-displacement in an unfamiliar surrounding in order to reach an intended destination as quickly and as surely as possible. Since different informants providing verbal navigational assistance for a specific route vary considerably in the output they produce, it is important to identify the invariant traits underlying the diversity of these individual contributions. What are the cognitive processes involved in RD' generation? Which are the features that lie beyond the variability of RD' instances for the same route that different informants produce? The experimental work on RD conducted by Denis and colleagues has been assiduously pursuing these issues.

This section examines the central import of the Denisian legacy for research on RD, mainly as reported in Denis (1997), and Daniel & Denis (1998). The next two sections propose an alternative to their scheme and apply these modification suggestions to a data sample.

Denis (1997) shows that RD are a complex mixture of at least three types of discourse. There is a procedural component, insofar as the instructor aims at verbalizing a set of directions that the user should follow in order to be able to successfully achieve navigation in an unfamiliar environment. There is also a descriptive component, insofar as the instructor explains the configuration among spatial entities that the user will have to pay attention to on his/her way to the intended destination. Finally, there is an evaluative component, insofar as sometimes the instructor, for instance, mentions pseudo-metric assessments of the whole

route to be covered by the user, or of specific parts thereof. Besides, the paper contends (Denis 1997:409) that the generation of RD embraces three global conceptual mechanisms:

> "(a) The activation of an internal representation of the environment in which navigation will take place. (b) The planning of a route in the subspace of the mental representation currently activated. (c) The formulation of the procedure that the user should execute to reach the goal."

As far as the content goes, Denis (1997) identifies two components that RD essentially comprise: Reference to landmarks, and prescription of actions. Concerning the structure of this kind of spatial discourse, the paper maintains that RD can be basically reduced to the repetition of the following triplet of instructions: Orientation of addressee, progression, and landmark announcement.

The methodology that Denis (1997) adopts can be recapitulated as follows. He collected descriptions in French of two routes in a natural environment (the Orsay *campus* of the Université de Paris-Sud) from 20 undergraduate students, elicited as messages to be used later by other people. The tokens, in the oral language modality, were tape-recorded and then transcribed. The individual instances of RD were called 'protocols'. The data was standardized in propositional-like format[24] and first expanded in so-called 'mega-descriptions'. These included all the propositions that had been mentioned at least once by at least one informant about a given RD' token. Pruning the mega-descriptions of whatever propositions expert judges assessed as superfluous yielded the so-called 'skeletal descriptions', an abstract level of analysis that should provide a theoretical construct the researcher could use as a reference

[24] After Kintsch (1974), Denis rewrites each protocol into combinations of a predicate and its required arguments: Minimal packages of information that he calls 'propositional expressions' but gives in natural language – instead of using the logical predicate calculus notation – for the sake of readability.

norm in order to test the quality of each RD' token in the corpus. The closer to the ideal skeletal description a token, the more reliable this token should prove in supplying navigational assistance to its user. In other words, since a skeletal description contained the necessary and sufficient propositions concerning a particular route, distilled from the variability observable in all the actual tokens collected for that specific route, it consisted in an objective tool to assess the judges' evaluation of a given RD' instance as good or bad descriptions of the route in question.

Skeletal descriptions were found to combine in a perfect or close to perfect fashion the essential components of optimized navigation through the unfamiliar environment at hand. This is because they reflected the best concatenation of 5 classes of items any naturally occurring RD' token would be arguably reduced to:[25]

Class 1	Prescribing actions without reference to landmarks	E.g.: Go straight.
Class 2	Prescribing actions associated with a landmark	E.g.: Cross the parking lot.
Class 3	Introducing a landmark without referring to an action	E.g.: There is a bridge. The bridge passes over a river. There is a road in front of you.
Class 4	Describing non-spatial properties of landmarks	E.g.: The bridge is made of wood.
Class 5	Commentaries	E.g.: You can't miss it.

Daniel & Denis (1998) expand the analysis reported in Denis (1997) insofar as they include in the experiment a third route (this time in the written language modality) in the same university *campus* natural environment, while proposing again the five classes of items Denis (1997)

[25] The wording and the examples are taken from Daniel & Denis (1998). Their content matches completely the wording and the examples of the five classes in Denis (1997) though, whose thrust is reiterated in Denis & Briffault (1997).

had argued for that any RD instance could be parsed into. See table above. Daniel & Denis (1998) thus follow Denis (1997) and subject the corpus to a quantificational/statistical analysis. The paper corroborates the previous article's conclusions and demonstrates once more that skeletal descriptions reveal all and only the characteristics of excellent RD: Clarity, conciseness, completeness, and absence of ambiguity. It also supports the functional value of skeletal descriptions *qua* theoretical construct. The researchers show again what Denis (1997) had already proved, namely that skeletal descriptions embody the ideal match between the two basic cognitive operations RD subsume, i.e., prescription of actions, and reference to landmarks. Daniel & Denis attain this by resorting to two objective measures that assess how close to the ideal skeletal description a given protocol rated as 'good' is. The two objective measures, which had already been used by Denis (1997) as analytical tools, are the 'richness index' "the proportion of items in a description that belonged to the set of items in the corresponding skeletal description" (Daniel & Denis 1998:50), and the 'saturation index' "the proportion of skeletal items in each individual protocol" (*idem ibidem*). In other words, repeating the approach of Denis (1997), the researchers reconfirm that the similarity of a protocol to its corresponding skeletal description can predict the good quality of this token, measured by objective criteria: The correlation coefficient between judges' subjective ratings of the instance at issue and the richness index, the saturation index, or still the addition of these two indices.

2.3. An alternative to the Denisian knowledge model of RD

Although the agenda concerning RD is quite broad, which has led to different aspects of the issue having been investigated by Denis and co-workers from one experiment to the other, the bottom line to the Denisian research goals is the fundamental query about the nature of RD as a distinct spatial discourse type. On this quest for RD' structure and content the linguistic analysis we presently undertake sheds some light too. While

scrutinizing what the main features of RD are, and how these features are actually combined in the instances of our corpus, we draw closely on the outline proposed by Denis (1997) and Daniel & Denis (1998), as the previous section encapsulates. However, we also advance some modifications to this tradition, in order to arrive at a more persuasive scheme that yields a trial prognosis about the quality of our RD' data tokens. In other words, why is it that some instances of the corpus amount to more promising navigational aids than others? Or, put differently: How can we say that a particular token of RD is doomed to failure, or at least (highly or more) likely not to be able to help its user to achieve the intended destination smoothly? These are some of the questions that we set out to answer.

We adopt the Denisian model and advocate that the generation of RD requires three stages of cognitive operation. (a) The RD' informant retrieves from memory[26] of navigational experience in a specific environment a cognitive map that encircles the Source and the Goal of the route in question. (b) The RD' informant selects from this activated cognitive map just the relevant pieces of visuospatial information that are to be converted into the verbal message for the RD' user. (c) The RD' informant expresses in natural language the content of the cognitive map focused on: I.e., the informant subdivides the entire track to be covered into segments connected by reorientation points, and encodes this structure in a linguistic output that formulates a procedure for the RD' user to follow.

[26] Orthogonal to the approach of Klein or Denis and associates, we exclusively investigate RD in the written language modality. Thus, the RD' informant, as a rule, cannot rely on current visual exploration of the surroundings in order to activate the cognitive map for the route at hand. This is because most of the RD' tokens we gathered were produced electronically. Only for those few instances in our corpus that were written down on paper either at the starting point or at the destination of the route at issue can we say that the RD' informant also relied on perceptual stimuli to produce the verbal message in question.

In general, this dissertation follows Denis (1997) concerning stages (b) and (c) in the previous paragraph. As for (b), the establishing in the activated visuospatial mental representation subspace which is the relevant information to convey the route in question, the task confronts the informant with various possibilities: E.g., the shortest route to the destination, the route surest to be followed successfully, the one going through the nicest scenery, the one maximally avoiding potential risk to the user's safety, etc. As for (c), the translation of the route *qua* internal representation visuospatially focused on into a linguistic format (so that the RD' user can receive the information required), the task imposes certain constraints on the informant. The user must be able to reconstrue mentally from the discourse the sequence from one segment to the other that the RD convey, so these segments must not be too short or too long. The user must also manage to mentally turn right or left at specific moments in order to come nearer and nearer to the aimed destination. So the informant must treat these 'decision points' (where there is not one single possible direction to go forward in the mental model the user will activate from the verbal message that the RD instantiate) extremely carefully. Most, if not all, of these constraints, though, are satisfied by the principle of the imaginary journey.

In a word, we agree with Klein and the Denisian tradition that RD' generation essentially involves the translation of a cognitive map into a verbal message. That means, we maintain that the RD' informant inevitably highlights an area of his/her visuospatial image of a given environment retrieved from memory and converts this image into the discourse that linguistically transpires the RD requested for, obeying the imaginary journey principle. Now, Denis and associates propose that the analysis of this conversion with respect to different protocols for a given route reveals an underlying structure common to all the protocols for that specific route. This underlying structure, the Denisian framework contends, can be reduced to a typology of propositional expressions: A grid of five classes of items that arguably encompass all kinds of

informational content that any RD' token can be broken down to. See table on page 39.

Nevertheless, this dissertation sustains that the Denisian categorization of informational units is problematical if we consider the way it treats the label 'landmarks'. Following Klein, Denis and associates subsume under the concept 'landmarks' not only the mental representation of buildings, but also that of streets. Therefore, as a first move to elaborate on the Denisian model of RD' generation, we propose distinguishing between two basic concept types: 'Paths proper' and 'prototypical Landmarks'.

The current dissertation posits these two notional categories, 'Paths proper' and 'prototypical Landmarks', to break down the cognitive and linguistic mechanisms a knowledge model for RD' production subsumes. 'Paths proper' and 'prototypical Landmarks' are two classes of concepts. They are two kinds of mental entities with different functions. The former have to do with the movement part of RD, while the latter have to do with the orientation part of RD. They constitute, we maintain, the building blocks of the internal representation in visuospatial and propositional format (i.e., at cognitive map level) that the RD' informant must transduce into linguistic representation/format (i.e., at verbal message level) in order to provide the RD' user with the wayfinding instructions he/she is after.

A **'Path proper', from now on Ppr,** is a course of motion: A 2D entity on which movement can be executed. We conceive of a Ppr as a surface that can be traversed on. Resorting to an analogy with drawing, we can associate a Ppr with an arrow the self-displacement of the agent mentally delineates. The agent is the 'flying crow' (Daniel & Denis 1998): The entity that in the internal representation carries out intentional change of location from the Source to the Goal of the route at hand. A **'prototypical LM', henceforth simply LM**, on the other hand, is a guiding tool, a beacon: A 3D entity that serves the function of positioning the agent with respect to the sequence of Paths proper (Pspr) to be covered

in the imaginary tour from the Source to the Goal. If we resort once more to the analogy with drawing, LMs can be associated with dots that mark the two extreme ends of the route in the cognitive map, as well as punctuate the trajectory with stopover locations along the route, in between the starting point and the destination.

More specifically, we want to make the case here for there being two types of Paths proper (Pspr), and two types of prototypical Landmarks (LMs). A Ppr can be either 'pre-existing' or 'nonce'. A 'pre-existing Ppr' is a course of motion whose function as a surface to be traversed on is transparent beforehand, since it is, by default, a long and narrow mental entity. E.g.: A sidewalk, or a staircase. A 'nonce Ppr', conversely, is a course of motion whose function as a surface to be traversed on must be made evident (either restricted or created) just for the occasion. It is construed on the spot (i.e., "at the time and place in question"). This can involve tracing a particular line on a large walkable-along-2D entity whose width allows numerous stretches to be covered, instead of just the options of coming or going that pre-existing Pspr offer. E.g.: A constrained stretch the agent delineates on a square or parking lot. But it can also involve "cutting and pasting" a short passageway on the fly, as e.g., a mental corridor the agent walks along while getting off a bus, subway or train.

LMs, by their turn, can be either 'direction giving' or 'position confirming'. The former show the agent where to go next in the imaginary tour. E.g.: *The hospital* in "Walk towards the hospital." The latter signal that the agent is "on the right track." This is because the RD' informant uses 'position-confirming LMs' to introduce a 'local view': The scenery that the agent encounters at a particular moment of the imaginary journey. E.g.: *A bakery* in "You see a bakery to your left."

As a corollary of the distinction between Pspr and LMs, we put forth an alternative grid of informational units to the five-class typology the Denisian framework maintains. We follow the presentational strategy adopted by Denis though, and instead of expressing each minimal package

of information of a RD' token in its propositional-like format, we give this content in natural language, for the sake of readability.

Cover Class 1: Overtly or covertly introducing or describing a LM	
1a: Source or Goal LMs	E.g.: Starting point is the central library. You come to the bus stop you want.
1b: Direction-giving stopover-like LMs	E.g.: Walk towards the gas station. Go to the supermarket.
1c: Position-confirming stopover-like LMs	E.g.: You see a bank on your right. Opposite the bank there is a pub.
Cover Class 2: Explicitly or implicitly eliciting movement-related action on a Ppr of either kind	
2a: Progression without change of orientation	E.g.: Go always straight ahead. Cross the street/bridge.
2b: Progression with change of orientation	E.g.: Face south. Make a left. Turn right. Take the branching off track.
2c: Progression cessation by identification of decision point	E.g.: You come to a crossroads. You reach a bifurcation.
Cover Class 3: Conveying meaning not directly pertinent to reconstruction of mental model from verbal message that RD instantiate	
3a: Perspective change markers	E.g.: From the hospital to the museum it is about 500 m.
3b: Epistemic stance markers	E.g.: I guess there is a sign showing the way.
3c: Exclamatory, emotive or otherwise emphatic remarks	E.g.: I hope that was clear enough.

This categorization of propositional expressions aims at sorting out the content that each package of information in a given RD' token can be reduced to. In addition, we put forward the labels 'Opening' and 'Closing', in order to cope with the interacional side of the instances in our corpus. The inspiration for this move is not Klein or Denis, as it was the case when we proffered the classification chart above as a whole. Nor is it the work of Taylor & Tversky, as it was when we suggested sub-class 3a in particular. Rather, we follow Wunderlich & Reinelt, and see to it that their emphasis on the communicative episode aspect of RD is somehow present in our knowledge model for this type of spatial discourse. Therefore, the categories 'Opening' and 'Closing' take care, albeit only provisionally, of

the interactive dimension to the language event out of which our data came about. 'Opening' accounts for the utterances before the informant switches from phatic to informative/referential function and starts to verbalize the RD *per se*. 'Closing' marks the utterances after the RD' informant finishes delivering the RD *per se,* and switches back from informative/referential function to phatic function à-la Jakobson.[27]

Let us spell out the characteristics of each Cover Class we advance. Cover Class 1 allows the agent to know where to go next and to position oneself in relation to the route in question. Thus the agent can be sure about which direction to take at each particular stage of the imaginary journey. Cover Class 1 spots the specific places where the self-displacement of the agent must begin and end. It also shows the agent the way every now and then, providing essential information about direction of movement. It also assures the agent that the instructions so far have been followed correctly, by describing local views observable at particular moments of the mental journey.

Cover Class 2 urges the agent to leave or walk away from the Source LM where the route starts. It urges the agent to enter or reach the Goal LM where the route ends. It also urges the agent to continue on the course traversed so far, i.e., instructions not to turn off. Or still, it urges the agent to change orientation by rotating clockwise (making a right), or by rotating anticlockwise (making a left). This taking up a new direction can be elicited by the verbal message manifestly or just indirectly, say, because the RD' informant mentions a cardinal point the agent must face, a direction-giving LM the agent must reach, or the next Ppr on which the

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[27] It goes without saying, it is beside the point here to review how various scholars have fore sung, echoed, and/or arranged the parts the Russian structuralist proposed for the *functions of language*, among others Malinowski, Bühler, Kainz, Hjelmslev, Vygotsky, Lyons, Halliday, Koch, Mahmoudian, Martinet, Orlandi, Possenti, Fiorin, Chalhub, Freire, Vanoye, Pimentel, Lobato, Alston, Crystal, Asher, Matthews, Collinge, Brown & Yule, etc. As an overview introduction to this framework though, see this and a few related entries in Malmkjaer (2002).

agent must traverse. Cover class 2 can yet urge the agent to halt for a while once an intersection of two or more Pspr of either kind is identified. Such intersections, usually called 'decision points',[28] require especially careful treatment from the RD' informant, since they are nodes causing navigational confusion *par excellence*. After all, they offer more than one possible way to proceed in the imaginary journey. Therefore the agent must wait for a while at these difficult nodes, until precise further instructions about how to move on are given. A directionality redefinition is the answer to the question "Where to go now?" that such nodes entail. Previous studies have indicated that landmarks are often used to serve this purpose.[29]

Cover Class 3 comprises three different kinds of message. The RD' informant can switch temporarily from the predominant route perspective to a survey perspective: Instead of describing the way from the point of view of the agent that mentally covers the stretch in the imaginary tour, the informant can change to a flash of bird's eye view, an ordinary-map-like representation, that as it were, photographs the whole route to be covered or a specific segment thereof from above, thus evaluating it approximately for its distance. The RD' informant can also signal to the RD' user that the visuospatial image the latter retrieves from the verbal message the former has conveyed should admit a degree of distortion. The linguistic output can lead to a visualization of the route that is inexact, that does not match 100% the spatial aspects of the environment "out there" it represents. In a word, the RD' informant can literally express that he/she is not able to guarantee that the wayfinding instructions the RD' user receives are *in toto*

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[28] This dissertation calls 'decision points' 'kernel junctures', 'critical sites', and 'problem knots' interchangeably.

[29] Among others, Habel (1988) and Michon & Denis (2001) associate decision points with high landmark density. Besides, Daniel & Denis (2003) call landmarks mentioned by informants at connections of route segments (where reorientation was likely to take place) "critical landmarks." The researchers report that subjects explicitly instructed to be brief in their RD cut down on these landmarks to a lesser extent than they reduced the mention of "non-critical landmarks".

exact.[30] Finally, the RD' informant can shade the discourse with a more humane tone so that the motion event conceptualization the RD verbalize does not sound much too mechanical. In other words, the RD' informant can fill in some expressions to counterbalance the "robot-like aftertaste" that this type of spatial discourse tends to have, since its predominantly instructional function leads to language use that may overcharge the imperative mode.

Together with the analytical tools proposed so far, this dissertation advances the following *checklist kit* as an additional means to evaluate the quality of a given RD' instance under scrutiny. I.e., to see if a RD' token promisingly provides navigational aid to an eventual user, apart from breaking down the content it conveys into the 11 categories above, we maintain, one must make sure to assess how its informant has fared in coping with the five key questions below:

I. Does the instance of RD produced nail down the starting point and the endpoint of the trajectory to be covered clearly?

II. Does it divide the interval in between these two points (Source and Goal) in unambiguously identifiable route segments?

III. Does it make therefore the intersection of Pspr of either kind along the way visible enough for the agent to identify easily the decision points the route encompasses?

IV. Does it provide the agent with reorientation instructions at decision points effectively, so that the flying crow never has a doubt about where to go next?

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[30] Regarding the notion of epistemic stance, although not related to RD, cf. Fillmore (1990a, b), Sweetser (1996), and Ferrari (1999).

V. Does it take the maximum advantage of the two different roles that direction-giving LMs and position-confirming LMs play in the conceptualization of the route at hand?

We can now try out these tools in the dissection of a few instances of our corpus sample.

2.4. Illustration analysis

As a rule, we adopt the following procedure when examining data' tokens. First we transcribe the fragment of the RD' instance in focus. Then we give the literal gloss to this fragment in English. Next, we spell out the underlying propositional content and thus classify the item according to the typology of informational units we propose. A question mark after the classification indicates that the particular item is troublesome: The RD' user has more than one possibility to reconstrue from the verbal message that the fragment suggestively conveys the visuospatial internal representation of the trajectory the informant had in mind. In other words, the RD' informant was not detailed or careful enough in the verbalization in order to prevent ambiguity/vagueness from coming about, when the RD' user tries to rewrite the informational unit sustaining the linguistic output/piece of discourse back into an image in the cognitive map that should represent the route at hand. Afterwards, we scan the RD' instance under investigation with the checklist kit we defend as a complementary analytical device.

Corpus token A

Lieber Vincent, hier mein Vorschlag fuer ein Ausflugsziel an der Alster.	
Dear Vincent, here my suggestion for an outing destination at the Alster	
(sociability) + The excursion end point is somewhere at the Alster	Opening + 3a

Start ist der Dammtorbahnhof	
Starting point is the Dammtor station	
The excursion begins at Dammtor station	1a
Leave Dammtor station	2a (implicit)
Dann gehst Du in Richtung Osten	
Then go you in direction east	
Head east and start walking	2b + 2a
Bis Du auf der Bruecke zwischen Binnen- und Aussenalster stehst.	
Till you at the bridge between “Little Alster” and “Great Alster” stand	
You come to a bridge	2c
The bridge separates the “Little Alster” from the “Great Alster”	1c
Du richtest Dich dann nach Norden aus	
You line yourself then to north up	
Face north	2b
Und gehst am Westufer der Aussenalster entlang	
And go on the west bank of the “Great Alster” along	
Walk straight on along the west bank of the “Great Alster”	2a + 1c
(ein sehr schöner Weg!)	
a very beautiful way!	
The way is very beautiful	3c
Nach einiger Zeit (vielleicht 15-20 min, je nach Deiner Geh- Geschwindigkeit)	
After some time (maybe 15-20 min, depending on your walking speed)	
It will take about 15-20 min.	3a
It will depend on how fast you walk	3c
Erreichst Du einer Art Pavillon	
Arrive you at a sort of pavilion	
You come to a pavilion	1a
Mit einer schönen Terrasse	
With a nice patio	
The pavilion’s patio is nice	1a
Dieser Laden heisst “Cliff”	
This store is called “Cliff”	
The name of the store is Cliff	1a

Das Bier ist etwas teuer	
The beer is somewhat expensive	
The price of the beer is a bit high	1a
Aber Du hast einen sehr schoenen Blick	
But you have a very nice view	
The store has a beautiful vista	1a
Enter the store	2b + 2a (both implicit)
Viele Gruesse, Reinhard	
Many greetings, Reinhard	
(sociability)	Closing

I. The Source LM (Dammtor Station) and the Goal LM (Cliff, a bar at the lake Alster) are definitely settled.

II. The wayfinding instructions divide the trajectory in between these two poles into the following route segments (RSs):

RS 1: From inside the train station, to its outside.

RS 2: From the street the agent comes to by leaving the station (not mentioned overtly), to the bridge between Little Alster and Great Alster.

RS 3: From the point before the bridge, to the point along the way in front of the bar with a beautiful view.

RS 4: Though only covertly instantiated, from the external to the internal bar area.

III/IV. The decision points (DPs) this token of RD identifies and solves by providing the agent with further information concerning directionality, so that the user can cope with these critical sites are:

DP 1: The intersection of the course of motion taken to leave the station and the street the agent comes to by exiting the Source LM, which is not mentioned on the surface but is easily filled in *via* pragmatic inference/encyclopedic knowledge. At this kernel juncture instructions to face east and proceed tell the agent the appropriate way to go.

DP 2: The intersection between the Ppr traversed on facing east and the bridge that separates the Little Alster from the Great Alster. Should the agent turn off the course of motion taken so far? Or should the agent keep the current orientation by crossing the bridge? The new direction to take is marked by instructions to face north and to go on walking.

DP 3: The kernel juncture where the route segment 3 meets at a tangent the Goal LM. The turning off of the current Ppr and entering the bar after rotating clockwise or anticlockwise can only be decided upon by the situation. I.e., during an eventual concrete motor-action following of the RD, in other words, once the RD' user tests the navigational assistance the verbal message provides behaviorally. Anyway, this move is indispensable for the agent, imaginarily, or for the RD' user, physically, to be able to terminally reach the intended destination.

V. As for the efficacious use of the two types of stopover-like LMs we distinguish, direction-giving LMs are not resorted to. Position-confirming LMs, on the other hand, are aptly used twice. Once, when two of them are mentioned in order to help the agent identify the second decision point on the mental tour: At one side of the bridge there is the *Little Alster*, at the other side, the *Great Alster*, the elements in the internal representation that correspond to these two masses of water natural objects in the 'projected world', which serve the purpose of locating the agent in relation to the entire trajectory to be covered. Twice, when the *Great Alster* is used again – this time alone – as a tool that aids the flying crow to make sure that it is on the right track during route segment 3, while movement must be executed after heading north before the bridge. The new Ppr to be walked on goes along the west bank of this LM.

Corpus token B

Hi Vicente, also hier meine Wegbeschreibung.	
Hi Vicente. So here my route directions	
(sociability)	Opening
Der Start ist der Bahnhof “Feldstraße”, das Ziel ist das Restaurant “Parkhaus”	
The starting point is the train station “Feldstrasse”, the end point is the restaurant “Parkhaus”	
The route goes from the train station “Feldstrasse” to the restaurant “Parkhaus”	3a
Wenn Du aus der U-Bahn aussteigst,	
When you from the subway get off	
Get off the subway	1a + 2a
Einfach eine der beiden Treppen hoch	
Simply one of the both staircases upstairs	
Climb one of the both staircases up	2b
Und oben den einzigen Ausgang nehmen	
And up the only exit take	
Take the only exit upstairs	1b
Dann läufst Du auf eine Ampel zu	
Then run you at a traffic light to	
You come to a traffic light	1c + 2c
Die leicht rechts vom Ausgang liegt	
Which slightly to the right from the exit lies	
The traffic light lies slightly to the right of the exit	1c + 2c
Mittels der Ampel überquerst Du die Straße	
By means of the traffic light cross you the street	
Cross the street at the traffic lights	2a
Und läufst weiter gerade aus	
And run onwards straight ahead	
Proceed straight on	2a
So daß Du in eine neue Straße kommst	
So that you in a new street come	
You come to a new street	2c (?)
Sie heißt, glaube ich, “Marktstraße”	
It is called, guess I, “Marktstraße”	
The name of the street, MAYBE, is “Marktstraße”	2c + 3b (?)

An der nächsten Möglichkeit biegst Du rechts ab	
At the next possibility turn you right off	
Turn right at the next street	2c + 2b
In die “Ölmühle”	
In the “Ölmühle”	
The name of the street is “Ölmühle”	2a
Dann weiter bis zur nächsten Kreuzung in den “Marktweg”	
Then onwards till the next crossroads in the “Marktweg”	
You come to a crossroads with the street “Marktweg”	2c (?)
Auf der rechten Seite kommt dann nach wenigen Metern das Restaurant	
On the right side comes then after a few meters the restaurant	
Keep going straight	2a (?)
You see the restaurant to your right after some meters past the crossroads	1a
Meistens sitzen auch ein paar Leute davor	
Most of the time sit also a pair people in front of it	
You usually see people sitting at the restaurant outside	1a
Da es aber nur zwei Restaurants in dieser Straße gibt	
Because there but only two restaurants in this street are	
There are only two restaurants on this street	3c
Kannst Du es nicht verfehlen	
Can you it not miss	
So you can’t miss it	3c
Ciao, Lars	
Bye, Lars	
(sociability)	Closing

I. The Source LM (the subway wagon at the station Feldstraße) and the Goal LM (the restaurant Parkhaus) are clearly defined.

II. The wayfinding instructions divide the stretch to be covered from the Source to the Goal sometimes very explicitly but sometimes rather imprecisely:

RS 1: (Undoubtedly a nonce Ppr) from the train wagon on which the agent is when the subway reaches the station Feldstraße, to the subway platform.

RS 2: From the subway platform, to the staircase at subway level.

RS 3: Up the staircase.

RS 4: From the staircase at surface street level, to the subway station exit.

RS 5: From the exit, to the traffic light.

RS 6: From one side of the street at the traffic lights, to the other side of the street.

At this point vagueness abides. There are at least 3 possibilities to acknowledge the next route segment:

RS 7i: from the point after crossing the street at the traffic lights and going straight, to the point where the agent realizes that this very same Ppr currently traversed along is called “Marktstraße”.

RS 7ii: from the point after crossing the street at the traffic lights and going straight, to the point where the Marktstraße comes in from the right and meets the Ppr on which the agent has been traversing so far.

RS 7iii: from the point after crossing the street at the traffic lights and going straight, to the point where the Marktstraße comes in from the left and meets the Ppr on which the agent has been traversing so far.

Note that we could even have a more complicated scenario in which we think about variants of case i mixed with either case ii or with

case iii. In other words, we could retrieve from this piece of discourse a cognitive map where the same street running from the traffic lights changes names into “Marktstraße”, after another street coming either from the right or from the left (whose name the informant does not give) joins it sidewise in a junction. But we will not consider these alternatives further for the sake of simplicity.

RS 8: From the street Marktstraße, to the next street turning off of it, called Ölmühle.

RS 9: From the Ölmühle street, to the crossroads with the Marktweg street.

Here the informant is not clear enough about what he exactly means. Therefore we can take 3 possible following route segments into consideration:

RS 10i: from the crossroads, to the point in front of the restaurant, by turning right at the Marktweg street.

RS 10ii: from the crossroads, to the point in front of the restaurant, by turning left at the Marktweg street.

RS 10iii: from the crossroads, to the point in front of the restaurant, by going straight on the Ölmühle street over the Marktweg street at the crossroads.

RS 11: (Implicit) From the outside of the restaurant, to its inside.

III/IV. As a consequence, the identification of decision points along the way and how to handle them is most of the time straightforward but occasionally problematic, precisely because route segment 7 in between the starting point and the destination is not unambiguously made visible, and because route segment 10 is not unequivocally identified by the RD’ informant either.

DP 1: The intersection between the nonce Ppr the agent cuts and pastes on the fly by getting off the subway and the pre-existing Ppr platform perpendicular to it. The reorientation the agent must execute in order to reach one of the two existing staircases at subway platform level after getting off the train is no doubt necessary but can only be specified locally. It depends after all on the direction the agent is facing in different mental model variants when the subway wagon he/she is on arrives at Feldstraße station. This is why it only constitutes a link in the wayfinding instructions via pragmatic inference, somewhat congruent with Garnham & Oakhill's (1996) proposals.

DP 2: The intersection between the platform and the staircase the agent happens to reach. There is just one direction possible to take, namely, straight ahead, in order to reach the surface street level.

DP 3: Once the surface street level is reached after climbing up the staircase, the agent may need or not to rotate in order to terminally leave the station. The only existing exit is in any case the direction provided for the agent to take.

DP 4: Once the exit is reached, there is an implicit instruction to go on straight, which technically requires from the mover in the internal representation a slight diagonal shift due to the traffic light's exact localization, so that the agent can terminate self-displacement going out of the station and reach the next critical site on the way: The intersection with a street at the traffic lights.

DP 5: At the traffic lights, there are several possibilities to move onwards. Turning either one way or the other would constitute two alternatives. But the RD' informant has the flying crow proceed in a straight line and therefore keep the orientation currently being observed. The agent must cross the street.

DP 6: After crossing the street, the same array of choices that were available before the crossing is available again. The agent has several possible directions to take. Once more, the RD' informant has the agent maintain the current orientation, by going on straight ahead. The problem lies in clarifying to which extent this movement in the direction the agent has been traversing so far must hold. This vagueness causes the pinning down of the subsequent critical site to be also imprecise. Taking into consideration the 3 vague alternatives listed above, the DP 7 will look like one of the three following possibilities:

DP 7i: there is no entry, no street leading up to a junction with the Ppr being traversed on by having been told to go straight ahead after crossing the street at the traffic lights. It just happens to be the case that this course of motion being traversed on at a certain point is given a name: "Marktstraße". The RD' informant implicitly tells the agent to maintain the observed orientation for a while at the moment the agent realizes the current Ppr has suddenly a name.

DP 7ii:there is an entry, there is a street coming from the right leading up to a junction with the Ppr currently being traversed by the instruction to go straight ahead after crossing the street at the traffic lights. The agent does not know what the street name to the current Ppr is, but the informant has the agent take this junction that comes from the right, which happens to be called Marktstraße. Turning clockwise would be the solution to the reorientation demanded by this critical site.

DP 7iii: the mirror effect to the circumstances under DP 7ii. There is an entry, there is a street coming from the left leading up to a junction with the Ppr currently being traversed since the agent has been given instructions to go straight ahead after crossing the street at the traffic lights. The RD' informant does not make clear what the Ppr the agent is currently walking on is called. But the agent does learn that the junction coming from the left is called Marktstraße, and that the appropriate thing

to do is to enter this street. Turning anti-clockwise would be the solution to the reorientation this critical site demands.

DP 8: Here we come back to clarity. Once the Marktstraße meets another street coming from the right, which is called Ölmühle, there are only two choices concerning directionality. Either the agent must be told to keep the current orientation and thus not to take the junction, or the other way around. The second possibility is the one the RD' informant requires the agent to choose. An urge to turn right onto the Ölmühle street solves the need for directionality redefinition at this critical site.

At this point the RD' informant leaves the agent disoriented once more. This is because the RD are not precise enough to undo the next problem knot, which therefore offers us a triplet of options:

DP 9i: the agent is at a loss about where to go next when movement along the current Ppr (Ölmühle street) brings it to the crossroads with another street called Marktweg. One possibility the RD' user has to rewrite this verbal message fragment back into a cognitive map is to retrieve from it an image where the agent receives an instruction to turn right at the Marktweg street, and therefore reorients oneself by rotating clockwise.

DP 9ii: the same critical site that assaults the agent when the Ppr traversed on (Ölmühle street) intersects the Marktweg street. A second possibly retrievable image from this piece of discourse is to see the RD' informant urging the agent to enter the Marktweg street by turning left. (Reorientation by rotating anticlockwise.)

DP 9iii: the last image possible consists in seeing the informant as giving the agent instructions to keep the directionality taken so far when the Ölmühle street intersects the Marktweg street. In other words, progression straight ahead would be the solution for the reorientation question at this kernel juncture.

DP 10: The last critical site along the journey is the point on either the Marktweg or on the Ölmühle street that touches tangentially the Goal LM. The urge to reorient and enter the restaurant is conveyed subliminally, provided that the RD' informant has all the reasons to assume the RD' user for sure wants to enjoy a nice meal by tasting the chef's cuisine, when his addressee materially reaches the intended destination, after having profited from the verbal message behaviorally in order to get there.

V. As regards the deft manipulation of the roles that the different kinds of stopover-like LMs can play at RD' generation, the informant fares better than his ability to unambiguously parcel the route into segments and to clearly identify and solve decision points along the way proves to be. The only instance of a direction-giving LM is the mention of the *exit to the subway station* Source LM. We simply include the exit here because strictly speaking the ultimate Source LM is the wagon the agent must get off at subway platform level to be on his/her way to the intended destination. Therefore, the exit can be considered an in-between LM that, though trivially, tells the agent the right way to go from the staircase upstairs. Soon afterwards this same entity is used as a reference point, in relation to which the only position-confirming LM in this token is located (*the traffic lights*), so that the mover can be sure to have followed the wayfinding instructions appropriately so far. The agent comes to a traffic light slightly to the right of the exit.

Corpus token C

Moin, Vincent! Ich weiss Du magst Schauspiel. Hier also eine Wegbeschreibung, die damit zu tun hat.	
Morning Vincent. I know you like plays. Here then route directions that with them to do have.	
(sociability)	Opening
Der Weg von Jungfernstieg zum Thalia-Theater	
The way from Jungfernstieg to the Thalia-theater	
The route goes from Jungfernstieg to the theater Thalia	3a

Du nimmst die U-Bahn 2 Richtung Centrum und fährst bis zur Haltestelle Jungfernstieg	
You take the subway 2 direction downtown and ride till to the stop Jungfernstieg	
Get off the subway 2 bound for downtown at the station Jungfernstieg	1a + 2a
Im Tunnel Jungfernstieg gibt es vorne ganz am Ende eine Rolltreppe nach oben,	
In the tunnel Jungfernstieg is there up front way in the end an escalator to upstairs	
The subway platform meets an escalator all the way up front the tunnel	2c
die Du nehmen kannst	
that you take can	
Go to the escalator	2b (implicit) + 2a
Richtung Raboisen, Alstertor, glaube ich.	
Direction Raboisen, Alstertor, guess I	
MAYBE there is a sign pointing to the exit for Raboisen, Alstertor	1b + 3b
Da fährst Du hoch.	
There ride you up	
Ride this escalator upstairs	2a
Das geht dann über mehrere Ebenen hoch	
This goes then over several levels up	
The ride takes you upwards more than once	2a
Und immer wieder gerade aus	
And always again straight on	
Proceed always straight ahead	2a
Wenn Du aus dem Tunnel hoch kommst	
When you from the tunnel up come	
You arrive at the surface	2c
Brauchst Du nur noch geradeaus zu laufen, Alstertor entlang	
Need you only still straight on to go, Alstertor along	
Walk straight ahead along Alstertor street	2a
Auf der gleichen Straßenseite bleiben.	
At the same street side stay	
Proceed on the same sidewalk	2a

Nach zwei, drei kleinen Straßen	
After two, three small streets	
You come to two, three small streets	2c
Keep going straight	2a (implicit)
Findest Du links gleich das Thalia-Theater	
Find you left soon the theater Thalia	
You soon come to the theater Thalia on the left	1a
Viel Spaß da! Gruß, Sven	
Much fun there Bye, Sven	
(sociability)	Closing

I. The RD' informant nails down the Source LM as the train wagon at subway station Jungfernstieg, and the Goal LM as the theater Thalia.

II. The RD' informant divides the stretch in between the starting point and the intended destination into the following segments:

RS 1: From the agent being on the subway when the line 2 train reaches Jungfernstieg station, to the platform the agent walks onto by getting off the train, tracing for sure a nonce Ppr on the fly.

RS 2: From the middle of the platform, to the escalator at the end of the tunnel.

RS 3: The way up the escalator. Since the RD' informant is very careful about making sure the flying crow understands that it is a long way upstairs, going through several levels till the surface is reached, technically this route segment implies subdivisions. We would have one or more mezzanine stretches at horizontal plane connecting different escalators that lead the agent from one vertical level to the other. This would require corresponding reorientations of the agent in order to always be able to take the following escalator upstairs, provided that they do not come in a straight line. But we can simplify the analysis by assimilating these sub-route segments into one single vertical straight line.

RS 4: From the point where the agent arrives at the surface, to the third street that meets Alstertor street from the side in a junction.

RS 5: From the third junction meeting Alstertor street from the side, beginning the count at the point the subway station escalator reaches the surface, to the point where the agent arrives at the theater-front's sidewalk.

RS 6: From a point on the sidewalk in front of the theater, to some point inside the theater.

III/IV. The kernel junctures the RD' informant renders identifiable along the trajectory, and how the agent is supposed to cope with them, according to the further direction marking information provided by the wayfinding instructions consist in:

DP 1: The intersection between the nonce course of motion traced by the agent to get off the train and the pre-existing platform Ppr. The directionality marking takes the form of an instruction to reach a different Ppr, the escalator, which implies the agent rotating either to the left or to the right in order to be able to accomplish this task.

DP 2: The intersection of the platform and the escalator at subway level. Here there is only one way to go, namely, straight ahead, so that the surface level can be reached.

DP 3: The intersection between the escalator at ground level and the street (Alstertor) the agent arrives at. The agent here has three options concerning the next move to make as for orientation. The agent can simply keep the direction traversed so far. The agent can invert the direction and start walking on the same street side but going the opposite way. The agent can still perpendicularly abandon the street side currently stood on by crossing the street. Instructions to walk straight ahead and to stay on the same street side solve the problem and inform the flying crow that the first of the three options dictates the appropriate way to take. Moreover, the

RD' informant mentions the third small street, counting from the subway station, on this course of motion. This signals the following critical site along the route.

DP 4: The point where the third small street meets Alstertor in a junction, counting from the subway station. Implicitly, instructions to go straight on tell the agent not to turn off there either. Proceeding in a straight line soon brings the flying crow to the intended destination, on the left.

DP 5: Once the agent stands in front of the theater on the sidewalk to Alstertor street, invariably rotating anticlockwise will be the reorientation required, so that the RD' user can finally enter the theater. This last move can be inferred contextually, and is thus left implicit.

V. In respect of the resort to the two kinds of LMs available to a person who gives someone else verbal instructions about how to get somewhere, the informant who generated this RD' token explored these resources modestly. Direction-giving LMs were used just once: When the informant alludes indirectly to *a sign at underground level* within the subway station that reads "Raboisen, Alstertor". This allusion tells the agent the appropriate way to go before it reaches the point where the long escalator upstairs must be taken. The RD' informant did not make use of any position-confirming LM.

Corpus token D

Hi Vincente! Da Du gern tanzen gehst, hier eine Wegbeschreibung zu einer Disko im Kiez.	
Hi Vicente since you like dancing go here a set of route directions to a disco at the Kiez	
(sociability) + The endpoint of the route is a disco at the Kiez	Opening + 3a
Nehme die U-3 Richtung Hauptbahnhof und steige Haltestelle St. Pauli aus.	
Take the subway #3 direction Central Station and get station St. Pauli off	
Get off the line 3 subway bound for Central Station	1a + 2a

at St. Pauli	
Du gehst die Treppen hoch.	
You go the stairs up	
Go up the stairs	2b
Ich glaube Richtung Reeperbahn steht dran	
I guess direction Reeperbahn reads on	
There is a sign indicating “Direction Reeperbahn”, MAYBE	1b + 3b
Dann stehst Du an einer großen Kreuzung	
Then stand you at a big crossroads	
You come to a big crossroads	2c
Von der die Reeperbahn abgeht	
From which the Reeperbahn branches off	
The Reeperbahn street branches off from the crossroads	2c
Und unten in dem ersten Haus auf der linken Seite der Reeperbahn ist der Mojo-Club mit drin	
And down in the first house at the left side of the Reeperbahn is the Mojo-Club with inside	
The Mojo-Club is on the Reeperbahn street	1a
Reach the sidewalk on the left side of the Reeperbahn street	2a (implicit)
Cross the street that intersects the Reeperbahn street	2b (implicit)
Keep going straight on	2a (implicit)
Identify the first building you see on this left street side	1b
The disco is in this building	1a
Mit freundlichen Grüßen, Jan	
With friendly greetings, Jan	
(sociability)	Closing

I. The RD’ informant definitely pins down to the agent the Source LM and the Goal LM: A subway wagon at St. Pauli station and Mojo club, a disco at the Kiez (Hamburg’s red light district), respectively.

II. The entire trajectory to be covered is divided up into the following route segments:

RS 1: From inside the subway wagon, to the platform, once the agent gets off the train.

RS 2: From the platform, to the staircase end at underground level.

RS 3: The staircase up.

RS 4: From the staircase end at street level, to a crossroads.

RS 5: From the right side of the Reeperbahn street, to its left side, at the crossroads.

RS 6: From the left side of the Reeperbahn at the crossroads, to the other side of the street that intersects the Reeperbahn street.

RS 7: From the point on the sidewalk after crossing the street that intersects the Reeperbahn street, to the point on the sidewalk where the agent is in front of the disco.

RS 8: From outside the disco, to inside the disco.

III/IV. This segmentation establishes the critical sites along the journey. This requires from the RD' informant explicit or implicit provision of direction markings so that the agent will know what the right way to go next is. The decision points and reorientation instructions in between the Source and the Goal for this RD' instance are:

DP 1: The intersection between the nonce Ppr course of motion the agent has traced on the fly in order to get off the train and the pre-existing Ppr platform. Instruction to reach the following Ppr on the way (the staircase) solves the question "Where should I go now?" and has the agent move forwards. This reorientation implies rotating to the right or the left in order to reach the staircase, as prescribed, depending on the mental model variant one imagines (depending on the direction of the train on which the agent in the internal representation has arrived at St. Pauli station).

DP 2: The intersection between the staircase end at underground level and the platform. Here there is just one option to choose from, as far as directionality is concerned, namely, keeping the course of motion, going straight ahead. Otherwise, the agent cannot achieve the surface level, which is a *sine qua non* for the arrival at the intended destination.

DP 3: Once the surface street level is reached, the agent finds itself at the subway station exit. At this point the RD' informant is not explicit about the direction the agent should take. If we follow a golden principle / rule of thumb that regulates the generation of good RD, as Habel (1988) points out: "When nothing else [concerning direction changes or turnoffs] is said, it goes on as previously", then we can assume that from the staircase at street level to the crossroads, the agent is supposed to walk straight ahead, to keep the orientation observed so far, till the streets intersection is reached.

DP 4: At the crossroads, the RD' informant conveys to the agent two important pieces of information that together yield, though in a covert way, instructions to redefine the agent's orientation at that critical site. The Reeperbahn street goes off from the crossroads. Besides, the disco is in the first building on this street, on the left street side. This implicitly urges the flying crow to go over the other side of the Reeperbahn street. Thus instruction to maintain the directionality of the current Ppr solves this kernel juncture.

DP 5: Once the left side of the Reeperbahn street is reached, the direction-giving LM that has been introduced elicits rotation from the agent so that movement towards this orientational guide can be executed. The agent is subliminally urged to cross the street that intersects the Reeperbahn.

DP 6: Implicitly, after crossing the street that intersects the Reeperbahn, the agent is provided with instructions not to change the course of motion until arrival at a point on the sidewalk in front of the first building in which the disco aimed at is located. Here we follow Habel (1988) once

more and assume that, since the informant has not mentioned anything about reorientation, the agent should proceed in a straight line.

DP 7: The intersection between the point on which the agent stands on the sidewalk in front of the Mojo club and the nonce Ppr created by the agent's movement in order to enter the disco requires necessarily a rotation anticlockwise, since the Club is on the left side of the Reeperbahn street, assuming that the building in which the disco is located does not lie directly on the corner at the crossroads. This is why the instruction to turn left can remain unspecified on the surface linguistic output. It can be taken for granted as redolently conveyed by the informant and understood pragmatically by the RD' user as the last move the agent must make to reach the intended destination.

V. This RD' token only contains one pure instance of a direction-giving LM: The sign the informant introduces to tell the agent which way to go next when the agent must reach the staircase to go upstairs and leave the St. Pauli station. (*The sign that reads "Reeperbahn" at underground level*.) Then there is a LM whose usage overlaps the direction-giving and the position-confirming functions: *The first building on the left side of the Reeperbahn street* the agent sees at the crossroads, after leaving the subway station. It is surely made serve the purpose of telling the agent where to go next in the mental tour. At that moment, it serves as an indirect instruction for the mover to reach first of all the left side of the street, and then, to cross the street intersecting the Reeperbahn and to keep walking straight towards this LM. But then, it functions as the only in-between-position-confirming LM in this token. Since the intended destination is in this first building, finding this place does assure the agent that he/she is on the right track. The mover can as a matter of fact be certain that the aimed at destination is just about to be reached.

2.5. General discussion

Looking backward, what is the gain of the alternative to the Denisian knowledge model for RD' generation, henceforth **ADKM**, we advance? First of all, it allows us to make two predictions concerning the nature of this particular spatial discourse type, one more trivial, the other less so. The trivial prediction is to be able to confidently expect that, out of the 11 items that sort out the content each minimal information package in any RD' token indicatively conveys, the interactive labels 'Opening' and 'Closing' will occur just at the very beginning and at the very end of the corpus instance, and that cover Class 3 items will occur only seldom. That means we can practically be sure that most of the items in any RD' token fall within Cover Classes 1 and 2. This results directly from the immanent characteristics of this spatial discourse type. Since RD are intended to provide navigational assistance to an eventual user in an unfamiliar environment, they naturally concentrate on conveying information that either introduces or describes a LM, or that elicits from the agent movement-related action on a Ppr. Including the labels 'Opening' and 'Closing' that "sandwich" the informational unit types in the count, the numbers regarding this prediction in the four tokens of the illustration analysis confirm the expectation:

Corpus token	Total number of items	Cover Class 3 items
A	22	4
B	25	4
C	19	2
D	16	2

The less trivial prediction has to do with the distribution of the two kinds of LM we advance in the verbal message the RD' token under scrutiny happens to reminiscently convey. For a particular route segment X, whenever the RD' informant makes use of both types of LM, the direction-giving LM will be verbalized before the position-confirming LM. If this is not the case, a position-confirming LM that occurs by itself

can only be introduced in the discourse after the problem knot that coincides with the origin of the route segment in focus has been undone (= orientation at this decision point has been redefined).

The data sample dissected corroborated this prediction. Among the four tokens we have been using for the illustration analysis there is no case where both types of LMs co-exist along one and the same route segment. Still, when a position-confirming LM is independently deployed, the problem knot that coincides with the origin of the route segment in question is previously undone by another device for orientation redefinition. In other words, although the RD' informant has chosen, instead of a direction-giving LM, some other means to guide the agent onwards in the cognitive map, this reorientation has already been established by the time the position-confirming LM is mentioned. Concretely, the RD' informant in our corpus sample has twice explicitly solved the directionality problem of the kernel juncture by an instruction for the agent to align with a cardinal point (though it could as well have been an elicitation to turn right or left, or to reach a Ppr different from the one on which movement was currently being executed). However, twice this has just been implicitly done, by not mentioning overtly any further instructions concerning directionality, which means a tacit urge for the agent to keep the current direction of motion.[31] As a corollary, if we detail the prediction above, we can say that, when used in isolation, a position-confirming LM for a particular route segment X will occur either:

=> medially (at an intermediate point of route segment X), in order to warn the agent that the Ppr currently traversed is a long one, but that the agent is still on the right track; or

[31] According to the generally reliable method "(w)enn nichts anderes gesagt wird, geht es weiter wie bisher(,)" that Habel (1988:127) proposes, which we have followed for the explanation of RD, as the illustration analysis exemplifies.

=> terminally (at the end point or close to the end point of route segment X), which serves both the function of assuring the agent to have followed the wayfinding instructions so far appropriately, as well as signaling to the agent the next critical site on the way.

As far as the 4 occurrences of position-confirming LM in the RD' tokens that constitute our sample go (2 cases in corpus token A, 1 case in corpus token B, and 1 case in corpus token D), this prognostication comes true. Cases 1, 3, and 4 are instances of route-segment-terminal-position-confirming LMs, while case 2 is an instance of route-segment-medial-position-confirming LM.

Corpus token A

Case 1. (A double instance): The RD' informant introduces *Little Alster* and *Great Alster* as position-confirming-stopover-like LMs to have the agent identify unambiguously the before-the-bridge decision point on the way to the agent's destination. This supports previous studies that have shown a higher density of LMs close to or at critical sites.[32] The particular usage marks clearly the end point to the route segment currently being traversed on, which by definition makes it the starting point of the next route segment to take. The origin of the route segment in focus had been marked by the decision point the intersection between the movement out of the station and the street this movement leads the agent to instantiates. And the problem knot had been undone by instructions to proceed after facing east at that point.

Case 2. The RD' informant uses the *Great Alster* as a tool to ensure the flying crow that it is on the right track. In other words, the RD' informant

[32] See in this connection, among others, Habel (1988), Michon & Denis (2001), Daniel & Denis (2003), as we have already mentioned on page 47 above.

reuses the *Great Alster*, this time by itself, as a means to assure the mover in the cognitive map retrieved from the verbal message that the Ppr taken after instructions to reorient (facing north) is the correct one. The new route segment runs along the Great Alster's west bank. That is to say, the route segment in focus goes from the point before the bridge to the point before the Goal LM. The critical site where the route segment originates is the intersection between the street the agent walks on to reach the bridge and the bridge in itself. The directionality redefinition the RD' informant establishes to undo this problem knot is conveyed by instructions for the agent not to keep the current course of motion and cross the bridge, but rather to head north and go on walking.

Corpus token B

Case 3: A single instance of position-confirming LM, namely, *the traffic light* the agent comes to after leaving the subway station. The route segment in question goes from the subway station exit to the point where the course of motion taken to move away from the exit intersects with a street at the traffic light. So this is a case of route-segment-terminal-position-confirming LM. The reorientation required by the problem knot at the origin of this route segment is taken care of by an assumed instruction to go straight when moving away from the exit. This follows from the fact that the informant did not explicitly mention any instruction concerning directionality at this critical site. Then, the RD' informant decides to give a more precise localization of the position-confirming LM the agent should come across at the end of the route segment in focus. He establishes a topological relation between the traffic light and the direction-giving LM for the previous route segment: The traffic light lies slightly to the right of the subway station exit. The exit is at the same time the starting point of the route segment in focus and the endpoint of the previous route segment. Likewise, at the traffic light, the endpoint of the route segment in focus and the starting point of the following route segment along the mental journey overlap.

Corpus token C: No use of position-confirming-stopover-like LM.

Corpus token D

Case 4: A single instance of position-confirming-in-between LM, namely, the building the agent should arrive to, before the last route segment of the trajectory can be traced on the fly. The route segment in question, RS 7, begins at the point on the left side of the Reeperbahn street after crossing the street that intersects it, and ends at the point where the agent stands in front of the first building on this sidewalk. The reorientation at the decision point that coincides with the origin of this route segment was tacitly established by implicit instructions to keep the course of motion after going over the street that intersects the Reeperbahn. The tacit instruction to keep going straight must be followed until the agent has reached the point on the sidewalk before the first building on the left side of this street, in which the Goal disco LM is located. If the agent can at this point encounter *the first building on the left side of the Reeperbahn street*, it can be assured to have followed the instructions so far correctly. The end point of the route segment beginning at the crossroads is reached, which invariably overlaps with the starting point of the last route segment in the imaginary tour: The nonce Ppr traced to enter the disco in question.

Overall, it is perhaps fair to say that the framework outlined above does confirm the Denisian major claims, but at the same time it refines them. The content of RD involves indeed as major cognitive operations 'prescription of actions' and 'reference to landmarks' (Fr. 'repères' Denis & Briffault, 1997). However, the actions prescribed encompass various kinds of self-displacement executed on Pspr, not only proceeding and turning as the Denisian outline originally insinuated. There are many actions related to movement on a nonce or on a pre-existing Ppr that the RD' informant elicits from the agent: Leaving or walking away from a Source LM, entering or reaching a Goal LM, rotating anticlockwise / clockwise by explicit instruction to turn left/right, turning by instruction to face a given cardinal point, turning by instruction to take up a different

Ppr from the one currently being traversed, and stopping by identification of a decision point. Along these lines, 'reference to landmarks' does not lump in the internal representation elements at cognitive map level having rather distinct properties: Walkable-along 2D entities and 3D entities serving as orientational guides. Quite the contrary! Rather, this dissertation posits that the conceptual-linguistic task to produce a set of RD relies on two basic notional categories functionally distinguishable from each other: Paths proper (Pspr) and prototypical Landmarks (LMs). Pspr are the mental entities on which the agent in the cognitive map of the route will perform self-displacement. LMs, on the other hand, are the mental entities which will serve the purpose of indicating to the agent the appropriate way to go next, or will play the role of reaffirming to the agent that it has followed the instructions correctly so far, and that it is thus on the right track on the way to the intended destination.

Similarly, as far as the structure of RD is concerned, it turns out to be in principle the one the Denisian tradition identifies, but the picture proves more complex than what the phrasing "an iteration of progression, reorientation, and landmark announcement" accounts for. This follows from the interplay between Pspr and LMs into which we can analyze the verbal message in question: The formulation the RD' informant contributes in order to convert the visuospatial image of the route into a linguistic output that the RD' user will be able to take advantage of by converting it back into a cognitive map. Progression, as we have seen, can be a specific case of reorientation.[33] A bifurcation-like intersection of course excludes this possibility, but if the agent comes to a crossroads, there are three alternatives as far as directionality is concerned: Turning right, turning left, or going straight. If the agent comes to a junction, there are two possibilities: Either turning off, or going straight. Anyhow, it may well be that the RD' informant urges the flying crow at these kernel

[33] Werner et al. (1997) also demonstrate this fact. Raubal & Winter (2002) refer to these situations as 'potential decision points'.

junctures to keep the orientation observed so far, instead of abandoning the Ppr currently traversed by changing directions. That is to say, the original Denisian formulation 'landmark announcement' should exclude mention of a street (a Ppr) the agent must or not take up.

Indeed, differentiating between Pspr and LMs – which Golding, Graesser & Hauselt (1996:23) (unconsciously?) already do by positing "mention landmarks AND street names", as well as, "establish Common Ground with the questioner" [in order to give them appropriate RD] – is not only intuitionally appealing, but also theoretically reasonable.[34] For example, among the techniques that have been considered by researchers to enhance the usefulness of a given RD' instance, it figures providing the addressee with a LM instead of with a street denomination (a Ppr specification), as a study by Lovelace, Hegarty & Montello (1999:68, emphasis added) points out:

> "There is also no accepted definition of what constitutes 'good route directions'. Several researchers (Allen, 1997; Denis et al., 1999; Mark, 1987; Mark and Gould, 1995; Streeter et al., 1985; Waller, 1985; Wunderlich and Reinelt, 1982) have made suggestions about important aspects of route direction components, for the most part based on functional criteria. These aspects include a) priming the traveler for upcoming choice points, b) mentioning landmarks at choice points, c) giving "you've gone too far if" statements in case a choice point is missed, *d) giving landmarks rather than street names,* e) giving distances between choice points, f) telling the traveler which way to proceed at a choice point, g) providing information to allow recovery from errors, h) providing clearly linear information

[34] [Late footnote] We had for long completed the proposals chapter 2 defends when we first got to know (Eschenbach, personal communication) that Krieg-Brückner & associates' distinction between 'routemarks' and 'landmarks' is somewhat congenial with the thrust of the argument behind ADKM. Unfortunately, space and time limitations prevent us from going into details on the benefits and pitfalls of our outline contrasted with the one Krieg-Brückner and associates defend.

> (e.g. using 'then', and focusing on a sequential rather than global view), and i) providing a limited amount of redundant information."

Furthermore, the driving force that incited us to think about an alternative scheme to the Denisian outline of RD' generation – the feeling that their category 'landmarks' was questionable/too inclusive – was corroborated by observing that the original framework Denis put forward itself sometimes denied its advocated policy: To lump under the label 'landmarks' the conceptual entities that we characterize as 'Paths proper' (Pspr) together with those we characterize as 'prototypical Landmarks' (LMs). Take for example the following excerpt, in which Denis (1997:429) details Class 2 out of the five categories his emblematic paper proposes that any RD' token can be reduced to:

> "(R)eorientation was rarely expressed in terms of the new direction to take (left or right). Reorientation appeared in fact to be done by making the mover take a specific path ("Walk along the main street") or aim at a specific landmark ("Go towards the church")."

Here we see that Denis for a moment strikingly abandons the position generally defended in the paper to subsume under 'landmarks' both walkable-along 2D entities and visually salient 3D entities used as guiding devices in the mental representation. He distinguishes clearly the street from the church, referring just to the latter as a 'landmark', while alluding to the former as a 'path'. Exactly along the lines we sustain.

Support for ADKM, the RD' generation knowledge model this dissertation proposes, can also be offered by the incongruence between the two citations below:

> "The protocols produced by the male and the female subjects were compared because *there have been several suggestions that spatial cognition is sensitive to gender differences*. Several

> experiments on route descriptions have indicated that female subjects tend to mention more landmarks than their male counterparts, whereas males are more inclined to process metric and directional information (cf. Galea and Kimura, 1993; McGuiness & Sparks, 1983; Miller & Santoni, 1986). (…) The clearest contrast between the groups was in the number of propositions introducing landmarks, (…) *Females referred to significantly more landmarks than did males, (…). This confirms the previous reports that females describing routes devote more attention to landmarks than males*." Denis (1997:448-50, emphasis added)

> "(…) Thirdly, women tended to give more information about *three-dimensional objects* than men. This latter observation is in agreement with previous studies (Denis, 1997; Galea & Kimura, 1993)." Fontaine & Denis (1999:88, emphasis ours)

The difference in content is telling. The first publication registers that reference to 'landmarks' is gender-sensitive, while subsuming Pspr under this label. However, the later publication alludes precisely to these empirical results on reference to 'landmarks' concerning sensitivity to gender differences in a more specific manner. This indisputably drops once more the inclusion of 2D-walkable-along concepts in the class of 'landmarks', which backs up our argument to draw a line between Pspr and LMs.

Likewise, the too broad 'landmark' concept, which encompassed 2D entities that can be traversed on as well, is suspended again by Daniel & Denis (1998:47-8), probably in a lapse of concentration, as the excerpt below reveals. As a whole the paper maintains that such walkable-along surfaces should also be resumed under the label 'landmark'. This reveals the inconsistency in the position they consciously held, and serves one more time to reinforce this dissertation's stance, since we can see clearly how the researchers call the reader's attention to the fact that in the mental representation search subspace of the urban environment an informant has activated to construe the RD in question, streets can intersect. Such

configuration will most likely demand from the RD' informant an emphasis on references to LMs, so that appropriate navigation as the crow flies over these critical sites can be guaranteed, which supports the claims this dissertation makes.

> "The presence of physical obstacles in the environment divides a route into a sequence of segments, so that the route skirts around obstacles and takes physical constraints into account (for instance, urban routes must follow the networks of streets). Defining a sequence of segments and their terminal points (where reorientations are executed) may involve a variety of criteria (such as the shortest route, or the route with the smallest angular discrepancy with respect to the goal at each intersection, etc.) (…) Reorientation points at the end of each segment are critical components whose description requires special care. More landmarks are mentioned at these points than in any other part of a route, thus helping ensure the mover's reorientation."

Still, if we may resort to one more weighty quotation, when Denis and Italian associates (Denis et al. 1999:151, our italics) go into the relationship between decision points and 'landmark' density as a testable hypothesis, one can sense how they too render temporarily ineffective the inclusion of 2D entities that can be traversed along in the class of 'landmarks'. Moreover, their recognition that, as we defend, reorientation does not obligatorily entail change in the axis of progress is blatant. This fact had been, if not implicitly denied, at least not explicitly acknowledged by the Denisian outline till then.

> "Third, we tested the hypothesis that the distribution of landmarks is not uniform along the route, and that landmarks tend to be concentrated at critical nodes (or at the approach to these nodes), in particular those points of the route where reorientation is required. This pattern was found in the description of routes in a university campus (Denis 1997). Similar findings in the particular environment of Venice would indicate that it is a general feature.

> Critical nodes were defined as places requiring special attention during navigation, and therefore expected to be described with special care in route directions. Three classes of places were considered as critical nodes:
>
> (1). Starting squares of routes (…)
>
> (2). Reorientation places: squares or crossroads encountered along the routes should again make it necessary to choose among several directions; describing landmarks helps select the correct one among several options. *Note that the correct way may, strictly speaking, involve reorientation by inviting the mover to deviate from a straight line, but it may also require going in the same direction straight across the intersection.*
>
> (3). Terminal squares (…)"

Last but by no means least, the latest threads in the investigation of RD conducted by Denis and co-workers also appear to be in line with the foundational thrust behind our claims: To separate 3D entities serving as orientation devices from 2D entities on which displacement can be executed. Tom & Denis (2003) report experimental results contrasting the value of 'landmarks' and that of streets in itinerary descriptions. The upshot is that 'landmarks' proved more effective than streets for guiding purposes, when participants were following wayfinding instructions. In addition, they conclude that informants produced more 'landmarks' than street information, when generating RD. Their findings permit us to replace their 'landmarks' with our LMs in this paragraph throughout.

In retrospect, the RD' generation knowledge model this dissertation proposes, i.e., ADKM, is moored on the differentiation of two kinds of concept, Pspr and LMs, functionally defined. As a corollary of this distinction, we advance a checklist of 5 key questions as well as a set of 11 classes of items that account – provisionally – for the interactive aspect of the communicative event in which the RD' tokens were

produced, and that account – minutely – for the packages of information that these RD' tokens suggestively convey. The typology of informational units allows us to predict which classes occur centrally, and which classes occur only marginally in any RD' token that we submit to scrutiny. It also allows us to make a prediction about the distribution of the two types of LM we distinguish, whenever they co-exist along the same route segment, or to pose a constraint on the occurrence in isolation of position-confirming LMs along a given route segment. Furthermore, the analytical tools this dissertation puts forward enable one to make a prognosis about how promising a given RD' instance will be as navigational aid to its user in an unfamiliar environment. After all, the scheme checks with a question mark diacritic the informational units that the verbal message transpires ambiguously. It detects any lapse of attention the RD' informant has, by identifying from the verbal message he/she produced those pieces of discourse that do not yield retrieval of a cognitive map of the trajectory at hand as a definite image. It scans the RD' token under examination and spots the troublesome fragments in its linguistic output: The wording the informant was not explicit enough to generate to induce the user to access from the verbal message, without vagueness, the visuospatial representation of the stretch that the agent must cover in the imaginary tour at hand. It thus affords sorting out the data of the RD corpus we gathered into clear/good vs. unclear/bad itinerary descriptions. Therefore, we can say, for example, that out of the four instances in our illustration analysis, corpus token B is much more likely to cause hesitations, directional errors, and request for extra assistance than corpus token A, C or D. In other words, the chances of corpus token B leading its user to difficulty, or perhaps failure, in reaching the intended destination, are considerably greater than the arduous or even unsuccessful achievement of the Goal we can expect from someone using corpus token A, C or D as support for wayfinding behavior.

As we have noticed from the analysis of the data in our corpus sample, one of the problems RD pose for a satisfactory explanation of their cognitive and semantic-pragmatic aspects is that many times the RD'

informant presents information for the semiotic construal of the trajectory just implicitly. Much of the prescriptive and descriptive content the verbal message suggestively instantiates is not spelled out in the linguistic output. Nevertheless, as a rule, the RD' user manages to recover this subliminal meaning missing altogether from the linearization of performance. This allows the RD' user to usually succeed in reconstruing from the RD the cognitive map and imaginary journey the wayfinding instructions were meant to trigger. Such a phenomenon leads us to pursue a larger scale level of mental representation. We leave the microscopic approach of focusing on minimal packages of information, propositional expressions, and adopt from now on a textual approach to our object of inquiry. The next chapter investigates the import of Context in the interpretation of this particular type of spatial language use, and proposes a discourse model to further explain RD, from the point of view of language understanding.

3. A Discourse Model for Route Directions

3.1. Cognitive Discourse Grammar / Speech Bubbles Model

This chapter focuses on an elaboration of Werth's latest proposals[35] for an approach to natural language understanding that highlights the notion of Context in the verbal semiotic process. However, though founded on the Werthian scheme, this dissertation is specifically concerned with the conceptual dynamics involved in the interpretation of a single textual category: The particular spatial discourse type presently under scrutiny, i.e., written RD in German.

[35] Note that since the very beginning of his academic career, one can see that the aim of the investigation has always been large-scale representations of linguistic behavior, as Werth (1968) already attests.

We start by clarifying the double label the heading to this section reads. In Werth's (1999) posthumous monograph, the linguist defends at length Cognitive Discourse Grammar as a theoretical framework. The term Speech Bubbles, by its turn, comes from the title of one of his unpublished manuscripts. Hereafter both nomenclatures will be used interchangeably and in abbreviated forms (**CDG/SBM**) to refer to our development – exclusively related to RD – of these Werthian sketches. This development, as it becomes gradually clearer along the chapter, takes sometimes the form of a reduction (we streamline the original ideas to render the system functionally more operative), while at other times it takes the form of an expansion (we incorporate devices to the original framework, again to make the outline better fit for its purposes). Although CDG/SBM as we present it here inevitably amounts to our own digestion – solely applied to RD – of the Werthian scholarly work, the result of this elaboration is most of the times in tune with its point of departure. Whenever we disagree with the Werthian basis more drastically we make sure to let the reader know of such perspective differences.

Right in the introductory chapter, after pondering about the notion of map making, Werth (1999:6-7, emphasis retained) gives us a gist of the book, which serves to show why, on balance, CDG/SBM agrees more than takes issue with this foundational outline:

> "Within Linguistics and Artificial Intelligence, there has developed in the last ten or fifteen years the notion of **conceptual** or **cognitive space**. An alternative, though still related metaphor which is much used is that of the **mental landscape**. All of these terms have become quite common and are widely used in a rather loose, evocative sense. However, there is one approach in which such notions are central and therefore terminologically significant. This is Cognitive Linguistics. (…)
>
> The central assumption as far as the present book is concerned will be that conceptual space is modeled upon physical space.

> Most directly, this concerns our mental representations of places and routes: finding our way through the physical world reported by our senses must depend on mental maps. Mental maps, in turn, are built up not only from what we can perceive on any single occasion, but also on our memory of previous occasions, our knowledge of similar situations, and inferences we can draw between all of these sources. Less direct than this is orientation mediated by language, i.e. where any or all of these sources are replaced by a verbal account of a place or a route. (…) Least direct of all is non-locative language, language not obviously about space at all. I will attempt to show, however, that even this is profitably describable in terms of abstract locations and abstract routes between them."

In this vein, drawing primarily on Werth (1995, 1997a, 1997b, 1999, MS.), let us indicate the main characteristics of CDG/SBM. These core traits of the proposal can be divided into three rubrics: Fractal nature, information-handling processes, and meta-principles.

3.1.1. Fractal nature

Two people engage in a communicative act in order to achieve something together. One of the core assumptions of the discourse model for RD this dissertation puts forward is that linguistic performance does not take place in loose, unlatched sentences, deprived of a situational anchorage. Rather, the interactants in a communicative event – which unfolds in a stream of language use, composed of several interconnected utterances – strive to accomplish a given purpose they have in common. Such a 'joint venture' (Clark, 1996)[36] must heavily draw on contextual

[36] We come back later on, both in this chapter and in the next one, to the key role the notion of joint venture plays in the conceptualization, verbalization and interpretation of the RD that currently constitute our object of inquiry. For the time being, let Clark (1999b:688) serve as a starter: "Discourse: the joint activities people engage in as they use language." For a more extensive account of the current dissertation's socio-cognitivist conception of the technical term 'discourse' itself, we refer the reader to Schiffrin's (1987:1-30), and (1994:20-43) summary.

import in order to turn out felicitous. Therefore, RD' informant and RD' user agree on the meaning that the itinerary descriptions convey by mentally building a string of conceptual spaces in order to represent the verbal message that instantiates a particular set of wayfinding instructions. Since the corpus this dissertation has set out to analyze is made of tokens of RD in the written language modality, of course this cooperation ends up taking place at a distance. Hence the stacked cognitive spaces that the interactants mentally erect – even with respect to their most external layer – are definitely not identical for the RD' informant and the RD' user. However, as long as these conceptual spaces are, through the discourse, made compatible enough to serve the communicative function in question, the RD' user will have no problems in finding his/her way around following the instructions the RD' informant has verbalized. The string of conceptual/cognitive spaces that the interactants produce in their head consists of three levels of mental representation that symbolize distinct aspects of the semiosis at stake: Discourse World, Text World, and Sub-World.[37] These layers are embedded in each other in recursive fashion, as long as the discourse requires, i.e., as long as the linguistic form prompts a given semiotic construction dynamics. The structure is 'fractal' (Werth, 1993) because each layer consists basically of the same elements, arranged in the same sort of configuration. Werth (1995:54) explains:

> "In the ensuing sections; I'll be outlining a number of different kinds of world all forming part of an event of language, namely, discourse worlds, text worlds and sub-worlds. It will be an important tenet of this approach that, despite having somewhat different functions, these various kinds of world are essentially similar. All of them have something to do with that state of affairs which is defined by the discourse."

Werth (1999:182, emphasis retained) reiterates this position:

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[37] Werth (1997b) refers to the representational levels of DW, TW, and SWs as 'interaction space', 'deictic space' and 'detours in deictic space', respectively.

> "In the present approach, I claim that all layers of world are constitutionally equivalent. Thus, the (…) *discourse world* is fundamentally similar in make-up to the *text world*, while the text world is essentially equivalent to the *sub-world*. (…) Specifically, each contains protagonists (…), each is built or buildable with the same building elements (…), all are mental representations and, finally, the relationships between successive layers are identical."

Discourse World (DW) is the mental representation of the immediate situation surrounding the main function of the communicative act in force. It is the situational context to the language event out of which the RD *per se* come into being. Put differently, the DW is the symbolization of the circumstances that we trivially call 'material reality' pertaining to "the before" and "the after" a specific token of RD by itself is produced and interpreted in a given discourse. It amounts to the state of affairs conceived of by RD' informant and RD' user that corresponds to the realm of abstraction in their joint venture which the notions 'projected world' and 'construed reality' in chapter 1 above invoked.

In face-to-face communication, for research dealing with the oral language modality, speaker and hearer share "the same" DW (at least as far as perception / the sensory input is concerned). However, since the tokens of RD we presently investigate belong to the written language modality, RD' informant and RD' user mentally erect each a separate DW. This split mental construct (that our notation will diagram as a fusion, for the sake of convenience) encompasses the interactants' conception of each other *qua* sentient entities, as well as of non-sentient beings, called 'objects', and of time and place markings judged salient for the representation of the language event in question. It also includes knowledge Frames[38] (Fillmore, 1982, 1985, elsewhere) certain place

[38] The next (sub-)section explains this crucial notion, which tends to be used interchangeably with the 'Schema' concept. See e.g. Barsalou & Hale (1993). Mendes (1998) uses the Fillmorean Frame as one of the analytical tools to prove the semantic-

markings evoke. It additionally includes the 'propositions' – in a flexible sense of the term, which we will soon specify – conveyed by the utterances that precede and follow the RD' semiosis under consideration in itself. These 'propositions' latch onto inferences, whose computation will also be described in sub-sections 3.1.2 and 3.2.1.

Text World (TW) is the mental representation of the main purpose of the discourse: Here the RD proper. In other words, the TW is the conceptualization of what is in focus to serve the functions of the linguistic performance act in question. For our specific spatial discourse category, this amounts to some change of location event-like state of affairs in the memory of the RD' informant that will allow the RD' user to imagine and/or carry out self-displacement in an unfamiliar environment from Source to Goal successfully. As Werth (1995:59, our italics) puts it:

> "*The purpose of a discourse is coded as its register-type*, e.g. narrative, descriptive, argumentative, instructive, etc. Thus the purpose of a narrative is to further a plot, that of a description is to provide a characterization, that of an argument to argue a point, and *that of an instruction to recommend a course of action*."

The TW is the representation of the major storyline a language event concentrates on, together with all the structure – in the case of our RD tokens, fed up by memory and imagination much more substantially than by perception – necessary to understand it. This mental construct contains the entities (both sentient and non-sentient) involved in the central plot of the discourse, time and place parameters relevant to its conceptualization, as well as Frames these parameters happen to trigger. This cognitive space level also includes those 'propositions' that transpire

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pragmatic equivalence of the so-called "double-subject" topic constructions in contemporary colloquial Japanese and Brazilian Portuguese.

the predications the major storyline introduces, and inferences that can be derived from these 'propositions'.

Sub-Worlds are mental constructs embedded either in the DW or in the TW for a given language event that represent all transitory deviations from the parameters which were introduced to establish this matrix world. They subsume essentially the same features that are to be seen in their matrix world: Entities, time and place signature, and 'propositions'. And SWs link up to Frames and inferences fundamentally in the same way their mother space does. But they serve the function to symbolize three kinds of temporary suspension of the markings that define the world they spring from, namely deictic alternations, the contents of propositional attitudes, and epistemic modalizations.[39] As a corollary, there are three types of SW: Deictic, attitudinal, and epistemic.[40] In a nutshell, while the DW is a construct based on the interactants' mental representation of the immediate situation of a language event, the TW is a construct based on the interactants' mental representation of the main point of their communicative joint project. A SW, by its turn, is a construct based on their mental representation of whatever complex-state-of-affairs aspect one step further cognitively removed[41] in the linguistic performance act under consideration. Because it neither primarily symbolizes the projected world / construed reality, nor the topical function of the verbal behavior enterprise in focus.

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[39] The Werthian sense this dissertation maintains differs somewhat from the meaning of the term 'modalization' in the functional(-oriented)-grammar tradition, which Weinreich, Halliday, or Eggins, for instance, would advocate. It is rather in tune with the 'epistemic stance' notion Fillmore, Sweetser, and also Nuyts (2001) defend.

[40] For a two-pronged taxonomy of SWs, that distinguishes 'deictic alternation' sub-worlds from 'modal' sub-worlds, the latter category regrouping what we, after Werth, classify as 'attitudinal' and 'epistemic' under a single badge, see Gavins (2001).

[41] Werth (1997a and 1997b) explore in depth this high-conceptual-remoteness quality of SWs, while concentrating on one specific type of such mental constructs, namely, any SW involved in the internal representation of linguistic conditional expressions / hypothetical situations. On the notion of 'cognitive distance' see also Verspoor (2000).

Thus we can briefly define the three types of SW that CDG/SBM espouses as follows. A more thorough account of the differences among them emerges in the coming pages, as we proceed with the characterization of the discourse facet of our proposal and exemplify it in due time.

Deictic SWs: Departures from the basic time or place parameters that were set up to establish the matrix world in focus. E.g.: A flashback, a flashforward, and a meanwhile-back-at-the-ranch situation conceived of.

Attitudinal SWs: Contents of mental processes or propositional attitudes the protagonists (the principal sentient beings the world in force is peopled with) entertain, such as beliefs, hopes, desires, intentions, etc.

Epistemic SWs: Speculations the protagonists harbor: Any consideration of the degree of probability, possibility, unlikelihood, or impossibility of a given state of affairs these sentient entities hold.

3.1.2. Information-handling processes

As we have seen above, the notion of conceptual space that lies at the core of the discourse model for written RD' understanding this dissertation proposes contains all the information necessary to participate in a language event. Four (quasi) concomitant processes of storing, retrieving and dealing with information, since they run more or less simultaneously, contribute to this conceptual space: World building, function advancing, knowledge framing, and inferential reasoning. In this sub-section we introduce these cognitive operations. They will constitute a matter of consideration once again in section 3.2 though.

World building establishes the deictic,[42] referential,[43] and basic descriptive data necessary to define the scene against which the storyline unfolds. That is, it pins down protagonists, objects, as well as the time and place parameters to erect a cognitive space. The protagonists in our case are, at DW level, the mental representation of RD' informant and RD' user *qua* 'participants'. At TW level, they are the counterparts (Fauconnier, 1994) to these entities – the participants – *qua* 'characters'. At SW level, the protagonists are finally counterparts *qua* 'sub-characters' to the symbolization of RD' informant and RD' user either as discourse participants or as textual characters, depending on the matrix world we happen to be dealing with, i.e., depending on the parent space the SW in question happens to spring from. Sometimes, less active protagonists are also present, namely, sentient entities not focally involved in the symbolization of the state of affairs the discourse instantiates, but simply figuring in it in some way or another, as "supporting cast", such as the mental representation of people known to RD' informant and/or to RD' user. As 'objects' count all the non-sentient entities that the communicative event mentions and therefore attributes pertinence to in the symbolization of the state of affairs at stake. Apart from participants/characters/sub-characters, objects, time, and place markings – which are obligatory attributes – we can still have as an optional attribute what we call an 'Assumption': A 'proposition' that is salient enough to erect by itself a new cognitive space, or at least to deserve special mention or attention among the various elements that set up a given conceptual space in force.

As the careful reader will have for sure realized, the previous paragraph subtly resorts to an analogy with theater. To state it more

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[42] On indexicals in general, see Fillmore (1997, 1998). For an example of how the mental spaces theory treats indexicals, cf. Rubba (1996). And Levinson (2004) shows how indexicals are a "must" entry in a pragmatist's *explananda*.

[43] Salomão (2003b) deals with 'referentiality' from a socio-cognitivist perspective congenial with the Werthian position on the issue we presently advocate.

plainly at this point is perhaps in order. The world-building mechanism sets the backcloth against which a drama unfolds. The happenings in the play itself that unveil at the forefront, having a world-building scenery or backdrop, correspond to the function-advancing component of the model.

Function advancing thus is the process according to which the new information evocatively conveyed by the predications engaged in during a given semiosis is introduced in the discourse. In other words, function advancing is the set of 'propositions' that present information whose purpose is "to push the plot of the linguistic performance act forwards". The RD' informant proffers this set of 'propositions' by uttering the text the wayfinding instructions consist in, as well as the sentences that come before and after these itinerary descriptions *per se* in each token of our corpus. The RD' user then has to undertake the task of propositional decoding, in order to cope with the interpretation / meaning co-construal of the verbal message appropriately.

The function-advancing 'propositions' determine how the protagonists and objects nominated by world building are related among one another. "Given a set of prior conditions defining the world, (…) [i.e., the world-building elements in force, function advancing] goes on to entertain a set of propositions that 'take place' within that world as defined" (Werth, 1999:194). More concretely, the relationships among these designated entities subsume two types of predication: Motion predications, and Description predications. The latter kind Werth refers to as 'metonymic'. Although it would not be too difficult to find in the specialized literature that represents the "last-word" treatment of metonymy in cognitive linguistics[44] support for the Werthian metonymic

[44] Which should encompass, *inter alia*, Panther & Radden (1999), Barcelona (2000), Dirven & Pörings (2002), Panther & Thornburg (2003, forthcoming), Panther (2004a,b), Radden & Panther (2004), and Nunberg (2004).

classification,[45] we hereafter simplify matters a bit and prefer the functional branch to the conceptual prong of the fork pertaining to these situation encoding devices: This dissertation therefore refers to any 'proposition' that does not belong to the Motion type – defined along the lines the present sub-section shortly encapsulates – as Description predications. Here is how Werth (1999:128, italics retained) summarizes his position on the issue:

> "Metonymy (probably the most common of all the meaning relations) is, broadly a relation of belonging. This ranges from part-whole ('inalienable possession') as in *John's foot*, through regular possession (ownership), e.g. *John's car*, and the possession of a property (*a red car*), to some looser association of contiguity, common (*cup and saucer*) or occasional (*the floppy disk and the pen on my desk at this moment*)."

We hereafter endorse such a view, or the thrust behind it, but with one caveat: We underscore a characteristic to metonymy that the Werthian scheme seems either to be oblivious to, or to underestimate, namely, the fact that the proximity the scholar invokes ultimately has to do with a cognitive or conceptual salient relation. Even when it is triggered by perceptual input of two objects in material reality that happen to be next to each other. In other words, what matters is how close two entities are within the mental model conceived of for the semiotic construction of a given linguistic performance act, as Panther & Thornburg (2003:2-3, italics in original, underlined emphasis ours) authoritatively explicate:

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[45] Just illustratively, Radden & Kövecses (1999) also maintain that qualities are possessions. Waltereit (1999: esp. 244ff.) deals with metonymic inalienable possession too. Fauconnier & Turner (1999) show how far-apart entities become contiguous elements via metonymy in Blends. Seto (1999) emphasizes the part-whole essence of this mental operation as well. Now, Dirven (1999) connects metonymy with the Motion Event Schema, which matches the Werthian general stance on the relationship between language and space.

> "Lakoff (1987) contrasts metaphor as an *isomorphic mapping* between two distinct domains – a source and a target – with metonymy, which is seen as operating only within a single conceptual domain. Lakoff's conception of metonymy – as well as Langacker's (1993) work, which also emphasizes the conceptual nature of the process – is an important step forward – away from the traditional view of metonymy as a relation of "real-world" contiguity/association to an abstract view of metonymy in which 'contiguity' is understood as closeness in a conceptual model.
>
> Metonymy is often regarded as a *referential* phenomenon where the name of a referent is used to stand for another referent. We argue that this view is too narrow. Furthermore, the characterization of metonymy as a 'stand for' relation suggests that metonymy is a substitution relation, a reflection of which is that metonymies are usually represented by the schema X FOR Y, where X represents the source (also called 'vehicle') and Y symbolizes the target of the metonymic operation. It should however be borne in mind that the substitution view of metonymy is inadequate because the source of a metonymy is not simply replaced by the metonymic target, except in cases involving historical semantic change. Recent work has shown that metonymy is better viewed as a cognitive trigger providing access to a targeted concept. This is the view, which in some variant or other, is shared by most cognitive linguists, (…) meant to reflect the assumption that metonymy is a relation between concepts, rather than between real-world denotata or referents."

Moreover, we do embrace, this time without provisos, the Werthian unconventional definition of 'propositions' at large, which rejects the objectivist orthodoxy, thus taking instead a cognitive discourse

perspective. That is to say, a proposition is NOT seen here as, in the words of Bublitz (2001:59, our translation)[46]

> "the meaning unit of a sentence, its semantic core, which determines its truth-value, when the sentence is uttered; the proposition remains the same, irrespective of the form in which it occurs in the utterance, or regardless of the speech act as which it occurs in the utterance."

Rather, propositions are seen as representational devices for situations, which compositionally contribute a great load of information in order to symbolize a complex state of affairs. This Gestalt-like complex state of affairs amounts to the conceptual domain of understanding, the cognitive-worlds constellation, necessary to felicitously codify or interpret a given language event in question, as a particular discourse registers or evokes. It is in this sense that the term should be read/understood in the previous paragraphs to this chapter and in any association with CDG/SBM in this dissertation throughout.[47] As Werth (1999:196, emphasis in original) posits:

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[46] Kearns (2000:25ff.) proffers a more "hegemonically" expressed formalism-oriented definition of 'propositions', since she adopts a truth-conditional account of meaning (a stance which Bublitz (2001) is ultimately critical of): "To discuss the meanings of sentences and other expressions, we need a way to represent them. Sentences written in ordinary writing are not reliable representations of their meanings, as written forms do not always capture sameness and difference of meaning. (…) Sentences [may] have different written forms but the same meaning. Sentences [may] have the same written form but different meanings. (…) So we need to represent meanings directly, and for this we shall use a notation based on first order logic. Logic is chiefly concerned with relationships between meanings, particularly the meanings of declarative sentences, in processes of reasoning. The meaning of a declarative sentence – the kind that can be used to make a statement and can be true or false – is a *proposition*."

[47] Our view of propositions is somewhat similar to Panther & Thornburg's (2003). Though specifically concerned with the interplay of metonymy, pragmatic inference, and speech acts within cognitive linguistics, Panther & Thornburg (2003: esp. 4) advocate a *propositional* level of conceptual salience/activation which amounts to the layer of analysis where *referential* and *predicational* metonymic operations occur together. In addition Panther & Thornburg recognize *a fourth sphere* of pertinence regarding these discourse representational processes: The *illocutionary* one.

> "In the present approach, a proposition is the representation of a simple situation. All situations are taken to be either *path-expressions*, whereby one entity is connected to another, or to another situation, or else *modifications*, whereby an entity is connected to a property. (…) The domain of these situations is always a world, defined by the discourse itself. This means that the question of reference is always resolved *locally* in the [cognitive/conceptual] world."

We hence view 'path-expressions'[48] as encoding situations of the 'motion' type, conceived of in a broad sense. This includes not only concrete/physical movement-denoting predications, but also abstract movement-denoting predications, such as changes of state the entities in the internal representation undergo, processes they experience, as well as actions in general these beings carry out. In contrast to this type of situation[49] encoding, we maintain that description predications partake in the semiosis whenever propositions – in the vast sense of the term defined above – provide (extra) modification (i.e., clearer designation) on the elements the world-building mechanism has nominated to define the conceptual space in question (Werth 1999:198). This includes steady states, circumstances, and "any associative relationships which can be loosely described as 'belonging'," possession[50] being the most prototypical one. (Werth 1999:202)

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[48] Sometimes called 'pathways' or simply 'paths' by Werth (1997a, 1999). In Werth (1995) 'path-statements' is the nomenclature used.

[49] Needless to say, the way this dissertation handles this term is orthogonal to Barwise & Perry's (1983), since we follow rather Werth's experientialist perspective to represent situations, publicly stated as back as his (1988) paper. Barwise & Perry, in order to meet rigor of formalization standards, take a reductionist approach to situations and simplify the content of their basic units so much that they end up nearly devoid of meaning: A mere algebraic formula, having little to do with what people usually experience as normal/real situations. Werth (1999:80)

[50] Taylor (2001) and Langacker (2004) deal with a set of problems surrounding the genitive/possessive case.

Hand in hand with world building runs the knowledge-framing operation. In brief, this mechanism automatically yields semantic-pragmatic supplementary meaning to the verbalization/interpretation of any referential expression nailed down by the world-building process. This comes about insofar as the referential expressions the RD' token under consideration instantiates activate networks of encyclopedic/world knowledge in the RD' user's mind. These knowledge chunks help the RD' user substantiate the comprehension of the lexemes which the RD' informant has chosen to construe the itinerary descriptions in force. Borrowing Werth's (1997a:92) wording to depict how this mental operation works:

> "Frames represent the organization of knowledge around specific concepts, including relationships with other concepts, which are themselves at the centres of frames, and so on. Knowledge structure in general, then, can be thought of as a system of overlapping frames covering the conceptual universe."

In principle all referential expressions that the world-building component nominates are Frame activating.[51] Notwithstanding, to spell out this pervasive mechanism in its entirety – if at all feasible – would hinder the readability of the present dissertation. Therefore, we adopt the measure of selectively concentrating only on some of the semantic-pragmatic gain this cognitive process contributes. That is to say, we exclusively focus on the place markings to the TW that represents the RD instance under scrutiny. After all, these place markings enumerate to the RD' user the sequence of LMs (prototypical Landmarks, as invoked in chapter 2) to be found along the trajectory from the starting point to the intended destination: The Source, the Goal and the stopover LMs in between them that the semiotic construal of the RD at stake includes.

[51] Werth (1997b) talks of 'Frames', side by side with 'Scenes', 'Scenarios', e.g. Palmer (1996:75), etc (cf. Schank & Abelson's (1977) 'Scripts', and Lakoff's (1987) 'ICMs'), as mental configurations of institutionalized elements in the interactants' world knowledge. See also Taylor (2002: esp. ch. 10) on 'domains'.

Hence, concentrating – albeit not exhaustively – on the knowledge-framing operation the place signature at TW level evokes should be enough to give the reader an idea about how Frames contribute to RD' understanding. The following excerpt encapsulates Werth's (1999:20) ideas about the knowledge-framing process in general:

> "(O)pposed to the generative view that a text consists of no more than a set of sentences, each analysed independently of context and user, and then interpreted semantically, I will (…) show that (…) we need to represent the notion of a 'conceptual background': A [cognitive] space, defined initially by the discourse itself, and specifically by the deictic and referential elements in it. It falls within the definition of 'mental space' of Fauconnier (1985). The deictic and referential elements are given by the discourse. The referential elements, in their turn, activate relevant areas of memory, including complex conceptual structures known as Frames. Frames are whole chunks of experience and situations, codified and stored in memory as single items. (…) These then operate to 'flesh out' the discourse from the knowledge and imagination of the [interactants]. This accounts for the fact that every individual will build up a slightly different [conceptual] world from the same discourse input. At the same time there are strong restrictions on this so that individual differences remain within accepted boundaries."

In the same way that, on the one hand, world building and knowledge framing run in intimate connection, so do function advancing and inferential reasoning too, on the other hand. The inferential-reasoning component adds 'propositional' information to the predicational content that function advancing has manifestly introduced in the discourse. That is to say, a given language event under discussion invariably encompasses a set of explicitly transpired 'propositions'. But it also latches onto an array of 'propositions' that emerges in the semiosis only implicitly. This latter set is the cognitive gain of the inferential-reasoning operation.

Once more we must be quite selective, if we want the dissertation to remain tightly structured to a clear and manageable degree. To account for the gain from Inferential Reasoning painstakingly would mean a rather Herculean task. Therefore, when we demonstrate operant CDG in section 3.3, the inferential-reasoning process will be limited to 'propositions' of contextually marked prominence at DW level, and to 'propositions' of average salience at TW level. For the sake of brevity, the 'propositions' that the inferential-reasoning mechanism yield at SW level will thus be disregarded in the analysis. This move reflects a global change of emphasis this dissertation adopts, parting with the Werthian sketches. Werth (1999) pays more attention to the SW than to the DW level of the framework. For instance, there is a chapter in the monograph devoted to SWs, but no chapter devoted to DWs. Moreover, Werth's formulations at times attribute a status of primacy to the TW over the two other layers in the outline. The present dissertation maintains that the three tiers of SBM are exactly equal in weight. However, since RD constitute an instructive discourse type, they happen to embrace SWs to a notoriously lesser degree than the fictional texts that Werth (1999) quite often analyzes.[52] Therefore, we will not treat SWs in minute detail when we exemplify SBM at work later on (in section 3.3). Making up for that, CDG/SBM takes the DW layer into due account. As a result, we stress the cooperation-at-a-distance quality in the joint project pertaining to each RD' semiosis under examination, and at the same time restore the balance of the system Werth originally proposed.

In a paper that deals with the 'undercurrent' (i.e., hidden, subliminal) aspects of 'megametaphors' (since their scope is rather pervasive) belonging to literary texts – and for this reason not of primary interest to this dissertation – Werth (1994:90, his emphasis), there is a

[52] The 'quite often' hedge here is worth noticing. It is not the case that Werth (1999) always exemplifies his proposals using literary discourse. Excerpts from scientific publications and newspaper articles – whether reproduced *ipsis litteris* or adapted – are also used to back up the argumentation advanced.

concise characterization of the well-knit four operations involved in the cognitive domain we currently make the case for:

> "(A) conceptual space, containing all the information necessary to participate in a given discourse. Several kinds of information-handling processes contribute to this space: *world-building, function-advancing, knowledge-framing* and *inferencing*. World-building elements comprise deictic, referential and descriptive information – in other words, scene-setting details. Function-advancing propositions incorporate the new information which represents the point of the discourse: what it adds to the knowledge of the [interactants]. Knowledge frames organise the general and community knowledge accessible to the [interactants], and provide semantic and pragmatic enrichment for the referential elements nominated in the discourse. Inferences allow further indirect information about propositions to be generated. (…) One further important point (…) is that unlike models in model-theoretic semantics, they [i.e., these conceptual spaces] are *rich* worlds – they represent human experience, rather than mathematical modelling."

Basically, the inferential-reasoning component of SBM comprises two types of computation: Deductive and non-deductive.[53] Deductive inferential reasoning results in propositions entailed by the function-advancing mechanism. They are therefore conclusions that can be logically/necessarily derived from the propositions the discourse manifestly conveys, or better, explicitly presents as triggers of the semiotic construction process RD' informant and user undertake. In contrast, non-deductive inferential reasoning results in probabilistic propositions drawn from the function-advancing component of the model,

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[53] Werth (1999:148) mentions 'bridging' in passing, though. We take up bridging inferences later in 3.2.1.5. In addition, Werth (1999: esp. ch. 11) goes into narratological explorations of the interplay between what he calls 'metaphorical inferences' and what he dubs 'undercurrent' or 'megametaphors'.

although their probability level is often rather high. These are thus experientially based conclusions that the interactants draw moored on their ordinary praxis in life *qua* social beings. They are conclusions the interactants draw conjecturally on the basis of common sense, the specific situation of language use, and the like, from the propositions the function advancing component patently provides to cue up a meaning construction dynamics. Confer the phrasing quoted from Werth (1997a:94, italics ours), after a short discussion of the three other processes[54] kernel to his account for the conceptual structure underlying discourse semiosis:

> "Finally, inferences. These are propositions which may be understood as following from other propositions which are actually expressed. Inferences are of two kinds: logical (deductive), following by automatic rule, and pragmatic (abductive), following by some looser, *knowledge-based connection*. (…) The importance of inferences is that they enrich the quality of the information derivable from the expressed propositions alone. In this, they perform *a function similar to frames*, which enrich the bare meaning of the referential expressions by *adding* supplementary and *contextual information*."

3.1.3. Meta-principles

Despite the many different deeds in relation to which language use may be routinely observed in everyday life, the present dissertation holds that verbal behavior invariably subsumes a specific aim. That is to say, linguistic performance is always after the accomplishment of a function. A

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[54] Note that somewhat differently from the other major writings we call upon, this paper (Werth, 1997a:90) speaks of the information-management operations that belong to the cognitive space sustaining the representation of a given language event as informational types *per se*: "Several kinds of information contribute to this space: world-building, function-advancing, frames, and inferences." Marcuschi (2000) defends a congenial proposal, specifically concerning the inferential construal of reference in situated discourse.

language event inextricably encompasses a certain objective that the interactants want to achieve together. This is the 'joint project' notion immanent in language use that this dissertation inherits from Herbert Clark's research.[55] In conformity with the Werthian sketches, this dissertation assumes that such target-oriented partnership ventures are also trivially undertaken by RD' informant and RD' user in obedience to some tacit agreements of paramount importance: The three meta-principles of discourse (Werth, 1999) that hold sway over the conception, production and interpretation of all naturally occurring, situated language events, namely, communicativeness, cooperativeness, and coherence.[56]

In a nutshell, *Communicativeness* means that RD' informant and RD' user engage in the semiosis of a linguistic performance act that comprises a set of RD with the purpose of prosecuting informativeness. This is because our object of inquiry is primarily an instructive text type. *Cooperativeness* means that RD' informant and RD' user decide *a priori* to be socially supportive of each other to co-construe efficiently their joint effort. In other words, the interactants readily consent to establish their unstated both-party alliance in order to attain in unison the meaning construction dynamics in which a given set of RD is embedded. *Coherence* – which includes 'relevance'[57] – means that the RD' user automatically assumes that none of the entities and predications the RD'

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[55] Salomão (1998, 1999) and Miranda (2001) also underline the importance of a socio-cognitivist approach to contextualized semiotic construction in the analysis of verbal behavior from a usage-based perspective.

[56] Werth (MS.:7) alludes to them as 'functional goals' that systematically relate the various forms of represented speech and speech-like thought a discourse may adopt. The paper argues that the lexical item 'speech'/'speak(ing)' constitutes a special case of action/activity due to its contentful semiotic aspect: "(…) Activities exist in their own right, that is to say, but they *may* be associated with some conventional meaning. Speech, though, is activity which *cannot* be divorced from meaning." (Werth, MS.: 1, emphasis retained).

[57] Note that Werth (1984:58ff.) already defended the view that the concept of 'Relevance' is subordinated to that of 'Coherence'. Werth (1981) is still pertinent in this connection.

informant proffers *qua* semiotic triggers to define their initial Common Ground and then to keep updating/incrementing it via further discourse are superfluous. That is to say, all the beings and propositions a RD' token's text presents are by default relevant to the semiotic joint project at stake. The Common Ground (CG) amounts to the set of propositions that RD' informant and RD' user mutually believe to be known and salient for the representation of a particular language event comprising an instance of wayfinding instructions, together with all the expectations, Frames and inferences this knowledge store may unleash.

Werth (1999) is critical of Sperber & Wilson's (1986) treatment of the 'relevance' notion within their Relevance Theory (RT) paradigm. RT is based on so-called 'ostensive communication'. I.e., communication that is intentional and overt in such a way that the speaker not only wants to convey a specific meaning, but also deliberately wants to help the hearer recognize this intention. For 'ostensive communication' to be successful, the hearer has to pay attention to the ostensive stimulus. And the hearer will not bother to do so unless the phenomenon to attend to seems relevant enough. Ultimately, relevance in the RT framework amounts to the cost-benefit relation between the effort the hearer must make to process an ostensive stimulus optimally, and the cognitive effects that this strenuous operation brings the hearer. This cost-benefit analysis is carried out in a context-sensitive fashion. Here is where the problems with RT arise. Werth (1999) shows that the notion of context Sperber & Wilson – as well as their followers Blass, Blakemore, and many others – take into account is much too perfunctory, narrow, deficient and crude to be able to explain the actual relevance of an utterance. In contrast, the Werthian stance that the current dissertation maintains always assesses relevance with respect to a more global notion of Coherence. This move is thoroughly anchored in a view of Context as a pervasive environment to a given piece of language act and as a quintessential contribution to meaningful verbal behavior. Moreover, Coherence amounts to the semantic/pragmatic connectivity of a discourse. It incorporates situational aspects, as well as the extensions of general knowledge the text in the discourse has homed

into. Therefore, a proposition can cohere with any element in the knowledge base that the Common Ground amounts to: Linguistic entities manifestly presented by World Building and Function Advancing, but also conceptual elements evoked by Knowledge Framing and Inferential Reasoning.

As Werth (1999:49-50, italics his) summarizes: "Assuming that discourses are *mutual attempts to negotiate a Common Ground*, such interactions are regulated by a set of meta-principles: Comunicativeness, Coherence, and Co-operativeness." And he goes on to define them more or less along the lines as we advocate above. Later on, after the linguist elaborates on the concept of 'Coherence', the extent to which its subsidiary notion of 'Relevance' depends on 'Common Ground' is emphasized once more: "(A)ctual relevance is a function of the relationship between the content of the utterance and the Common Ground (CG)." Werth (1999:141)

Perhaps also worth mentioning at this point is Werth's determination to the cause of returning the discipline "towards a more human Linguistics", which has driven the linguist's research all along, as Werth (1999:19-20, our emphasis) asserts:

> "Let me now characterise what I mean by a 'more human' Linguistics. This means in essence that language must be viewed as a phenomenon which is intimately bound up with human experience. This principle underlies the new research programme which I am advocating here, a programme which has the Chomskyan paradigm as its ultimate predecessor, but which deviates from it on the crucial questions of methodology and coverage (…). Instead of starting with a list of properties, I will content myself for the moment with saying that *a text or discourse represents a coherent and joint effort on the part of its producer and its recipient to build up a 'world' within which its propositions are appropriately-formed and make sense*.

> Appropriateness of form has to do with how sense should be signified (…). The generative goal of 'well-formedness', on the other hand, is a purely syntactic measure. The view of the present book (…) is that much of 'well-formedness' is actually *'appropriate-formedness'*, and *is determined by discourse principles*. What remains of well-formedness are then some rather low-level 'housekeeping'-type rules."

Besides, CDG/SBM inherits from the Mental Spaces Theory the fundamental principle or golden maxim of discourse that Form underspecifies Meaning (Cf. among others Fauconnier 1994, 1997; Fauconnier & Sweetser, 1996). What linguistic expressions do is to prompt or cue up a very rich semiotic construction process. An instance of RD an informant contributes gives clues to its user about a realm of signification they should construe together and try to agree on. In other words, linguistic expressions underdetermine semiosis. They "merely" guide the interlocutors taking up a verbal performance act through their complex meaning construction dynamics. Specifically concerning our object of inquiry, this golden rule of discourse has to do with how the text of a RD' token latches onto a given string of speech bubbles. The RD' token's text triggers in the interactants' minds a stack of cognitive worlds. Such a mental configuration fleshes out the interactants' conceptual domain of understanding, for them to agree on the symbolization of the particular joint project they are engaged in.

Summing up, these are the analytical tools CDG/SBM propounds: Three tiers of mental representation embedded in each other, four information-handling processes that run quasi simultaneously, and four meta-principles of discourse whose influence is ubiquitous and supreme. Can these tools dissect the mental landscape which the communication of the RD' tokens in our corpus encompasses at supra-sentential level? And, more crucially, do they manage to show how encoded meaning and invisible meaning inevitably intertwine during RD' understanding? These are the main questions section 3.3 attempts to answer, by showing the discourse facet of our proposals at work. However, before we do that, it is

maybe useful to provide the reader with a more solid grasp of SBM/CDG's breadth in itself. This is the purpose the following section serves.

3.2. CDG / SBM within Cognitive Linguistics

This section is dedicated to showing how the discourse model for written RD in German this dissertation propounds mirrors the basic commitments to the branch of scientific study of language under the 'Cognitive Linguistics' insignia and thus connects with several frameworks belonging therein. First we locate our proposal with respect to the core tenets of the cognitive linguistics field, and to some compatible outlines from this discipline at large. Then we concentrate on a comparison between SBM and its most conspicuous forerunner: The Mental Spaces Theory, not only as it looked like initially, but also in the guise of its most recent developments, namely Blending and Conceptual Integration Networks.

3.2.1. SBM put into perspective

Cognitive linguistics – alongside with philosophy, anthropology, psychology, neurobiology, and computer science / artificial intelligence – can be described as the approach to linguistics based on the research issues that constitute the broad information-processing-oriented cognitive science agenda in general: Intellect, wisdom, the mind, meaning, feeling, emotion, perception, consciousness, judgment, interpretation, thought, inference, memory, and association, among others (Yamanashi, 1995:1-4). These topics exemplify the subject matters that cognitive science ranges over, which, after Gardner (1985:6) amounts to an array of "long standing epistemological questions – particularly those concerned with the nature of knowledge, its components, its sources, its development and its deployment."

Still according to Yamanashi (1995:5-6), the cognitive linguistics enterprise is grounded on a mental model (Johnson-Laird, 1983; Lakoff, 1987; Langacker, 1987) people build in order to make sense of the external world they interact with *via* sensory-motor experience. The researcher points out that the internal processes that the language user/ epistemological subject goes through while making sense of reality encompass a handful of key questions under the cognitive linguistics prism, such as: (i) the frontier between linguistic and non-linguistic knowledge, (ii) [ontological matters involving] the conceptual system of language and the problem of categorization, (iii) the division of labor between semantics and pragmatics,[58] (iv) meaning change and figurative meaning processes, (v) grammatical categories and meaning extension, (vi) viewpoint choice and meaning interpretation. These are – after Yamanashi (1995) – some of the major problems that cognitive linguists all in all try to disentangle, while never losing sight of the role Context plays in on-line semiosis, i.e., always taking the situational anchorage immanent to real language use into consideration.

Let us think about how our model relates to these questions. SBM includes at each layer (DW, TW, and SW) a symbolization of different aspects of those segments of external reality that are judged salient for the

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[58] A line that has been difficult to demarcate without causing contention since the founder of Pragmatics as a research field introduced the tripartite division syntax/ semantics/pragmatics, as Horn & Ward (2004:xi) historiate: "Pragmatics as a field of linguistic inquiry was initiated in the 1930s by Morris, Carnap, and Peirce, for whom syntax addressed the formal relations of signs to one another, semantics the relation of signs to what they denote, and pragmatics the relation of signs to their users and interpreters (Morris 1938). In this program, pragmatics is the study of those context-dependent aspects of meaning which are systematically abstracted away from in the construction of content or logical form." Horn & Ward highlight Grice's William James lectures and Bar-Hillel's pragmatic wastebasket as milestones in the development of pragmatics as a discipline. In addition, Horn & Ward hint at the controversial nature inherent to the semantics vs. pragmatics classical distinction by emphasizing that the nagging question about how far pragmatic phenomena reach simply resists a settlement: While many, e.g. Moeschler, Reboul, etc. defend a rather restricted view, many others, e.g. Verschueren, Mey, etc. adopt a much broader and more sociological conception. The conference to take place in Paris in July 2005 called "Semantics/Pragmatics Distinction: What Is It, and Does It Really Matter?" also attests how polemical this border still remains (Cf. Linguist List 16.362). Besides, K. Turner (1999) deserves mention here too.

representation of the language event in force. Hence SBM is a kind of mental model[59] that the interactants erect in order to cope with the organization of non-linguistic knowledge, aided by linguistic knowledge in practical usage (therefore covering the argumentation in the beginning of the previous paragraph and the interface issue pointed out in (i) afterwards). SBM also obviously deals with point (ii) above – the profound matters that labels such as 'conceptual language system' and 'semantic categorization' invoke – as it builds a representational sphere between Language and our apprehension of the environment through the five senses. Besides, SBM covers point (iii) of the non-exhaustive list above too, insofar as it shows that, strictly speaking, there is no watertight distinction between semantics and pragmatics. After all, any communicative act one considers serves specific purposes and is therefore rooted in circumstantial foundations in one way or another. However, CDG does not even adumbrate meaning change in item (iv) above, since it is not worried about grammaticalization, entrenchment, bleaching or any other diachronically significant problem. But, still related to point (iv) above, CDG does tackle figurative meaning processes such as metaphor and metonymy, viewing them as routine (many times unconscious) mental operations in ordinary linguistic cognition, rather than tropes exclusive to poetical language use. As for item (v), at least indirectly, grammatical categories and meaning extension fall within SBM's range as well, because world building and function advancing designate entities and arrange them in a predicational chart, thus dealing with Nouns, Verbs, Adjectives, Prepositions, etc.[60] Finally, of course, the selection of a viewpoint – as item (vi) above mentions – in order to linguistically construe as a joint venture a given semiosis, is a process both RD' informant and RD' user experience while interacting at a distance during

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[59] Although not specific to RD, see esp. in this regard Werth (1999:72-4).

[60] See also Langacker's (1987b, 2003b) discussion of a few basic constructs for grammatical description, such as subject, object, noun, and verb.

the communication of each particular token of wayfinding instructions in our corpus.

In essence, one can arguably say that the Cognitive Linguistics enterprise programmatically took shape as three scholars – G. Lakoff, R. Langacker, and C. Fillmore – proffered several key alternatives to the Chomskyan paradigm, as a result of being more and more dissatisfied with how the generativists handled crucial topics in the scientific study of language, particularly their cavalier treatment of every meaning-related phenomenon (Kawakami, 1996; Nakamura, 2000; Taylor, 2002; Croft & Cruse, 2004). Werth (1999:34) shares this evaluation[61]: "Cognitive Linguistics is the name which has come to be attached to a range of approaches originating with George Lakoff, Charles Fillmore and Ronald Langacker". Goldberg (1996b:3-4) widens the focus and provides us with an elucidative palette of the foundational assumptions that characterize the cognitive linguistics movement, which comes in handy at this point:

1. Semantics is based on speaker's construals of situations, not on objective truth conditions (Langacker 1985, 1987, 1988; Fauconnier 1985; Lakoff 1987; Talmy 1978, 1985).

2. Semantics and pragmatics form a continuum, and both play a role in linguistic meaning.[62] Linguistic meaning is part of our overall conceptual system and not a separate modular

[61] Peeters's (2001: e.g. 85) article, by its turn, corroborates the Werthian position on the question: "(R)ecall that the Cognitive Linguistics movement as we know it today was born out of polemical opposition to Chomskyan linguistics".

[62] Concerning this particular aspect, further support is provided by Panther & Thornburg's (2003:7) case for the ubiquitous metonymical reach in linguistic cognition: "Metonymy is found in both what is considered to be the domain of linguistic meaning (semantics) and the domain of linguistic use (pragmatics). In fact, the existence of metonymy is evidence that a strict borderline between semantics and pragmatics may be difficult to draw. (…) Metonymy is a conceptual phenomenon that cuts across the traditional distinction between semantics and pragmatics."

component (Talmy 1978, 1985; Haiman 1980; Lakoff 1987; Langacker 1987).

3. Categorization does not typically involve necessary and sufficient conditions, but rather central and extended senses (Rosch 1973; Rosh et al. 1976; Lakoff 1977, 1987; Haiman 1978; Fillmore 1982; Hopper and Thompson 1984; Givón 1986; Brugman 1988; Taylor 1995b; Corrigan et al. 1989).

4. The primary function of language is to convey meaning. Thus formal distinctions are useful to the extent that they convey semantic or pragmatic (including discourse) distinctions (Wierzbicka 1986, 1988; Lakoff 1987; Langacker 1987; Haiman 1985; Croft 1991; Deane, 1991).

5. Grammar does not involve any transformational component. Semantics is associated directly with surface form.

6. Grammatical constructions, like traditional lexical items, are pairings of form and meaning. They are taken to have a real cognitive status, and are not epiphenomena based on the operation of generative rules or universal principles (Fillmore et al. 1988; Lakoff 1987; Wierzbicka 1988; Goldberg 1995).

7. Grammar consists of a structured inventory of form-meaning pairings: phrasal grammatical constructions and lexical items (Fillmore and Kay 1993; Lakoff 1987; Langacker 1987; Wierzbicka 1988; Goldberg 1995).

This gives us a range of widely shared kernel tenets to which cognitive linguists of different hues adhere. Hereafter we spotlight the relationships between CDG and some ideas propounded by a few central figures in the cognitive linguistics front, as the list we have just

transcribed depicts it, namely Lakoff, Langacker, and Fillmore (in the present sub-section), and Fauconnier (in the next sub-section).

3.2.1.1. The experientialist commitment

Lakoff (1990) defines Cognitive Linguistics by contrasting it with Generative Linguistics in terms of their basic commitments. Generative Linguistics purports to have as a fundamental research goal the characterization of the human language faculty. Yet its actual primary commitment is to a particular formalism. It ignores or shelves all aspects of language, notably meaning, which are not amenable to treatment in this preferred formalism. Besides, Generative Linguistics adheres exclusively to objectivist categories (i.e. based on necessary and sufficient conditions) that are held to directly reflect external reality. In contrast, Lakoff states, Cognitive Linguistics strives at maximal generalizations about the nature of language and its interaction with the other human cognitive abilities, while being committed to an experientialist account: It views language and thought as inescapably founded on human experience. Cognitive Linguistics maintains that basic-level concepts and prototypes, together with kinesthetic image-schemas, are directly meaningful symbolic structures that underlie linguistic categorization. Moreover, they yield the abstraction of cognitive models – indirectly meaningful symbolic structures – *via* imaginative processes such as metonymy and metaphor. Thus the categories Cognitive Linguistics posits are not based on lists of features, but rather admit degrees of specificity and degrees of membership. Besides, verbal behavior is seen as the dynamics of a semiotic system where abstract reasoning can be understood as cognitive-topology-preserving correspondence mappings from a spatial source domain onto a target domain of experience of non-spatial quality, as the invariance hypothesis advocates.[63] I.e., the human abstract reason ability is

[63] Langacker (2000:esp. 41), while acknowledging the import of such mappings for linguistic cognition and comparing them to operations within the Mental Spaces theory of Fauconnier (and associates), submits that Turner's (1990) reformulation of Lakoff's [(1989b) first] proposal of the invariance hypothesis is more accurate: "Lakoff

taken to make use of mechanisms for the representation of spatial relations that build on our perceptual capacities. Ultimately, the relationship between language and the world is mediated by mental representations that arise from our perceptual and conceptual interaction with material reality. Lakoff (1988:121) sums up:

> "The central claim of experientialist cognition is: Meaningful conceptual structures arise from two sources: (1) from the structured nature of bodily and social experience and (2) from our innate capacity to imaginatively project from certain well-structured aspects of bodily and interactional experience to abstract conceptual structures."

Lakoff's contribution to turning the science of language more and more away from the Chomskyan paradigm by rejecting the basic commitment of Generative Linguistics begins back in the 70's and has been reiterated ever since, as, *inter alia*, Lakoff (1977, 1982, 1987, 1988, 1989a,b, 1990, 1991), and Lakoff & Johnson (1980) attest.[64] These publications have been crucial to establishing an approach to natural language theory that has human experience as its cornerstone. As a result, cognitive linguists have come to question other dogmas of the formalist enterprise as well. For example, the primacy of an autonomous syntactic module that amounts to a mathematically precise system of meaning-free combinatorial rules turns out to be debatable. As the experientialist

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(1990) claimed that metaphorical mappings preserve the image-schematic structure of the source domain. Turner (1990) subsequently offered an amended and more precisely formulated version: for those components of the source and target domains involved in the mapping, the image-schematic structure of the target is preserved, and as much image-schematic structure as possible is imported from the source, consistent with that preservation. Turner's statement at least implies that the target domain usually has some structure not created by the metaphor. Moreover, both formulations presume the importance of schematic representations, and neither denies the possibility that the source and target domains might initially share certain image-schematic properties."

[64] For an historical account – from a formalist viewpoint – of the scission between generativists and " Lutheran rebels against the 'Pope' (= Chomsky) ", see, e.g. Newmeyer (1986). For its retrospective equivalent through a cognitivist, non-objectivist prism, see, e.g. R. Lakoff (1989).

approach shows, pervasive aspects of general cognition, meaning, or communicative function play major roles in grammar.[65] Still other threads of research defy the generativist postulate of an innate autonomous syntax. Instead, they posit a handful of biologically endowed meaning-charged general conceptual and processing restrictions, as "syntactic bootstrapping" and various issues in language acquisition investigation seem to point at.[66] Hence meaning-loaded / situation-sensitive factors, as the experientialist tenet requires, have to be taken into account, should we pursue maximally cogent generalizations in empirical linguistics.

According to Lakoff (1991:53) the challenge each one dedicated to the scientific study of language faces is to characterize the overall principles that control the functioning of language in all its manifestations:

> "(T)he distribution of grammatical morphemes, categories and constructions[;] (…) inferences, polysemy, semantic fields, conceptual structure, knowledge structure, and the fitting of language to what we perceive, experience, and understand [; as well as] (…) speech acts, implicatures, discourse, deixis, and the use of language in context."

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[65] Just as an illustration of this evidence, cf. Deane (1992) on "island constraints", Itkonen & Haukioja (1996) on analogical operations in syntax, Lakoff (1986) on the "coordinate structure constraint", Lakoff & Johnson (1999) on "main clause constructions" used adverbially, and Vandeloise's (1991) forceful argument against the traditions that analyze semantics in terms of truth conditions and discrete binary features, i.e., his case for viewing natural language as a non-autonomous, non-modular cognitive faculty which draws greatly upon other, more general psychological processes. Mendes (2003c) can also be adduced here, since it explores the semantic-pragmatic anchorage that 'I'll teach you how to get there' communicative events depend on. In other words, the argument structure à la Werth that mentally represents a RD' performance act ultimately cannot abdicate its situational moorings: Without world knowledge and contextual support the sometimes "telegraphic" text a RD' token encodes would not hold as a grammatical structure (i.e., some sentences would not be licensed by the syntactic rules of the language alone).

[66] See e.g., Hirsch-Pasek & Golinkoff (1996: ch. 6), Naigles (1990, 1996), Tomasello (2003b,c) and J. Taylor (2003b: esp. 34ff). Levinson (2001), Gibbs (2003), Talmy (2003), and Panther & Köpcke (2004) deal with subject matters pertinent to cite here. Now, neurobiological evidence in favor of holding the Cognitive Linguistics basic assumptions can be pieced together from António Damásio's works.

It should not be difficult to realize how the assignments CDG/SBM is intended to carry out are in congruence with this vast Cognitive Linguistics agenda that Lakoff's formulation summarizes. After all, the discourse facet of our proposal is based on mental representations – the cognitive spaces DW, TW and SW – that incorporate as broad as possible a set of human physical and conceptual achievements. The analytical tools it subsumes involve memory, perception, reasoning, the nature of the body, our sensorimotor built, social structure, linguistic categorization in basic-level terms and prototypes, knowledge store, follow-up computations, image schemas and contextual influence. All these elements are connected in a complex internal dynamics to construct situated meaning concerning a given set of wayfinding instructions RD' informant and user jointly attend to. CDG/SBM, in sum, embraces the experientialist commitment because it explains wayfinding instructions founded on the eight human-viewpoint-driven properties that Werth (1999:21, our italics) – using an acronym – calls **'PACKAGED'**: "**P**ragmatic (arising out of *human purposes*), **A**ttitudinal (arising out of *human emotions and beliefs*), **C**ognitive (arising out of *human mental processes*), **K**nowledge-fed (arising out of *human knowledge and memory*), **A**rtistic/Imaginative (arising out of *human creativity*), **G**rounded/Contextual (arising out of *human situations*), **E**xperiential (arising out of human *experience*), and **D**iscourse-driven (arising out of *human language*)."

Another reason why CDG/SBM is in tune with the experientialist commitment of Cognitive Linguistics as a research agenda is that it inherits Werth's (1999:4, emphasis in bold his, in italics ours) determination to seeing Space as the final frontier within the conceptual basis of language use:

> "I make the assumption that we speak and write in discourses. Obviously the context surrounding writing is different from the context surrounding speaking, but the difference is not one which affects our definition of context. Central to the conceptual basis of language which I will be talking about is the notion of **location in space**. I am going to put forward *a view of language*

> *in which the idea of space is at the centre, and there are all kinds of abstract extensions which are still locative in a fundamental way, while not actually being about physical space*. (…) I want to examine a particular usage which I will be using freely in this book, and which has become very productive in recent years. I am referring to the use of the term 'space' to denote a set of abstract configurational parameters in the conceptual domain."

Let us now move on, inasmuch as we draw our attention to the similarities between some of Langacker's proposals and CDG/SBM.

Langacker's Cognitive Grammar framework – which was formerly known as 'Space Grammar', cf. e.g. Langacker (1982) – expands the application to linguistics of the principle of prominence that lies behind the Gestalt psychology Figure vs. Ground distinction,[67] and uses it to explain a series of notional dichotomies such as Profile vs. Base, Subject vs. Object, Head vs. Modifier, etc. All in all, Langacker's (1987, 1991, elsewhere) extensive scholarly work proffers a paradigm which lays out the foundations of a general theory of cognitive semantics that motivates / accounts for a theory of grammar. Yet, it is beyond the scope of this chapter to review the defining assumptions of Space/Cognitive Grammar.[68] However, the paradigm relies heavily on 'schematic imagery' to link cognition with language. Thus, before we take up a more concrete comparison of a few traits that characterize both Langacker's framework and CDG/SBM, it is in order to take up the discussion of image schemas with some care.

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[67] As it was carried out, for instance, by the pioneering account Talmy (1975a,b), and Brugman (1981) give of location as well as of motion events with respect to prepositional meanings.

[68] Cuenca & Hilferty (1999: esp. ch.3) does that, and amounts to a good introduction to Langacker's theory wholesale.

3.2.1.2. Image schemas

Alongside with basic level categories, image schemas consist of "raw material" for everyday conceptualization. That means: Basic level categories and image-schematic relations are primary mental resources we draw on to make sense of external reality in an experientialist way. Both are seen as "pre-conceptual foundations" pervasively used by all individuals in order to organize their environs, to make judgments and draw inferences about their surroundings, and to base abstract reason on ordinary bodily experience. Image-schematic relations involve not only our physical / genetic endowment, but also our socio-cultural functioning modes. Lakoff (1987:266-8) asserts:

> "(…) Basic level categories are defined by the convergence of our gestalt perception, our capacity for bodily movement, and our ability to form rich mental images. (…) Image schemas are relatively simple structures that constantly recur in our everyday bodily experience: CONTAINERS, PATHS, LINKS, FORCES, BALANCE, and in various orientations and relations: UP-DOWN, FRONT-BACK, PART-WHOLE, CENTER-PERIPHERY, etc."

We pay particular attention here to the CONTAINER image schema. As section 3.3 demonstrates, this specific image schema happens to play a key role in the semiotic construction process of at least some tokens of RD in our corpus: It may reinforce the conceptualization of a Source LM or of Goal LM overtly mentioned by the RD' token's text. More crucially, it must be resorted to as the only means to identify the ultimate referent to a Source LM conceived as a recipient but not explicitly mentioned in the surface of the discourse. To look at its peculiarities, this dissertation turns primarily to Johnson (1987, 1991, 1999) for theoretical support.

According to Johnson (1987), the fundamental ideas of enclosure, boundedness, and differentiation that the CONTAINER image schema

subsumes are shown to generate an abstract pattern of in-out orientation based on which language users structure various aspects of their everyday functioning in the world. The pervasive quality of such an abstract pattern turns out conspicuous once we make two observations. First, when we see that it recurs in the way we grasp concrete daily routine processes, say, intake of food and excretion after digestion, or the everlasting breathing essential to human life. Second, when we realize that it also recurs in how we metaphorically make sense of more abstract realms pertaining to conceptualization: Maturity, a quarrel, corruption, a state of shock, etc., to mention just a few. Johnson (1987:21-2) encapsulates:

> "Let us consider briefly an ordinary instance of image-schematic structure emerging from our experience of physical containment. Our encounter with containment and boundedness is one of the most pervasive features of our bodily experience. We are intimately aware of our bodies as three-dimensional containers into which we put certain things (food, water, air) and out of which other things emerge (food and water wastes, air, blood, etc.). *From the beginning, we experience constant physical containment in our surroundings (those things that envelop us). We move in and out of rooms, clothes, vehicles, and numerous kinds of bounded spaces.* We manipulate objects, placing them in containers (cups, boxes, cans, bags, etc.). In each of these cases there are repeatable spatial and temporal organizations. In other words, there are typical schemata for physical containment.
>
> If we look for common structure in our experiences of being IN something, or for locating something within another thing, we find recurring organization of structures: the experiential basis for IN-OUT orientation is that of spatial boundedness. *The most experientially salient sense of boundedness seems to be that of three-dimensional containment* (i.e., being limited or held within some three-dimensional enclosure, such as a womb, a crib, or a room)."

The CONTAINER image schema, we emphasize, is a conceptual tool that RD' informant and RD' user sometimes deploy to accomplish a felicitous semiotic construction of the itinerary descriptions at stake. After all, this cognitive device instantiates an important entity in the conceptualization of the motion event in question, namely the starting point of the self-displacement, which may have been introduced in the discourse just contextually. We mean here utterances such as "Go out through the side entrance", which allude to the Source LM as a recipient but do not mention it overtly. Section 3.3 illustrates the role the CONTAINER image schema plays in the discourse facet of our proposals.

We can now return to rather straightforward correlations between properties of Cognitive Grammar and properties of SBM more closely.

3.2.1.3. Interaction of billiard-ball model and stage model

Langacker's Space/Cognitive Grammar framework provides us with an experientially motivated conceptual explanation for the interactions between people and objects in the world observable in everyday life. Linguistic clausal structure reflects such interactions in the traditionally known key-element-triplet of a subject, a verb (or a predicate), and a complement (e.g. an object or an adverbial) Ungerer & Schmid (1996). Ultimately, Space/Cognitive Grammar concerns itself with the linguistic import of many fundamental or archetypal folk models – Idealized Cognitive Models, in terms of Lakoff (1987) – for the description and explanation of natural language processing or functioning. Two of these cognitive models also play a decisive part in CDG/SBM, namely the billiard-ball model, and the stage model. Let us take up the similarities between these two models in Langacker's proposals and in the discourse model for written RD this dissertation defends.

Langacker's billiard-ball model and stage model are not arbitrary labels, but rather quite motivated denominations, based on aspects of our experience *qua* sentient, cognizant, socio-cultural beings. The billiard-ball

model, as its name conspicuously reveals, takes the world to be a configuration of entities that touch/affect one another, like the balls that collide against each other on a billiard table. These entities are 'space', 'time', 'material substance', and 'energy'. The first two of these elemental components together "provide a multidimensional setting within which the other two components are manifested" (Langacker, 1991:14). This leads us to the second folk archetypal model we hereafter emphasize, namely the stage model. Material substance and energy in the billiard-ball model instantiate participants and plot, respectively, in the stage model. As the drama-related tag suggests, the stage model captures our tendency to construe events that unfold and/or situations that obtain in the world as deeds undertaken by actors under particular circumstances, as if they made up the storyline against a scenery apprehended by the public while watching a theater play. In other words, the stage model idealizes a key aspect of our everyday experience, namely, the sensorimotor contact with external happenings, made sense of as the interaction (energy) of participants (material substance) within a setting. And this dynamics is observed from an outsider's vantage point. It is beheld from an off-stage location, so to say. The connection between the billiard-ball model and the stage model is therefore blatant. Incidentally, Ungerer & Schmid (1996) allude to these 'cognitive models' in Langacker's terms, 'ICMs' in G. Lakoff's parlance, as 'metaphors'.

In a nutshell, the way the mental operations of World Building and Function Advancing in SBM interconnect is similar to the way the stage model and the billiard-ball model in Langacker's framework interpenetrate.[69] World Building establishes the deictic, referential and basic descriptive data to pin down a scene against which a storyline unfolds. It gives you time and place markings, cast, and props salient to a drama. These elements set up the backdrop to the conceptualization, in

[69] A few other studies that we know of which also incorporate the link between the billiard-ball model and the stage model are Lemmens (1998), Parrill (2000), and Maldonado (2002).

relation to which a series of events (the plot) is focused on, in terms of the stage model. Function advancing amounts to the storyline that unfolds against this world-building backcloth. In other words, once the plot is pushed forward, the pattern that ties all these scene details together in a specific constellation is revealed. That is to say, how each piece of the puzzle fits together and thus how all the parts exert influence on the whole symbolization, in terms of the billiard-ball model, becomes evident *via* the predicational chart that constitutes the function-advancing component of CDG/SBM.

Drawing upon Werth (1999: esp. 194-209), the present dissertation makes the case for an experientialist definition of 'propositions' *qua* context-sensitive situation-encoding devices that relate the mental entities salient for the RD' conceptualization among themselves. In other words, the clasp of World Building and Function Advancing activates both the stage model and the billiard-ball model Langacker proposes. Werth (1999:195, his emphasis) explicates:

> "(…) Recall that a situation was earlier described as a state of affairs in which some nominated *entities* (protagonists and objects) were in some *state* or *relationship* at a certain *time*, in a certain *place*. This description is fundamental to the entire language processes. We have seen it in the characterization of situations, including the immediate situation of speech [i.e. the discourse world level of representation]; we have also seen that precisely the same arrangement holds for text worlds and for sub-worlds too. I will now show that the same configuration of elements also goes to make up propositions.
>
> Following the lead given long ago by Case Theory grammarians (Fillmore 1968; Langendoen 1969), we can think of a proposition as comparable with a 'scenario' of some kind: perhaps a pure 'scene' containing objects (concrete or abstract) in some sort of arrangement, or else an 'event' in which there is some action carried out by an agent on a patient, and possibly involving a change of state for example. Langacker (1991: 284)

calls this the 'stage model', and treats it as a model of perceptual experience."

As sub-section 3.1.2 has delimited, propositions in the present account represent simple situations, which, by their turn, consist of entities, plus Motion predications and Description predications. World Building designates the mental elements that erect the Discourse World, Text World or Sub-World in focus. Function Advancing interconnects these mental elements in a propositional-like chart. Motion predications encode physical or abstract movement, while Description predications symbolize modification, in terms of clearer designation of an entity. Such a mosaic of Motion predications and Description predications puts forward the sequence of propositions that the RD' token at stake introduces in the Common Ground. Each proposition of this mosaic has a valence, in an amplified sense that elaborates on traditional definitions (e.g. Tesnière 1969).[70] This is because a predicate combines with its arguments (the entities required to fill out the slots the predicate expression leaves open), in order for the proposition to be able to say something about the world within which it refers, even if this "something" is just implied by the context pertaining to the communicative event in question. Hence, the way World Building and Function Advancing intertwine is solidly moored in the situation of language use.

Werth argues that such an experientialist conception of propositions is at least in principle equivalent to a Langackerian typology of semantic predicates. Both systems are shown to be relatable to the billiard-ball model via the notion of 'action chain': Roughly, a sequence of interactions from one mental entity to another, that connect up by energy-transmission links. The chain starts at the entity that corresponds

[70] For an idea of how this framework remains of topical interest nowadays cf., Ágel (2003), and Horie & Comrie (2000). *Vide* also Goldberg (2004) on how pragmatic factors such as 'information structure', 'focus' and 'topic' interfere with 'argument structure' across languages.

to the source/initiator of the energy, and ends at the entity that simply functions as energy sink, i.e., just receiving the energy but not sending it further along. Since SBM's Motion predications symbolize physical or abstract movement, they represent flowing energy: Actions, processes, or changes of state. I.e., they codify a mapping from an initial phase of a complex state of affairs to a posterior or final phase of this same complex state of affairs. On the other hand, CDG's Description predications represent stationary energy. For they symbolize steady states, circumstances, or any other associative relationship among mental elements,[71] as for instance, the narrower designation of an entity through the predication of one or more of its properties *via* 'possession'.

The issue deserves a little elaboration. If our understanding of Werth's sketches is correct, the interplay between Motion predications and Description predications that CDG/SBM posits can indeed be equated to the classification of semantic predicates proposed by Space/Cognitive Grammar. Very briefly, Langacker's framework distinguishes between two types of predication:[72] Nominal predications are those that profile things. Relational predications are those that profile interconnections among entities. The latter group includes three sub-types: Simplex-atemporal predications, complex-atemporal predications, and processual predications. Simplex-atemporal predications in Space Grammar would correspond to Description predications in CDG/SBM. Furthermore, Motion predications in SBM would correspond to a conflation of both

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[71] Remember that the late Werthian stance results in calling all these 'conceptual-neighborhood / cognitive-proximity' relationships 'different types of metonymy' (see pp. 91-2 above). Werth (1999:178) paraphrases himself: "Metonymy is of four kinds: its broad meaning is 'belonging', and sub-types of this are part/whole, various degrees of possession (from mere possession through ownership to inalienable possession, which shades into part/whole), quality or property, and association. A form like *its end*, then, involves inalienable possession and part/whole".

[72] The distinction seems to add up in import or effect to a classification of parts of speech whose notional-functional tinge is already noticeable in precursors as early as Lyons's (1966, 1977) proposals, which in the latter was alluded to as 'semantic criteria of the ontological basis'. See also in this context, e.g. Schlieben-Lange (1990).

atemporal predications and processual predications in Cognitive Grammar, since these two subtypes only differ in their conceptual scanning mode: Atemporals are summarily scanned while processes are sequentially scanned (cf. Langacker 1987:72). Moreover, a prototypical Motion predication instantiates the same conceptual elements that a prototypical case of an atemporal or a processual predication instantiates. These conceptual elements correlate in a way that is mentally represented by the notion of 'action chain', which activates the billiard-ball cognitive model. Therefore we can conclude, following Werth (1999:201) that a Motion predication amounts to a dynamic locative statement (insofar as it is a mapping function from a source situation to a goal situation) in a way comparable to Langacker's proposal for certain relational predications, which ultimately connect an entity to another entity. Werth (1999:208, italics his) sums up:

> "It should not be thought that Langacker's model of predicate-types is solely in terms of temporal or atemporal relations. Underlying this picture is the powerful image, or ICM (Lakoff 1987), of the *billiard-ball model*, i.e. an *action-chain* whereby energy is transmitted from a starting point to a terminal point. This is, of course, fundamentally a path model also. See Langacker (1991: ch. 7)."

Such a correspondence notwithstanding,[73] CDG/SBM offers a gain over Space/Cognitive Grammar, since it breaks away from a sentential perspective and opens up to a true discourse approach. This is because CDG/SBM does not handle entities within the confines of a sentence grammar – which most of the times impairs Langacker's proposals, since more often than not they take entities to mean the archetypal roles / deep

[73] For Werth's own formulation of how his experientialist understanding of propositions and Langacker's predicate typology prove to be translatable into one another (*via* the notion of 'action chain', plus the 'billiard-ball model', and the 'stage model'), but the Werthian system has the advantage of taking a discourse-oriented perspective, see in particular Werth (1999:196-202).

or semantic cases considered from the point of view of clausal predications, disregarding the import of context in the semiotic construction process.[74] Rather, SBM tries to pay to context the amount of attention it deserves, and thus sees an entity from a much larger viewpoint than a mere mental object connected with another mental object in a sentence. It anchors each entity in the overall situation of the communicative act in force, thereby rendering the imaginative overlays that Frame knowledge and Inference computations yield co-present in the meaning construction enterprise that RD' informant and RD' user cooperatively carry out. In other words, CDG/SBM's definition of an 'entity' takes into consideration the entire language usage situation in which the RD come into being: The step-by-step dynamics of Common-Ground incrementation, semantic-pragmatic content in terms of expectations and typical ways of doing things that world-building elements trigger *via* Frame activation, and follow-up predications drawn necessarily or probabilistically from the semiotic base that the Function-Advancing propositions manifestly make available *qua* semiotic signalers.

To recap, among the attributes nominated by the World-Building mental operation, some constitute the sentient beings that make up the cast in terms of the stage model, while others – time and place signatures, objects, (and Assumptions) – constitute the setting/props this metaphor presupposes. The Function-Advancing mental operation, by its turn, tells the storyline and therefore corresponds to the unfolding-of-events / obtaining-of-situations observed from a distance, still as idealized by the stage model. The propositions that the discourse introduces to push the plot forward constitute a network of Motion predications and Description predications. Motion predications trigger action chains that activate the billiard-ball model. As a result, all the World-Building attributes affect each other by hanging together in a specific arrangement, in terms of the

[74] More recently, Cognitive Grammar has been trying to make amends for this tendency though: Langacker (2001), e.g. promisingly attests a serious and insightful attempt to free the framework from a sentential/clausal "straightjacket".

billiard-ball model. Due to the essentially discourse-driven / situationally anchored quality of our proposal, we can arguably speak of it as a model for RD' understanding whose overall context-sensitivity yields much more widespread billiard-ball-model effects than Langacher's framework does. For CDG/SBM analyzes the RD' tokens under scrutiny with respect to a Common Ground: The interplay among protagonists, props, time and place markings, Frames, and Inferences holds at textual-knowledge level (i.e., supra-clausal / supra-sentential dimension) throughout.

We may now proceed with the demonstration that CDG/SBM resides the field of cognitive linguistics, by taking up its comparison with another well-rooted outline within this front, namely Fillmore's Scenes and Frames Semantics.

3.2.1.4. Scenes and Frames

Fillmore (1975:123) considers the relevance for linguistic theory of "two ideas in the air whose time seems to have come: the Prototype and the Frame". The paper traces the Frame idea as far back as to Bartlett's (1932) notion of 'schema', and more recently to the work of European semantic field theorists (e.g. Geckeler 1971);[75] the concept of 'associative relations' of Bower (1972) in psychology; and notably the research in artificial intelligence carried out by Minsky (1974). Fillmore's article officially "opens" the second phase of the scholar's investigation, whose thread of inquiry can perhaps be split in three main *foci*: Case Theory, Frame Semantics, and Construction Grammar, although in practice each concentration area naturally flows into and influences the other.[76] As a

[75] Note that for about two decades, though, Fillmore has been repeatedly stressing that semantic frames and lexical fields are, no doubt, related, but still different theoretical outlines (cf. Fillmore & Atkins 1992). But see Post (1988) exactly for an emphasis on the opposite view: Underlining a continuation, rather than a disparity, between the two frameworks.

[76] Petruck (1996) offers a detailed survey of how the three frameworks interpenetrate. Focusing on the concept of 'Frame' from an interdisciplinary prism, Ensink & Sauer (2003) is also worth reading. Fillmore (1969) can be seen as an

corollary, one could say that Construction Grammar (e.g. Fillmore & Kay, 1993) fuses insights gained both from Case Theory and from Frame Semantics. Just as an illustration, the key notion of 'abstract case' of Fillmore's (1968) seminal article was later generalized to 'conceptual Frames', e.g. in Fillmore (1976b, 1977b), and once more, *inter alia* in Fillmore (1985b, 1988), to 'grammatical constructions' (Wildgen, 1998; Scaruffi, 2003).

In the beginning, e.g. Fillmore (1976a), a distinction was held between 'Scenes' and 'Frames', insofar as the former was taken to be a conceptual notion, whereas the latter was taken to be a verbal one. Fillmore (1977:63) explains what he then meant by this difference:

> "I want to say that people, in learning a language, come to associate certain scenes with certain linguistic frames. I intend to use the word scene – a word I am not completely happy with – in a maximally general sense, to include not only visual scenes but familiar kinds of interpersonal transactions, standard scenarios, familiar layouts, institutional structures, enactive experiences, body image; and, in general, any kind of coherent segment, large or small, of human beliefs, actions, experiences, or imaginings. I intend to use the word frame for referring to any system of linguistic choices (the easiest cases being collections of words, but also including choices of grammatical rules or grammatical categories – that can get associated with prototypical instances of scenes. (…)
>
> I would like to say that scenes and frames, in the minds of people who have learned the associations between them, *activate* each

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anticipator of the close interaction between Case Theory and Frame Semantics, since it not only discusses the semantic roles pertaining to English (e.g. Agent: a pilot is someone who navigates a plane; Instrumental: a knife is something out of metal we use to cut stuff with) but also goes into common-sense/world/general knowledge we must rely on to appropriately construe different semiotic nuances involving a good pilot, a good knife, a good photograph, good food, good water, etc. Peeters (2000) analyzes in detail how vital for a theory of mental lexicon Frame Semantics is.

> other; and that, furthermore, frames are associated in memory with other frames by virtue of shared linguistic material, and that scenes are associated with other scenes by virtue of sameness or similarity of the entities or relations or substances in them or their contexts of occurrence."

Yet later publications cease to distinguish between Scenes and Frames.[77] In Fillmore (1982, 1985a, 1986) the term Frame prevails alone and somehow subsumes the Scene notion, being roughly defined as a cognitive structuring device, parts of which are indexed by words associated with it and used in the service of understanding. 'Scenes-and-Frames Semantics: An alternative to checklist theories of meaning' becomes then simply 'Frame Semantics', or 'U-semantics' (short for 'Understanding-semantics', i.e., an alternative to T-semantics: A truth-conditional perspective on the explication of linguistic meaning). Therefore, the experientialist commitment that the present dissertation adheres to is deeply shared by Frame Semantics. "In the view I am presenting, words represent categorizations of experience, and each of these categories is underlain by a motivating situation occurring against a background of knowledge and experience" (Fillmore 1982:112). Fillmore (1982) illustrates this foundational assumption with, among others, the word VEGETARIAN. For sure, this lexical item brings together with it several behavioral patterns and cultural values that are predominant in our western communities. People in our society usually feed on animal protein (meat, poultry, fish, eggs, milk and its derivates). This is why folks that only eat plant food deserve a particular denomination. But such a dietary choice must have been made on health or ethical grounds: Believing that red meat is hard to digest, or not wanting to intake, say, dairy products, because they come from creatures closely related to humans (=other mammals), and so on. In other words, slum inhabitants, who are so poor that they cannot afford a steak, or Bedouin nomads wandering through the

[77] Which does not prevent other scholars, however, from being reluctant to abandon the distinction. See e.g., Tsohatzidis (1993).

desert, who have no access to game birds and must thus temporarily abstain from their favorite pheasant delicacy, and so forth, simply do not belong in the VEGETARIAN Frame.

Since SBM/CDG analyzes RD at textual/discourse level, it is in order to point out the link Fillmore (1982:122) establishes between lexical items mentioned in a text and Frames *qua* knowledge chunks these words activate in the reader's mind:

> "(…) The processing of understanding a text involves retrieving or perceiving the frames evoked by the text's lexical content and assembling this kind of schematic knowledge (in some way which cannot be easily formalized) into some sort of 'envisionment' of the 'world' of the text. (…) There is a very tight connection between lexical semantics and text semantics, or, to speak more carefully, between lexical semantics and the process of text comprehension. The framing words in a text reveal the multiple ways in which the speaker or author schematizes the situation and induce the hearer [or reader] to construct that envisionment of the text world which would motivate or explain the categorization acts expressed by the lexical choices observed in the text."

Ergo, tying Frames and SBM/CDG together, say, a vegetarian restaurant is one of the stopover-like LMs in between the Source LM and the Goal LM in a particular token of RD under examination. Such a Text-World place marking would for sure evoke all the experiential loads of meaning mentioned above. Such an activation, as a corollary, would no doubt help RD' informant and RD' user to agree on this specific element of the mental map. The Frame would render the visualization of the LM sharper. Hence it would contribute to an efficacious conceptualization of the self-displacement undertaking as a whole.

After noticing that Fillmore (1982, 1985), similarly to Lakoff (1982b) in style, prefers to explain by exemplification, Werth (1999:106-

7) comments on the notion of Frame in general, and situates it with respect to several key outlines in the field of Cognitive Linguistics at large:[78]

> "Fillmore comes up with many (…) examples, and from them we can perhaps arrive at some kind of intuitive understanding of what a frame is. It seems to be something like 'an area of experience' in a particular culture. In the terms developed in the present book, as well as by Fauconnier, Langacker and others, we might say that a frame is a *cognitive space*, mapping out an experiential category. On the evidence of Fillmore's lexical examples, frames are not rigid categories, but are somewhat fuzzy-edged; they certainly overlap with other frames, and allow what appear to be exceptions (though conceivably these might turn out to be the effect of an overlap). Nor are they, on the whole, anything like classical categories, since no single list of necessary and sufficient conditions could ever come close to defining (…) frames (…) (cf. the discussion of *prototypes* [above]). Indeed, they resemble *situations* much more than they resemble, say, word-definitions. (…) [Remember that among the] number of characteristics Lakoff (1982b: 48) lists as those shared by all ICMs, [there is the fact that] they provide holistic frames for situations (which otherwise would amount to fragmentary understandings of either the real world or some imaginary or fictional world)."

However, one important point should be stressed with respect to the part Knowledge Framing plays in CDG/SBM. This mental operation, albeit socio-culturally bounded, is at the same time individual-sensitive, to a certain extent. Imagine, for the sake of illustration, that a given token of RD in our corpus at a certain point reads: (…) After the traffic lights you pass by an Eduscho stand-up café store (They actually sell quite good

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[78] Werth's stance of taking Frames to be a conceptually prior notion actually confirms Barsalou's (1992) claims that all knowledge is organized in terms of these experiential background spaces. Leong's (2004: esp. 157-79) reassesses how Frames and Inferences interpenetrate in ordinary backstage cognition.

coffee!) (…) Irrespective of the addition or not of the commentary in parenthesis – a 'collateral signal' of the 'insert' type (H. Clark 2004) – the keynote is that the word(s) 'café' (and 'coffee') is/are Frame-activating. That is to say, such lexical items yield a semantic-pragmatic content import to the semiotic construction dynamics that giving/comprehending these wayfinding instructions involve. It may be the case, that for the RD' informant, 'stand-up-café' triggers positive associations. Say, he/she loves the aroma and the taste of coffee. Or he/she is an extremely successful tradesperson, who has made a fortune as a wholesaler of this product… On the contrary, for the RD' user, the same lexical entry may ignite very negative shades of meaning. He/she hates both the flavor and the smell of coffee but uses coffee as a drug, in order to stay awake through work/study. Or maybe, he/she is a faithful believer in a religious sect whose commandments definitely forbid brewing this beverage.

These drastically different mental connections notwithstanding, still the mention of the word 'café' will happen to be salient *via* Knowledge-Framing for the conceptualization of the RD in question precisely because, as Westerners, RD' user and RD' informant will share the same or quite similar basic encyclopedic knowledge about this term. In other words, the Frame that mentally structures this vocabulary item is alike in its core (nuclear region) for RD' informant and RD' user: A CAFÉ is a building where, for money, one can intake a drink made out of coffee beans, that people usually like having after eating their meals; smokers tend to be fond of this drink more than non-smokers; the drink can cause physical and psychological addiction, it can be taken either hot or cold, and so on and so forth. The alluring values in the mental-lexicon entry of this word for the RD' informant, as well as the repulsive values that the RD' user marks this lexical entry with in his/her mind are only at the periphery of their common CAFÉ Frame. Thus the informant's choice to use this word in the RD' token's text is based on the relevance of the Frame area that he/she and RD' user can be expected to share about this concept. That is exactly why these personal differences do not constitute a hindrance to the felicitous communication of the RD as a whole.

As Werth (1999:43, our emphasis) remarks: "A frame is a sort of 'experience space'. What I mean by that is that frames represent the distilled experiences of the *individual* and the *speech community*, centring on specific linguistic expressions." Lee (2001:9-10) appears to agree with our claim that Frames do allow for personal differences, to a certain degree:

> "Although there is clearly a great deal of overlap between the frames of different members of the same speech community for specific words, it is also obvious that there are individual differences in this respect. If one person devotes her weekends to fishing, while another devotes his to sailing, then there is a difference between their respective WEEKEND frames. In certain circumstances, the term will conjure up different images (that is, have different connotations) for them. To this extent, they understand the term in different ways. This does not normally lead to a communication problem, since the differences in question are small in relation to the degree of common ground and they are largely irrelevant to most situations in which the word is used though."

At this point of the dissertation – to use a spatial metaphor in order to express temporal shades of meaning – we may say that we have the *track* announced at the last paragraph of sub-section 3.2.1 *behind* us. Nevertheless, provided that it recurred repeatedly during our anchoring SBM/CDG in Lakoff's, Langacker's, as well as Fillmore's theoretical frameworks, we see the necessity to take up one last issue here: The import of inferences to the verbal semiotic construction of RD.

As sub-section 3.1.2 has already introduced, the discourse facet of our proposals holds that inferential reasoning is an information-handling process that also plays an important role in RD' understanding. Let us take a closer look at why and how such a mental operation helps the RD' user to interpret/co-construct a given set of wayfinding instructions.

3.2.1.5. (Pragmatic) inferences

Many researchers establish a clear link between Frames and inferences. Ernst (2002), for instance, argues that Frames constrain the possible readings of speech utterances *via* referential schemata. This is because a Frame consists in a kind of knowledge area, which is retrieved in order to yield an inference base for the understanding of an utterance (Ernst 2002:112). The world knowledge Frames structure serves as a basis for Coherence: The semantic-pragmatic togetherness we construe for a given text. Fundamental to such a process is the sense continuity within the knowledge base, which is activated by certain expressions in the text *via* Frames (idem:160).

Hidalgo (2003) also establishes a bond between Frames and relevance-based inferences. She applies the Werthian sketches – the same outlines the current dissertation elaborates on in order to propose SBM/CDG – to a different discourse category, namely, advertisements broadcast on television, both in English and in Spanish. She proffers a processing model of TV ads based on the idea of cognitive space creation and inferential reasoning that Frame-Knowledge activation latches onto.

Following Dirven & Verspoor (2004: esp. 179-84), we can define inferences as leaps to conclusions that readers and hearers make when they process a text available to them as clues for meaning construction. Imagine that a writer or speaker, for example, as a verbal contribution to communication, proffers the sequence "On our way to the reception, the engine broke down. We were late for the party" (idem:183). The conversational partner (i.e., the reader or hearer) will surely add some information to this linguistic stimulus. They will easily understand that the engine is part of the car the speaker/writer was in, as well as assume that the engine breakdown prevented the arrival at the party on time. But neither the car nor the cause-effect connection is explicitly mentioned in the text. These implicit assumptions, usually based on people's previous experience, are called inferences. And we tend to make many of them

when we interpret a text. One type of inference that is quite common in RD' understanding is known as 'bridging': An interpretive heuristics for anaphorical resolution in discourse processing, that consists in finding local antecedents contextually, most often based on world knowledge.[79] E.g., imagine that a given RD' token at some point reads. " (…) You get off the train at Friedrichsberg. Go down the stairs. There is just one exit. (…)". The RD' user will no doubt draw the bridging inference that the staircase is part of the train station.

Salomão (2003) agrees with Dirven & Verspoor that 'inferences' is a key topic in the agenda that linguistic theorizing must tackle and explicate: The social, cognitive, and grammatical aspects of language knowledge and use. In an intriguing interview that provides the reader with plenty of "food for thought", the scholar defines language as a human capacity that allows people to represent the world for themselves and for the others, through a specific semiosis, which is, undoubtedly, a legacy of the species. Then she stresses that each social act is for sure in addition a semantic act, a representational act, an act of meaning construction, of meaning investment, and of meaning negotiation. After remembering Lakoff and Fillmore to point out the relationship among language, thought, and culture, the linguist indirectly underlines the importance of inferences to verbal behavior as well. She acknowledges in the language cognizer the ability to reminiscently convey, *qua* producer of performance (semiotic signaler), and cope with, *qua* interpreter of performance (semiotic co-construer), implied shades of meaning. Salomão (2003:187-8, translation ours) encapsulates:

> "The communicative scene is indisputably not only loaded of manifest intentionality, but also charged with an amount of implicit intentionality. Both overt and covert intentionality play

[79] As far as we can tell, the study of bridging inferences dates back to Clark (1975, 1977a,b).

> an absolutely indispensable role in any ordinary meaning negotiation process."

Other scholars, instead of preferring 'Frames' as a cover term for the cognitive devices (such as 'Scenes', 'Plans', 'Scripts', 'Templates', etc.) that provide interactants with a possibility to impose structure on external reality, subsume them under the 'Mental Schemata' tag. Rickheit, Sichelschmidt & Strohner (2002), for example, argue that utterances are composed of words, phrases, sentences and texts; and that in order to deal appropriately with these units of linguistic expression, language users must rely on knowledge resources that encompass semantic memory, the lexicon, and mental schemata. Moreover, inferences are said to play a crucial part in the activation of such mental schemata.[80] Rickheit, Sichelschmidt & Strohner (2002:62) spell out this relationship:

> "A Schema is an abstract knowledge structure, which represents the stereotypical characteristics of objects or states of affairs. A Schema, figuratively speaking, provides the interactants with a conceptual 'crate of propositions' [in the German original 'Satzkasten'] with vacant content slots. These open content slots will be specified in concrete situations through perception, inferences, or subsumption of other mental Schemata."

Still others choose to investigate the complexity peculiar to follow-up computations in discourse by focussing on the dynamics of conceptual metonymy. For instance, Panther and Thornburg (2003:8ff., italics in original) posit that inferencing is a common object of inquiry of pragmatics and cognitive linguistics that their characterization of conceptual metonymy reveals:

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[80] Renkema (1993: esp. 164-5) makes the same point that speaker/writer and hearer/reader manage to attribute more meaning to discourse than the explicit content of the words in force because schemata enable the former to imply signification and the latter to draw conclusions inferentially.

> "The knowledge of metonymic principles (…) plays an important role in utterance interpretation. Metonymies may be called *natural inference schemas*, i.e. easily activatable associations among concepts that can be used for inferential purposes (see Panther & Thornburg 1998)."

Interestingly in this connection, Werth (1999:37-8, italics ours), revives Bronowski's (1978:43) claim that "even the perception of the senses is governed by mechanisms which make our knowledge of the outside world highly inferential",[81] and underscores the kind of presumptive inference in linguistic comprehension that SBM/CDG mainly focuses on:

> "(P)erceiving is not a simple matter of receiving sense impressions, the way a magnetic tape receives sound impressions. Rather, it is a kind of problem-solving behaviour: we are constantly checking, cross-classifying, hypothesising, retrieving memories and *making abductive assumptions on the basis of incomplete evidence*."

The reason why we pay particular attention to non-deductive inferences should be clear by now. The discourse model for RD the current dissertation defends rejects the objectivist paradigm and embraces instead a cognitivist perspective on language use. A disembodied, formalist, context-free approach to linguistics would emphasize inferential reasoning by deduction. But since we take a usage-based, experientialist standpoint, we underline precisely those follow-up computations that do not rely on logical implication in RD' understanding. The RD in our corpus are encounters for semiotic construction that an informant and a

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[81] Which, by the way, reveals how Pollard's (2002) criticism of Werth's proposals – specifically concerning this issue – misses the point completely. Similar to the Werthian stance on the matter is Johnson's (1989) case for the tight network that sensorial input, meaning construction, and acts of inference create in everyday verbal behavior from an embodied realism point of view.

user partake in. Thus, what "comes through" [82] in these language events is inevitably tied to a specific situation. What transpires with these communicative acts invariably has certain circumstantial underpinnings. Inferential reasoning is a natural component of such a dynamics. This holds for situated meaning construction in language use wholesale (Marmaridou, 2000; Panther, 2003). A RD' informant signals much more meaning in a set of wayfinding instructions than the text that constitutes the itinerary descriptions proper overtly puts forward. And a RD' user handles such implicit meaning without difficulty by drawing conclusions from the propositions that were manifestly mentioned in the verbal message.

Werth (1999:57-8) highlights two types of inference in everyday language understanding in general:

> "Let us now look at the processes of *interpretation*. Apart from propositional decoding, (…) the most central of these is *inference*: I want to mention just two types of inference, at this stage. The first kind is what logicians conventionally mean by the term, namely a certain kind of logical relationship between propositions. Since this is strictly bound to a logical deduction, we can call this the *deductive* inference. (…) (T)he second type (…) has been called *abductive* (Peirce, 1940; Antilla, 1972; Andersen, 1973). Abductive inference is based on presumed connections rather than strict entailments. Abduction crucially relies on what is often called 'world knowledge'. It is a process of 'folk reasoning' based on incomplete and intuitive connections that allow us to conclude [a great deal, although each conclusion] is in no logical sense confirmed. (…) [But these conclusions are] strengthened [by the discourse and Common Ground, since] these processes crucially depend on the

[82] With all the caveats to the luring conduit metaphor this wording represents / encompasses, as Reddy (1993) already introduces.

> fact that none of [the mental] entities [involved] is just a meaning-free token – every entity has a conceptual value by virtue of its appearance in one or more frames."

Out of these two, CDG/SBM follows Levinson (2000) and concerns itself primarily with the non-deductive kind of inferential computation. *Pace* Sperber & Wilson (1986), Levinson (2000:42) maintains:

> "It is most unlikely that implicatures are derived as deductive inferences. (…) Indeed, it is quite possible, as Johnson-Laird (1983) has argued, that true deduction plays little part in informal human reasoning".

Implicatures are a sub-type of inference that linguists have been paying attention to since Grice has proposed his theory of rational communication in philosophy of language for a few decades. We assume here the reader's familiarity with the Gricean scheme. Yet, very briefly, Grice (1975) divides the total signification of an utterance in "what is said" and "what is implicated". The former corresponds to semantic meaning, in the classical sense: The literal, truth-conditional content of a sentence. The latter corresponds to pragmatic meaning, in the classical sense: The content the speaker conveys only indirectly, which the hearer gains from the verbal message by implicature. "What is implicated" can be derived conventionally (when the implicatures rely on conventional but non-truth-conditional aspects of meaning), or conversationally (when they rely on an assumption that the speaker is either obeying or intentionally breaching the maxims of conversation that the Cooperative Principle subsumes). Conversational implicatures then branch into 'particularized' (i.e., context-dependent), and 'generalized' (i.e. not context-dependent).

Levinson's (2000) treatise is dedicated to GCIs (generalized conversational implicatures). SBM/CDG, in contrast, involves PCIs (particularized conversational implicatures). GCIs dwell in the realm of default inferences peculiar to the Utterance-Type level of meaning, "at the

penumbra of Sentence-meaning", as Levinson puts it. PCIs, on the other hand, are nonce inferences that inhabit the Utterance-Token level of meaning.[83] Nevertheless, both types of conversational implicature share certain basic properties. The most fundamental of these traits is defeasibility: A conversational implicature can be cancelled by addition of further premises. The non-deductive inferences CDG/SBM incorporates can also be evaporated in this way. In other words, they are conclusions assumed to hold until information to override them is introduced in the Common Ground. The RD' user draws some non-deductive inferences from the RD' token's text in force that dissipate once counterevidence for these assumptions is later available in the discourse.

Now, Jackendoff (1999/1989:313-5) reaffirms the general stance his previous theorizing had taken on how information is structured or organized in natural language. The paper looks back at Jackendoff (1983), especially chapters 5 and 6, where inferences receive a treatment somewhat similar to the way SBM/CDG treats them. The Jackendoffian architecture of the mind assumes a configuration of components that must include rules of inference mapping conceptual structures into conceptual structures. Particularly remarkable here is that Jackendoff recognizes not only rules of 'logical inference', but also rules of 'invited inference'.[84] The former correspond to 'deductive inference' in CDG/SBM. The latter correspond to the 'non-deductive' inference type our discourse model for RD highlights. Since 'logical inference' and 'invited inference' are defined over one and the same level of mental representation, the dichotomy semantics vs. pragmatics that mainstream traditions hold is

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[83] On the advantages Levinson sees in distinguishing between these three spheres of analysis, namely, 'speaker-meaning', 'statement-meaning', and sentence-meaning', see e.g. Levinson (1995).

[84] Jackendoff (1983:140-3) relates the phenomenon of 'invited inference' to Frame/Script theory, default values, and prototype images concerning the identification of Things as kinds and the categorization of Events into kinds. An 'invited inference' can be cancelled by contradictory evidence. It is a conclusion drawn on the basis of probability, until one has confirmation to the contrary and must thus do away with it.

abolished. Such a move crucially unites Conceptual Semantics à la Jackendoff and proposals under what is sometimes called 'Californian School of Cognitive Linguistics', which provide a basis for the current chapter.[85]

In a nutshell, here is the policy CDG/SBM will adopt with respect to inferences in section 3.3: Deductive inferences are allowed by the model but not paid attention to. Non-deductive inferences, irrespective of their specific sub-type, will be mentioned to illustrate, non-exhaustively, all the follow-up computations that the RD' user resorts to other than logical entailment. In other words, the entries in the Inferential-Reasoning component of SBM/CDG in section 3.3 serve the purpose of exemplifying PCIs, bridging inferences, invited inferences, conclusions to the best explanation / inferences to the informed guess,[86] default logics, practical reasoning, or any other instantiation of non-monotonic reasoning one can think of. Levinson (2000:42-54) makes a strong case for the import of such systems to everyday thinking and ordinary language use, though relating them to preferred inferences suggested by the form of the utterance, GCIs, which SBM by definition does not purport to scrutinize.

Let us apply this policy to a concrete case, for the reader to have an idea about the inferential-reasoning mental operation in SBM/CDG later on. Suppose an instance of RD contains the following fragment: "Past the

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[85] Schwarz (1994:15, our translation), while discussing how difficult it is to decide on the number of tiers and interactions within cognitive semantics, strengthens this similarity: "In the 'holistic semantics' and the 'cognitive grammar' approaches, meaning units are equated with conceptual units (see Jackendoff 1983, 1990; and Langacker 1988b)".

[86] As for this type, Hobbs (2004), for instance, relates the notion of 'common sense' to 'abductive proofs', in a formal approach that also argues for a strong non-monotonic quality of inferential verbal behavior, as the editors Horn & Ward (2004:xix) summarize: "A final look at the pragmatics/cognition interface is presented in the chapter by Jerry Hobbs on abductive reasoning. Abduction, originally identified by C. S. Peirce and more recently developed by researchers in AI dealing with the non-monotonic nature of natural language inference, is applied by Hobbs to a variety of problems of a pragmatic nature, ranging from disambiguation and reference resolution to the interpretation of compound nominals and the nature of discourse structure."

traffic lights you see a bookstore on your left. Then, still on your left, there will be a coin laundry." From this sequence, the RD' user can infer deductively that both LMs / Text-World place markings are on the same side of the street in question. Such an inferential gain CDG/SBM will not bother to mention. In contrast, the RD' user can non-deductively infer from such a sequence that the coin laundry is closer to the intended destination (Goal LM) than the bookstore. Or, if you prefer, that the bookstore is farther away from the endpoint of the journey than the coin laundry is. This is the kind of inferential gain CDG/SBM focuses on. Since this inference is a conclusion drawn *via* non-monotonic reasoning, it is "evaporable" / cancelable / defeasible as long as counterevidence for its assumption is "tossed in the bucket", as Levinson (2000) puts it (i.e., updates or increments the Common Ground). In other words, should the RD' token read "Past the traffic lights you see a bookstore on your left. Then, still on your left, there will be a coin laundry. Oh sorry! I just messed up the order.", the non-deductive inference that the bookstore place marking will slide over to the coin laundry must be dropped.

3.2.2. Cognitive worlds, speech bubbles, mental spaces, and blends

This section demonstrates how CDG/SBM inherits basic defining properties from the Mental Spaces Theory Fauconnier and associates have been espousing for more than 25 years. It argues that the main advantage our discourse model for RD offers over its main predecessor is to allow a macro-linguistic approach to verbal behavior. That is, our proposal frees the outline it elaborates on from its sentential limitations in scope. Then we advance a trial analysis of RD in terms of Blending and Conceptual Integration Networks, in order to show that even these latest developments in the Mental Spaces Theory remain much too sentence-constrained.

The origins of the Mental Spaces Theory (MST) date back to the mid 70's. In the beginning, the major insight behind this innovative way of looking at a number of semantic matters was dubbed by Fauconnier

(1978)[87] 'referential spaces', as Moneglia (1978:8-9, emphasis his; our translation), in the introduction to this publication, anticipates:

> "The other contributions in this section, [among which Fauconnier's stands] are, from various perspectives, devoted to the philosophical and linguistic problems that are posed by the property of natural language to be able to refer to situations different from the simple real world, such as the preceding linguistic discourse, the common knowledge of speakers and hearers, discourse universes as in literature, etc.
>
> Gilles Fauconnier, on the basis of linguistic situations whose interpretation must be anchored in several 'referential spaces', proposes a generalization of Jackendoff's semantic theory, by reformulating the Jackendoffian *identificational principle*, and examines the properties of these so-called 'referential spaces' regarding *presuppositions*."

The conceptual domains around which SBM revolves constitute a discourse-oriented upgrading of Fauconnier's 'referential'/'mental' spaces notion. Basically CDG first inherits some central tenets that MST embraces. Then it elaborates on such a heritage by opening up the framework towards discourse.

To begin with, both MST and SBM take a non-objectivist approach to propositions. Fauconnier (1994) rejects the realist perspective on language that a formalist would endorse. He refuses the model-

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[87] Where the reader finds Fauconnier's patent acknowledgment of the fact that what he called then "espaces référentielles" were a tentative elaboration of Ray Jackendoff's (1975) ponderings on intensional sentences. Jackendoff eventually recognizes that himself (Jackendoff 1992, p. 182, n. 6). Jackendoff (personal communication) readmits it, and discloses actually a reciprocal appropriation of insights: "(…) Yes, this is correct. As far as I know, Fauconnier did build on my theory of belief sentences. And then I went back and used some of his work in my own, most notably in a 1992 paper (…) in NL&LT [see Jackendoff, 1992b]. Unfortunately, I have not been able to keep up with his work in the last 10 years or so. (…) " Now, the Werthian treatment of the 'presupposition' subject matter in itself is best synthesized in Werth (1986, 1993b).

theoretic propositions that sentences are traditionally taken to carry. The stance negates the view that postulates a material reality 'out there' and well-formed linguistic strings that truth-conditionally reflect it, by making context-free reference to states and events in this external world. That is to say, Fauconnier abandons the practice of taking sentences in isolation as self-supporting, meaning-bearing forms. The "literal" content of such sentences is shown to be only derivable because the analyst biases the gaze and artificially creates a minimum, standard-setting context where these isolated sentences can operate. Instead, he sees sentences as one single step in a very complex, dense, and holistic meaning construction process. Sentences are taken to be linguistic string forms that contain information of many different sorts. The purpose sentences serve is "only" to cue up the interactants in an underspecified manner to an array of mental operations that will enable the interlocutors to achieve a given semiotic construction. In this way, language is merely the "tip of the iceberg" of a meaning construction dynamics that is triggered by the linguistic input of an utterance but draws upon much more general cognitive capacities.

Ultimately, MST thus holds that an objectivist view of language and thought is untenable. By doing that it sets a paradigm, which will constitute a precious legacy for CDG/SBM. The framework embraces a sphere of conceptual *modus operandi*, so that "reality" becomes in itself a mental representation, or, if you prefer, inextricably entangled with mental representation: The cognitive space that construes the salient external circumstances assumed as pertinent to the interactants for the symbolization of the communicative act in question.[88] This internalized reality is peopled by entities whose counterparts will be referable to in subsequent mental spaces by cognitive links of various kinds:

[88] Langacker (2003c: esp. 12, italics his) gives credence to this theoretical stance, which SBM espouses as well: "Although 'reality' *pertains to* (is a *conception of*) what happens 'out there in the world', it is still a mental construct [*qua* 'projected world', as chapter 1 above invokes]. For linguistic purposes, what counts as reality is what a given conceptualizer *accepts* as having happened up through the present."

Identification, image, analogy, disanalogy, drama, counterfactual, metaphor, metonymy, instance, etc. The fundamental principle of this approach to conceptualization is that form in itself does not have meaning. Form "simply" guides language users through a mental construction of meaning prompted by the words of a given utterance. This semiosis ultimately encompasses a configuration of mental spaces with projections among them specific to the communicative situation at hand, which invariably evokes Frames and Idealized Cognitive Models from background knowledge. It also includes presuppositional markings, image-schemas, inferences, and other global creative mechanisms of the mind. Blending – the result of Conceptual Integration Networks – is one of these powerful widespread imaginative mental devices.[89] We will see presently how these last developments in MST can in principle relate to our investigation of RD. But the point we must emphasize here is that both MST and SBM advocate a representationalist architecture. Both have as a starting point an internal construal of reality, not the objective world in the sense of model-theoretic semantics. Moreover, in MST the connections between the cognitive domains in a configuration of mental spaces are instantiated by projection mappings. Likewise, in CDG/SBM the fractal nature of the model takes care of erecting the specific internal constellation of DW, TW and SWs that the RD' token's text latches onto.

Besides, MST hands down to CDG/SBM another kernel assumption: Both include role to value functions. We have already discussed the fact that various projections will pick out elements in the different kinds of domains that linguistic form prompts, and will identify these entities among themselves with their counterparts in other cognitive domains according to the accessibility / identificational principle. The crux of the matter here is that the reference-maintenance procedure among counterparts in a given constellation of mental spaces takes place not only

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[89] The thrust behind the Blend notion can perhaps be said to go back to Fauconnier's (1978:139) "mélanges d'espaces" (mixtures of spaces).

through an array of disparate links, as some trigger-target mappings listed in the last paragraph illustrate, but can also be achieved by role to value functions. Such a characteristic also holds for SBM/CDG. After all, RD' informant and RD' user are kept tabs of by the protagonist markings throughout DW, TW and SWs for the symbolization of each RD' token of our corpus. In other words, the values to these roles are filled in locally, according to the specific interactants that are engaged in the semiosis of each RD' instance of our data. And these referent assignments persist during the entire conceptualization of the communicative event that encompasses a given set of RD under scrutiny. Fauconnier (1986:25), after asserting that "(t)here may be multiple links between two domains, or multiple counterparts for a single domain element(,)" significantly strengthens the argumentation in two subsequent passages of the article (emphasis retained)[90]:

> "In the mental space approach, all definite or indefinite descriptions (…) can pick out *roles*, which are themselves space elements. A role may then take as its *value* another element of the same space [(configuration)], and the connection between a role and a value has the same general properties as other connections mentioned above – metonymy, model/image, actor/character, etc. In particular, the identification principle applies, so that a value *a* can be identified by a description of the corresponding role *r*. (*Ibid*:31)
>
> Roles are evidently, in one sense, part of our system for structuring the world mentally and collectively; they often depend on shared beliefs, social organization, our own psychological and physiological means of apprehension, and so forth. (*Ibid*:33)"

[90] A point that Fauconnier (1988, 1990a) buttresses even more.

Such a salience attributed to Role-to-Value functions is never diminished, as the state-of-the-art volume on MST, namely, Fauconnier & Turner (2002:98, emphasis added) attests:

> "Role is a ubiquitous vital relation. (…) Roles have values. (…) *Within mental spaces, and across mental spaces, an element can be linked, as a role, to another element that counts as its value.* Elements are roles or values not in some absolute sense but only relative to other elements. (…) The canonical opportunities for compressing roles are fascinating."

As the previous paragraphs show, MST hands down a set of foundational assumptions and defining properties to CDG/SBM. The lineage between both paradigms is blatant. However, the problem with MST – which also holds for Space/Cognitive Grammar – is that it usually prefers a maximum scope of analysis that Fauconnier often refers to as "mini-discourses". SBM, in contrast, scopes over large stretches of language use, thus taking a true discourse approach to verbal behavior, as section 3.3 soon illustrates. We now take up a trial analysis of RD in terms of Blends to check if these latest trends in MST research[91] cope better than the former outlines with the challenge of going beyond the sentential range of application. Despite the questions such concocted examples beg (cf. Kemmer & Barlow, 2000), consider the fabricated but to all intents and purposes plausible utterance below, and its dissection in Figure 1:

In German: "Also gut Vincent, ich erzähle Dir, wie Du zu einer tollen Kneipe in der Stadt kommst, die Du nie vergessen wirst…"
Literal gloss: then good Vincent I explain to you how you to a nice pub in the city come which you never forget will
In English: "Ok Vincent, I teach you how to get to a nice bar in town you'll never forget..."

[91] For a more extensive treatment of Blends and Conceptual Integration Networks cf. *inter alia* Sweetser (1999), Fauconnier (2001), Fauconnier & Turner (1998, 2000), and Turner (2000).

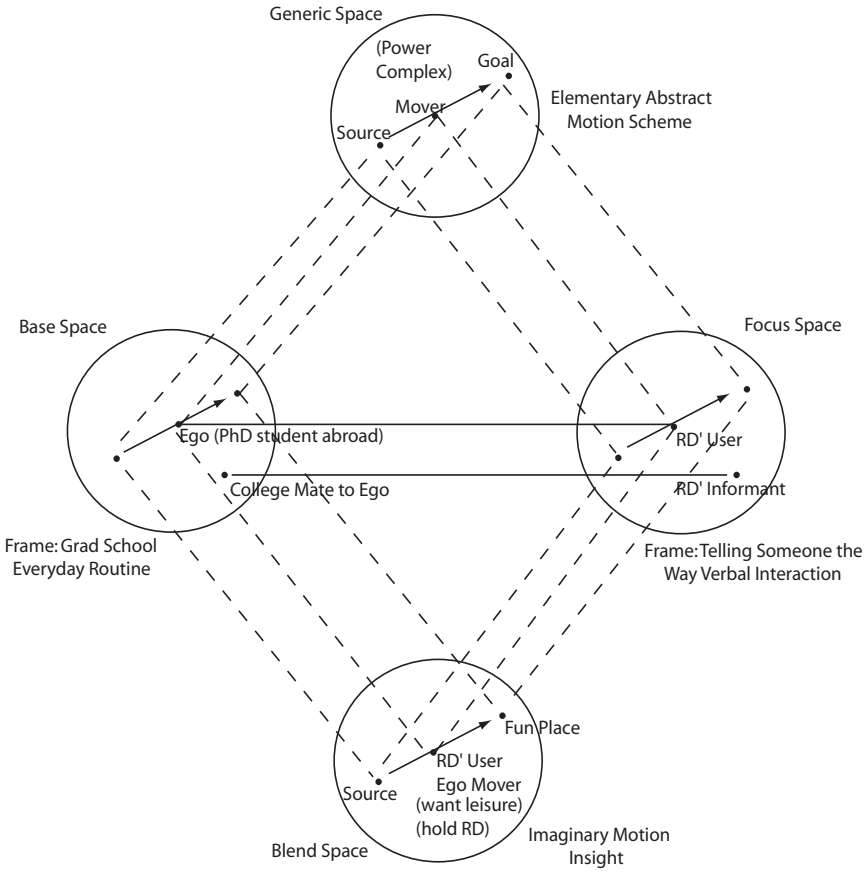

Figure 1: Conceptual-Integration-Network/Blend analysis of RD

To start with there is Input Space 1, the Base Space, which is the 'projected world' or the 'construal of assumed external reality' as the language interactants first see it. It has two elements: Ego, and College Mate to Ego. Ego is attributed the property 'Ph.D. student abroad'. This property attribution, and the second role in question, namely, College Mate to Ego, trigger the Frame that structures this domain: The Grad School Everyday Routine Frame. This Frame activates in our memory the experientially embodied scenario of a doctoral candidate in some institute at some university not in her home country, who must leave her lodging to pursue her degree on campus five days a week, and so on. As we have already mentioned, the values (persons' names) for these roles will be assigned locally, after the particular circumstances that mark the linguistic event we happen to be dealing with. (I.e., further considering the possibility that this example were a naturally occurring instance of language use).

Input Space 2, the Focus Space, also has two elements: RD' informant, and RD' user. Again, their particulars are determined as these two roles are attributed badges according to the specific communicative event that the constellation represents. I.e., after the specific circumstances that mark the linguistic performance act, as it were, that the configuration is (would be) symbolizing. Thus these roles would be assigned their local values appropriately. The Frame that structures this conceptual domain is the Telling Someone the Way Verbal Interaction Frame. We associate friendship, kindness, helpfulness, etc. with it. Now, the accessibility principle will link through projection mappings the entities in these two input spaces as counterparts of each other. So we identify Ego with RD' user, and Ego's College Mate with RD' informant. Supposing again this is a naturally occurring situation, and the context relevant to it, part and parcel of this mental spaces configuration, is our asking the colleagues at our graduate program in linguistics for directions to a relaxing place in town, the naturalness of these functions becomes immediately visible. Graduate students, we assume, apart from doing their reading, writing, and thinking day in day out, should also have some fun once in a while, enjoy life a bit, make new friends, etc.

Now, what Input Spaces 1 and 2 have in common allows the interlocutors to set up in their minds a 3rd mental space, the Generic Space, which in our case is structured by the elementary scheme of abstract motion. Its components are Mover, Location, Path, Source, Goal, and 'Power Complex'.[92] In brief, Mover (in German "Bewegunsgträger") is the traveler conceptually being paid attention to, the entity engaged in

[92] Although the analysis we advance here was independently worked out, we were glad to see that, to a large extent, it coincides with claims made by the Embodied Construction Grammar approach to verbal semiosis. Cf. e.g., Bergen & Chang (2003). Now, specifically on a metaphor-oriented analysis of the PATH image-schema, see, e.g. Radden (1989:230ff., 1995). Note that the far-reaching general operations and processes that human beings' backstage cognition encompasses seem NOT to be solely restricted to natural language meaning construal (be it in the oral/spoken, visual/written, or gestural/sign language modality). Take, for instance, Sweetser's (2001) dissection of the mental landscape underlying the physical-symbolic PATH-related European ritual of carrying a just-born child upstairs as an omen for the baby's success in life.

self-displacement. In other words, the mental element that undertakes a change of Location event insofar as it traverses a Path from a Source to a Goal, driven by whatever Power Complex, as we call it. Location is a specific temporary place marking under consideration. Source is the starting point of a given motion event, and Goal its intended destination or end-point. Path is the trajectory / course of motion that the dislocation from Source to Goal amounts to. 'Power Complex', presumably the only unit in the Generic Space whose meaning is not self-explanatory, is here used as a cover-term label for an energy conglomerate – which figuratively encompasses means, intentionality, motivation, and so on – that serves as a propeller to the Mover towards the fulfillment of her aim, namely to reach the desired destination in effect.

These three mental spaces project selectively to a fourth cognitive domain, the Blend, where – borrowing from Fauconnier & Turner's (2002) jargon – emergent structure as a result of a global insight at human scale will be gained. Input Space 1 implied physical motion by a doctoral candidate from a dorm to an institute at which the task of an investigative project could be performed. Input Space 2 instantiated potential motion to an amusing, enjoyable, fun place in a foreign country's city whose metropolitan environment was yet relatively new to this grad student. The Generic Space revealed the overlapping essence of these first two domains, as it represented the global foundation, the basic pattern behind them at an ideational motion level. Now, in the Blend, a single shift in causation is enough to produce the emergent structure of imaginary motion. The language interactants project just *Ego*, fused with *RD' user* and *Mover* from Input 1, Input 2 and Generic Space, respectively, to the Blend. The discourse participants also project to the Blend the result of the communicative act that Input 2 encompasses (i.e., the RD proper, the set of *wayfinding instructions* in itself), as well as the other fundamental components of the Generic Space, which will all be specified, except for Source, which is left open. (Again supposing our made up example were an actual data piece, and that we had not demanded that our informants contribute with itinerary descriptions to our corpus from a particular,

specific starting point). And we obtain as a Gestalt from this conceptual patchwork a novel mental mosaic: The Blend of a foreign Ph.D. student, who can suddenly achieve imaginary motion following these very itinerary descriptions.

For instance, still while heading to her workplace at university,[93] she can already imaginarily be reaching the bar or pub she was given RD to. Or she can, say, on a weekend, from where she lives; or straight after a workday at the institute, actually try to get there and have a nice time, again always guided by the RD she received. Whatever the case, the Mover will – either just mentally, or first mentally, and only then physically – be on her way propped by the trajectory that the RD make available. In other words, the Mover will accomplish the specific imaginary motion to the recreational area in question precisely because she was enabled to do so by having been told the way to get there. The Mover is not coming across the Goal LM by chance, while for example walking around town at random. Nor is she arriving at the Goal LM by tracking down an address read as a tip in a weekly leisure guide magazine. In other words, she is not finding this entertainment place on her own, but rather reaching it in imagination by having been given RD there.

Fauconnier & Turner (2002) make the case for the far-reaching pervasiveness of Conceptual Blending in ordinary language and thought. They claim that this was *THE* differential trait in terms of evolutionary anthropology and neurobiology that made human beings turn into the unique species they are today. Irrespective of this dissertation's assessing such a bold argument cogent enough or not, in principle, conceptual Blending can be used to explain wayfinding instructions as well. In other words, incontestably, at least at a highly fundamental dimension, we can

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[93] It goes without saying that our systematic use of the form 'her' for the Mover's genitive case since we have taken up the Conceptual-Integration-Network/Blend analysis of RD aims at being politically correct while getting around the constant long-winded repetitions of 'his/her', 'he or she', '(s)he', etc., that we had been preferring.

fill RD in an experientially anchored Conceptual-Integration-Network / Blending template. Figure 1 above renders such a practical application evident. However, this proves somewhat too approximate. Blends turn out to be too inexact an analytical tool to meet descriptive and explanatory requirements detailed enough. Put differently, Conceptual Integration Networks and Blends provide us with an instrument to dissect our current object of investigation just at a very coarse level of granularity: At the level of the second Wittgenstein's Language Games, or early Levinson's Activity Types notion. By all means, a level of analysis that is too large-grained. Besides being too lumpy, another shortcoming of the "last word" in MST field of research has to do with the micro-linguistic range of analysis over which it tends to scope. The apparatus has the disadvantage to be much more applicable to linguistic explanation at the sentence scope, than amenable to textual applications, since it practically reduces the need to incorporate Context into the model to contiguous interclausal boundaries. For these reasons, this dissertation maintains that CDG/SBM is a more suitable framework to account for wayfinding instructions *qua* verbal behavior at macro-linguistic (i.e. textual/discourse) level. After all, SBM, while inheriting keynote features from its predecessor MST, goes beyond it, insofar as it manages to come to grips with the few insufficiencies of this forerunner with respect to granularity flexibility and contextual import inclusion, thus substantially improving on this major foundation.

Therefore, the current dissertation, concerning the state-of-the-art metamorphosis of MST, still shares Werth's (1997:89, our emphasis) judgment that this framework is at a disadvantage as far as a discourse-driven approach to verbal behavior goes:

> "The conceptual model of discourse which I have been developing over the last couple of years is based on the notion of [cognitive] world. A [cognitive] world is a state of affairs in which a given text makes sense. It is thus the state of affairs which is defined by the discourse for that text. It is therefore, a conceptual space in the sense of Fauconnier (1985) and

> Langacker (1987), but one whose parameters are defined by the deictic elements of the discourse. The rest of the discourse then *roughly* consists of the propositions advanced against this background."
>
> "It crucially differs from the notion of 'space' in these scholars' approaches then, in the crucial part played by the discourse. *Fauconnier and Langacker, though sympathetic to discourse approaches, remain fundamentally sentence-based.* (*Ibid*: 113, italics ours)"

After carefully examining Fauconnier & Turner (2002), and applying their outline to RD, we can ascertain that the Blends / Conceptual Integration Networks approach, though constituting a more discourse-oriented version of the Mental Spaces framework than ever, remains most of the time constrained to the sentential level of analysis. This is a major drawback to the Mental Spaces Theory (and to Cognitive Grammar as well). Thus we cannot forego agreeing once more with Werth's (1999:77-8) evaluation of both these paradigms:

> "In summary, though Fauconnier's work on mental spaces is ground-breaking, the fact that it is essentially based on a sentence perspective makes it ultimately unsatisfactory as a fully integrated language theory.
>
> Langacker's work, too, shows similar lacunae. True, he provides a place in his system for something he calls 'context'. (…) But I think it fair to say that this place remains largely unfilled, and the broad concentration of his work remains on the sentence. (…)
>
> A genuine discourse grammar, though, regards sentences as elements which make sense only as part of a larger whole."

3.3. SBM / CDG exemplified

The chart in Figure 2 below schematically arranges the notational conventions our discourse model for RD adheres to. However, two warnings are here in order. First, the diagram omits "A" (Assumption), among the world-building attributes, for this is a truly optional element, instead of being an obligatory one. Second, apart from the fact that the diagram does not spell out the entities that fractally constitute the world-building attributes to the Sub-world: Sub-characters, time, place, etc., we must remind the reader that this 3rd tier of conceptualization is here represented as embedded in the TW level, but it can actually also occur nested in the DW layer, as sub-section 3.1.1 has extensively argued for.

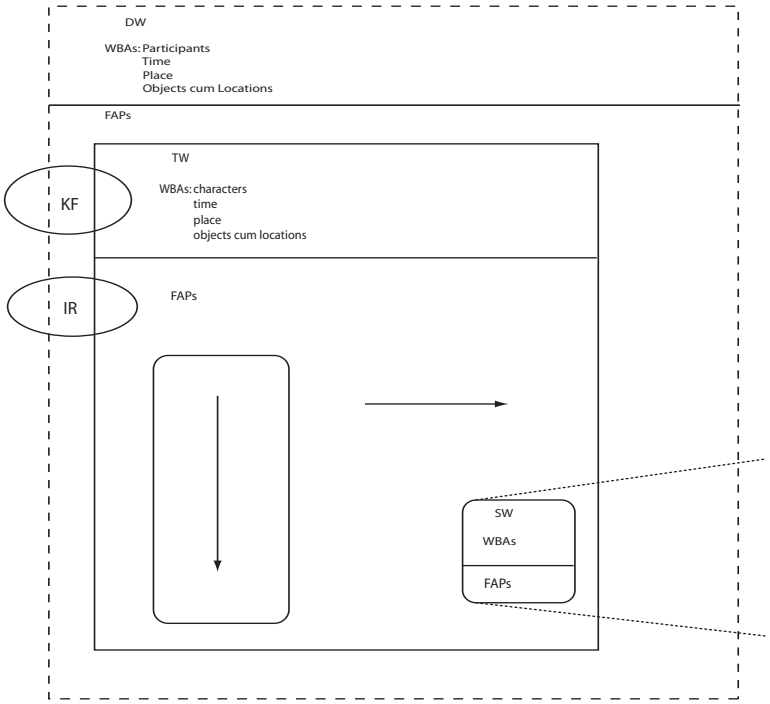

Figure 2: Notational conventions chart for CDG/SBM

Dashed square = discourse world (DW); Full-line square = text world (TW); Rounded square = sub-world (SW); Rounded rectangle = singled out proposition; Vertical arrow = motion predication; Horizontal arrow = description predication; Dotted lines = window to a detailment to be spelled out elsewhere; WBAs = World-Building attributes; FAPs = Function-Advancing propositions; KF = Knowledge Framing; IR = Inferential Reasoning; Oval = semantic-pragmatic overlay yield + markedly direct interaction between components / specially intimate connection between mental operations

We adopt hereafter (= in this section as well as during the demonstration of the dialog model sketch at work in chapter 4 later on) the following tactics in the presentation of the corpus tokens under scrutiny. First we reproduce the original line in German that amounts to each discourse fragment constituting the RD' instance in question. Then we give the word-by-word literal gloss to this line. And finally, we give its more fluently/naturally readable translation into English.

Note that whatever comes in capital letters in each data sample analysis constitutes, we will argue, information that can only be conceived of, presented, and interpreted resorting to the situational/contextual/ discourse import which sustains the language performance event at issue.

Corpus token E

Hi Vincente, wenn DU Lust auf leckere Pasta hast,
Hi Vicente if you desire for yummy pasta have
Hi Vicente, if YOU feel like eating some tasty pasta
komm mal bei MIR vorbei ÜBERMORGEN gegen 20:00.
come then at to me over day after tomorrow around 8 PM
stop by MY place THE DAY AFTER TOMORROW around 8 PM.
Keine Bange: ICH bin nicht DRAN!
No panic: I am not on turn
Don't worry: it's not MY turn TO COOK!
Giuseppe kocht UNS Linguini al Salmone.
Giuseppe cooks for us linguini al salmone
Giuseppe is (the one who's) going to cook US Linguini al Salmone.
DU hast gesagt DU schreibst DIE Diss über Wegbeschreibung…
You have said you write the Ph.D about way description
YOU've said YOU're writing THE dissertation on Route Directions…
DIESER Zettel schlägt dann 2 Fliegen mit einer Klappe (ein Spruch).
This note hits thus 2 flies with one flap (a saying)

THIS note kills 2 birds with one stone, then (a proverb).
Ok. Durch DEN Haupteingang nach DRAUSSEN.
Ok. Through the main entrance to outside
Ok. **GO** OUTSIDE (= LEAVE THE DORM) taking THE main entrance.
DORT LINKS.
There left
TURN LEFT THERE.
AM Ende DES Parks nach LINKS abbiegen,
At the end of the park to left turn off
Turn LEFT at THE end of THE park,
(gegenüber DES Haupteingangs von 'UKE').
Opposite of the main entrance from UHE
opposite THE main entrance to THE University Hospital Eppendorf.
DIESE Strasse jetzt immer grade[sic] aus.
This street now always straight on
Now **WALK** down THIS street always straight ahead.
ICH wohne IM Haus Nummer 8 (LINKE Strassenseite). IM 3. OG.
I live in the house number 8 (left street side) in the 3rd top floor
I live in THE apartment house # 8, LEFT hand side, on THE 4th floor.
Hoffe DAS hilft DIR weiter.
Hope this helps to you further
(I) hope THIS can give YOU a hand to move onwards.
Bis DAHIN,
Till then
See YOU THERE/THEN,
Tina. 25.05.03

Since this is the first corpus token that we analyze in order to show SBM/CDG in operation, we will spell out in great detail how the graphs that represent its dissection were generated. (Please observe that corpus token E and corpus token H later on are the two instances in our data sample that were not obtained *per* e-mail. Out of the 47 RD' tokens that constitute our total corpus, only 6 were of this type: Jotted down on a sheet of paper, instead of reaching us electronically. And out of these 6, corpus token E and H were selected as representatives of this sub-category for the illustration analysis.) Such a level of detailment in the explication of how the graphs came to be will be practically repeated concerning corpus token F. For the sake of brevity, the charts to corpus tokens G and H will not be converted in discursive[94] language, though. I.e., for corpus tokens G and H, we will not spell out the reasoning underlying the diagrams. The reader should be able to reconstrue the minute architecture behind the Figures by oneself at that point, after referring to the conventions in Figure 2 above, and by analogy to the extensively depicted report on corpus tokens E and F below.

So be it. For the demonstration of CDG/SBM running that we shortly present, this dissertation draws primarily on Werth (1997a, 1999). But remember that our elaboration of the Werthian outline stresses the Discourse World and the Text World layers of the system, and treats Sub-Worlds in a somewhat more cavalier manner. The proposals of the British linguist we build on highlight the TW and the SW layers, sort of tending to leave the DW one in the shadow, as it were. Therefore, the illustration analysis begins with the chart in Figure 3 on the following page. The World-Building Attributes that constitute the Discourse World for the wayfinding instructions under inspection encompass the first mental representation of RD' informant and RD' user, namely, Tina and Vincent,

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[94] Bear in mind that this term is here used in its ordinary language sense, not in its technical meaning such as, e.g., Fraczak (1998) uses it in the English abstract to her dissertation in French. For this content load, we have chosen the pre-posed nominal adjectivizing variant instead, such as in the phrasing 'discourse factors'.

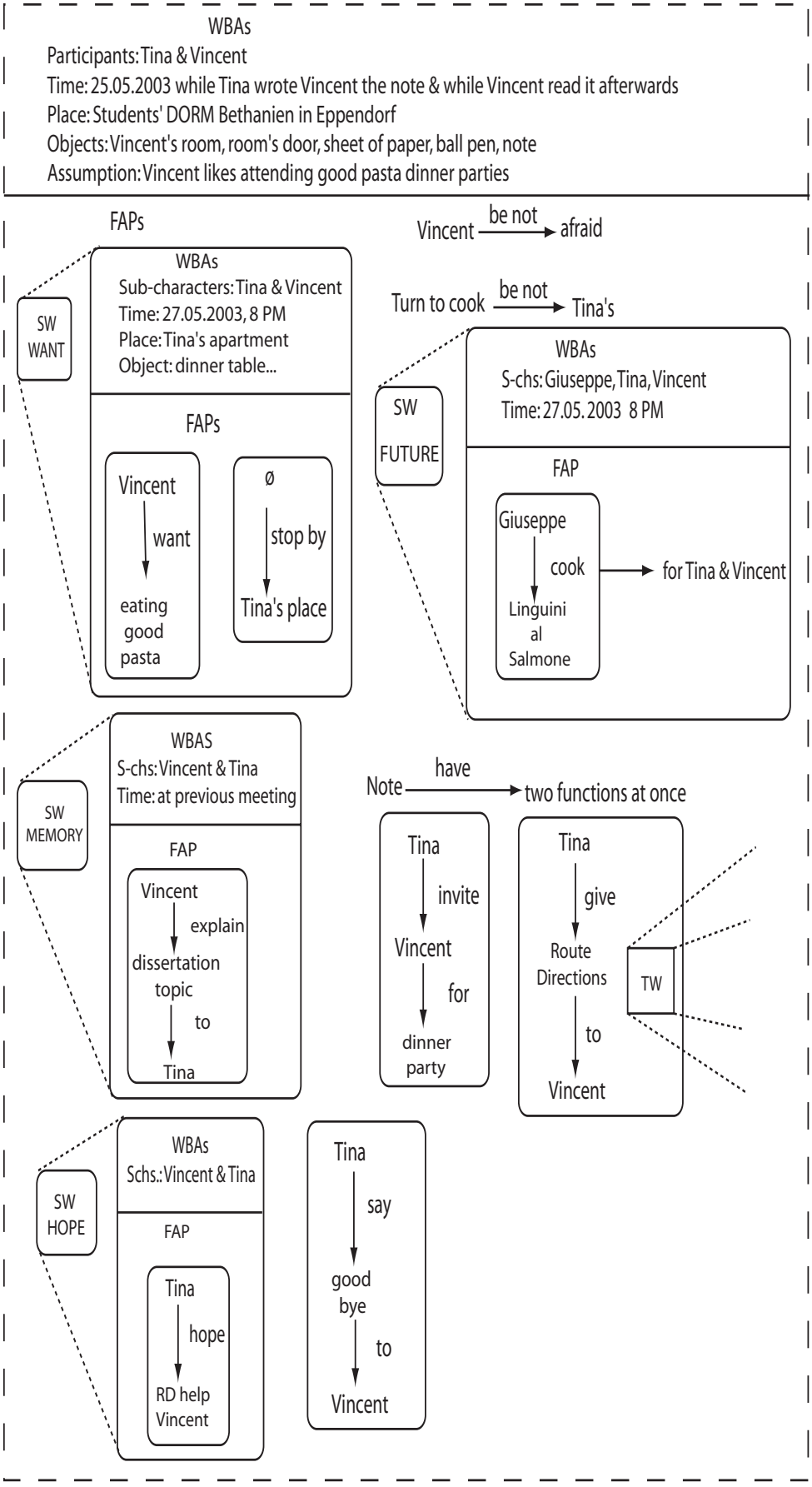

Figure 3: Discourse World for corpus token E

respectively, as protagonists *qua* discourse participants. World-Building Attributes also include the time markings that mirror the production-and-interpretation temporal intervals of the language performance act containing these RD; the place signature that symbolizes the arena to the verbal behavior joint project at issue; plus the non-sentient beings tacitly and mutually agreed on as salient for the internal representation of the communicative event in question as a whole.

Tina and Vincent *qua* Participants are counterparts to Tina and Vincent in material reality at DW level: The internal layer that represents the immediate situation wherefrom the RD' token at stake comes into existence. This is because the particulars to the protagonists are attributed locally according to the specific linguistic joint action in effect. These Values to the Roles *RD' informant* and *RD' user* will be preserved *via* accessibility principle throughout the performance act in force. In other words, identificational 'pragmatic functions' (cf. Nunberg 1978, Coulson 2001) will see to it that the reference to these discourse enactors is maintained throughout the discourse. That means, during the whole communicative event represented by the network of speech bubbles that Tina and Vincent erect in their minds in order to symbolize their semiotic construction process in unison. Yet, such cooperation at a distance is a virtual partnership, since we are dealing with written language use.

The time markings for this DW pin down the temporal deixis (see, *inter alia,* Fillmore 1997, Petruck & Boas 2003) relating the conceptualization of the joint venture at stake to the calendrical Frame which helps organize the 'projected world' that surrounds the interlocutors in question. The place markings to this DW are also reduced to a single entry due to the 'hard' quality of this data token. Thus the place signature amounts to the mental representation of the location where the initial 'uptaking' (Clark 1999c; Fischer 2000) of this joint project at a distance is "nailed down", i.e., signaled and acknowledged / attended to, by RD' informant and RD' user.

The Objects to this DW are the non-sentient beings agreed to be salient to represent the immediate situation involving the language function semiosis in question. They are the props that sustain the RD' informant and user's 'common performance act', whose final meaning amounts to more than the sum of its many 'participatory', as opposed to 'autonomous' moves (Clark 1999c). The interactants at a distance make such moves to achieve their mutual aim successfully (to sandwich a RD' token they will focus on between phatic lines of verbal behavior).

Besides, there is the foundational Assumption that the RD' user, being a normal youth, is fond of socializing, and thus is expected to be willing to enjoy a dinner party at some friend's place.[95] That is to say, Tina starts out from the fact/idea that Vincent always wants to savor tasty food with peers at a party, and therefore will accept the invitation to show up at her apartment at a given moment in the near future and do so, in company of the cook Giuseppe and maybe other friends as well.

Now, the scene-setting elements (the WBAs) in the DW in force are arranged among themselves in a propositional-like chart, giving rise to the FA-component to this cognitive world. The first argument-structure-like building block of such a predicational chart for this specific RD' token's DW is the 'Want'/'Desire' SW that the Assumption we have just mentioned erects.

The Motion predications and Description predications that constitute the manifestly expressed 'propositions' of any Function-

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[95] Since speech bubbles are cognitive domains peopled by/with protagonists that amount to the cast of rich worlds, as Werth (1997a:90) summarizes: "(…) the entities in ([them]) are sentient beings, usually humans, having the same kinds of motivations, knowledge, beliefs, wishes, and intentions as you or I." This position is undoubtedly congenial with Fauconnier's (e.g. 1999) case for 'rich mental paths' among referential spaces. Werth (1999:204) reinforces: " The (…) notation, then, allows us to represent the various conceptual layers, based on deixis and related systems, which discourses fall into. [Hence these cognitive] worlds contain a considerable amount of internal structure. Since they are designed to be 'rich' lifelike worlds (unlike the worlds of Possible World Theory or Model Theory), this is unsurprising."

Advancing information-handling process should be read cursorily and unreflectively, i.e. without taking pains, in the ordinary manner people approach written material in our Western civilization (from top to bottom, and from left to right). That is to say, concerning the specific DW under inspection, first, the Want-SW, then the two subsequent Description predications, then the Future-SW under the second of these two Description predications, and so on, and so forth, till the last "conceptual brick" which is the singled-out proposition represented by the final Motion predication in our DW.

Let us talk a little about each of the 10 sub-constituents of the FAPs mental operation to the DW in Figure 3. As we have already mentioned, the first piece of the puzzle is the attitudinal SW which symbolizes the RD' user's desire to accept Tina's invitation for the dinner party. Note that the two motion predications within this Want-SW are somewhat distinct in nature. The first one is an abstract motion predication, while the second one is a physical motion predication. Since the RD' user is not only the entity who experiences the feeling (the crave for pasta), but also the Agent who carries out the movement till the RD's informant's home, it is represented by **ø** in the graph. That is to say, the symbol **ø** serves the purpose to show that the same 'argument' is inherited from the previous predication in the specific slot at issue, *only when two or more predications of the same type (i.e. motion, or description) follow each other*.

The subsequent pair of description predications manifestly establishes the following load of information to push the plot forwards: RD' informant and RD' user tacitly agree on the latter's not being scared of the former's invitation. In addition, the identity of the cook for the dinner party is negatively predicated of the RD' informant. Note that there is a certain causal link behind the juxtaposition, which is indirectly conveyed and interpreted by this piece of discourse. Similarly to the relationship between the two singled-out propositions in the Want-SW (It's because Vincent wants to eat good pasta that he stops by Tina's

place), the reason-connection between the 2 description predications currently in focus arises implicitly. The interlocutors take for granted that the RD' user's not fearing the dinner party for his stomach has precisely to do with his learning that it is not the RD' informant the one who will be doing the cooking. The text automatically implicates / allows the RD' user to leap to the conclusions that, first, the RD' informant is a bad cook, and second, that Giuseppe, to the contrary, is a very good chef. These informally alluded to 'propositions' belong in the Inferential-Reasoning component of the model at DW level (Technically they should thus be represented encircled by ovals, as Fig. 2 summarizes).

Let us proceed and put the next conceptual stone to this DW under the microscope. This is the first deictic SW in our diagram. It represents the flashforward temporary suspension of the time markings to the communicative event in force. This is because it symbolizes a temporal-departure window in the semiotic construction process. It instantiates a facet of the complex state of affairs mentally prompted by the discourse having to do with a point in time posterior to the one at which the performance act in question is virtually undertaken. Giuseppe *is going to cook* one of his home-country specialties for Tina, Vincent (and maybe/likely some other pals).

The next "internal stone" to our mental construct is the mirror image to the flashforward. The second deictic SW conceived of is a flashback-like-Memory-SW. The RD' informant remembers the RD' user's talking about his subject of investigation for the Ph.D. at some prior encounter. Hence, the description predication following this SW is fully motivated. The Common Ground contextually justifies the "double *entendre*" of this proposition both in terms of previous discourse, as well as regarding the knowledge register of each other the interactants have as files in their memory. The description predication symbolizes the dual purpose of the proverb, which the singled-out motion predications underneath it in the chart spell out. One of the functions that the note serves is to invite the RD' user for a dinner party. The other function it

serves is to teach the RD' user how to get to the dinner party. This is why the TW that constitutes 'the primary business' (Clark 1996) of this virtual joint venture is embedded in the second abstract motion predication in force.

We will spell out shortly the conceptual world that consists in the main function of the performance act currently under scrutiny. But before commenting on the TW diagram, let us finish up with the DW level of analysis. Thus, returning to the DW, we move on to another attitudinal SW. This speech bubble represents the RD' informant's hope that the note she leaves for the RD' user do end up providing him with navigational assistance to her place. The last piece in this 'mental landscape' is the symbolization of the phatic function which brings the RD' informant and user's cognitive teamwork to an end. It is worth noticing how our emphasis on the DW level of conceptualization takes care in due detail of the 'conversational' dimension pertaining to the data in a much more adequate fashion than what the provisional labels 'Opening' and 'Closing' we had proposed in Chapter 2 above managed to do.

We may now take a look at the diagram that models the main function of the discourse corpus token E focuses on. We concern ourselves with the TW level of analysis to the verbal semiosis under discussion. See Fig. 4 below. The only sentient being mainly involved in this TW is the counterpart to the RD' user as discourse participant *qua* textual character. The time markings simply punctuate the various moments the trajectory of this Agent from Source to Goal demarcates. And the place markings nail down the prototypical Landmarks (LMs, as chapter 2 above advocates) that this imaginary journey subsumes. Borrowing Werth's (1997a: 91) words:

> "The times of day are 'sliding'; since the action is essentially movement, which is a kind of change through time, then obviously the time nominated doesn't stand still. This isn't a snapshot but a video-clip. The places too are 'sliding', and for exactly the same reason."

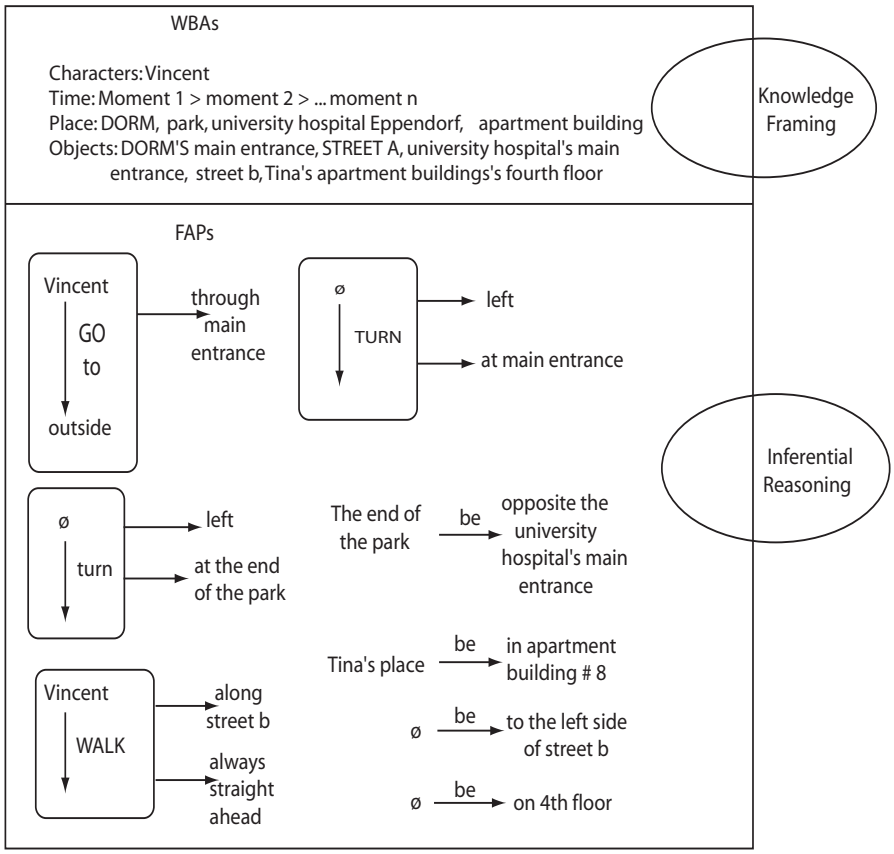

Figure 4: Text World to corpus token E

Now, the entry 'Objects' establishes the non-sentient beings that RD' informant and RD' user mutually conceive of as salient for the symbolization of this motion event. Out of these, 'street A' comes in capital letters because it is introduced in the conceptualization only contextually. It is never explicitly referred to on the linguistic surface of the text.

Likewise, among the Place markings, the dormitory also comes in capital letters, both in Figures 3 and 4. The students' residence situationally activates the Container Image Schema and reveals how 'ineliminably embodied' (Johnson 1987) CDG/SBM proves to be. Without such a cognitive device, the symbolization of the Source LM to this RD' token would hardly be successful.[96] Observe that the dormitory

[96] Johnson's position, we emphasize, ties together with Langacker's (e.g. 1988a-d) case for the unavoidably encyclopedic nature of verbal semiosis. This is because semiotic construction in speech dynamics can be vague or specific, but the mere fact that

is not mentioned at all in the linguistic form that verbally construes this set of itinerary descriptions. Nevertheless, this mental entity must be brought in the speech-bubbles configuration simply because it amounts no doubt to the starting point for the motion event representation at issue. That is where the change of location following the wayfinding instructions starts from in the first place. And this departure cell is conceived of as a container. If the RD' user must go outside, in order to begin the self-displacement towards the intended destination, this is only because RD' informant and RD' user tacitly agree on thinking about the starting point of the mental journey as a 3D-entity within which the RD's user is conceptually seen as standing. (Cf. the first singled-out motion predication in Fig. 4.)

The same CONTAINER image schema will be resorted to for the conceptualization of the Goal LM to this corpus token. As Figure 5 (lower half) below shows, one of the pragmatic inferences the text allows us to draw is the idea that the RD' user must pass from a state of being in the exterior to the RD' informant's home, to a state of being encircled or encapsulated by it. In other words, Vincent must enter Tina's place, so that he will be ultimately able to enjoy the dinner party with his friends there. Thus we have the CONTAINER image schema activated once more. To sum up, both the Source and the Goal LMs to corpus token E involve the CONTAINER image schema. But just the former is provided exclusively by the context, by the situation the performance act in force springs from. Albeit not being mentioned at all on the text surface, the dorm is present in the symbolization of the RD in question simply because of the hook to the perceptual input inherent to the joint venture at issue. Such a connection is prompted by the indirect allusion to the dormitory

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sometimes it lacks detailment by no means contradicts the network-like characterization of linguistic meanings. "It is perfectly possible to entertain a vague conceptualisation, e.g. of a relation of containment, which is underdetermined with respect to shape, material substance, density, boundedness, relative size, etc, of the containing and contained entities" Taylor (2000:129). Which underlines again one of the core tenets this chapter adheres to: Linguistic expression underspecifies meaning.

via the expression 'outside'. Form guides the interactants' meaning construction process (Sweetser & Fauconnier 1996; Salomão 2003a,b).[97]

Moving on to the FAPs-component of this TW, it should be clear by now why the first, second, and fourth 'path-statement' predicates show written in small capitals. 'GO', 'TURN', and 'WALK' must also be incorporated into the argument-structure-like schema *via* semantic-pragmatic intrusion. Situationally anchored world knowledge feeds in these verbs of movement to complete the meaning that a telegraphic linguistic form triggers without presenting. The RD' user must go outside through the main entrance, and then this same Agent (thus represented by **ø** in the chart) has to turn left at that point. ('Modification' + discourse meta-principles locally solve place indexical "there"). The Agent must turn left again (thus the second **ø** argument slot) after having walked on 'street A' all the way along the park.

The next "conceptual brick" to this TW is the further description predication that relates 2 in between-stopover-position-confirming LMs to each other. Since the cognitive world goes on by introducing another physical motion predication whose argument is the RD' user again, but provided that the immediately prior proposition predicates something of a LM argument, 'Vincent' cannot appear in the chart as **ø** anymore, but must rather be spelled out *in extenso*. We have 2 description predications modifying this physical motion predication, and we arrive at the triple modification on the 'argument' that constitutes the Goal LM to our symbolization: Tina's apartment. This is precisely why the first of these 3 description predications nominates the intended destination while the 2 following predications go on to specify the modification on the **ø** that inherits the value 'Tina's place'.

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[97] This position is corroborated by both Koch's (2002) and Marcuschi's (2003) 'text-linguistics' analysis/approach, which the Werthian stance that the present dissertation defends calls 'cognitive-discourse' investigation.

Now all that remains for us to do is demonstrate Knowledge Framing and Inferential Reasoning at work. See Figure 5 below. As sub-section 3.1.2 has defined, we will have to restrain ourselves to bothering with the account for these two mental operations surgically. That means we concentrate on KF only with respect to Place markings at TW level. As for IR, we consider averagely and markedly salient follow-up computations at TW level, and only mention inferences of highly marked relevance at DW level.

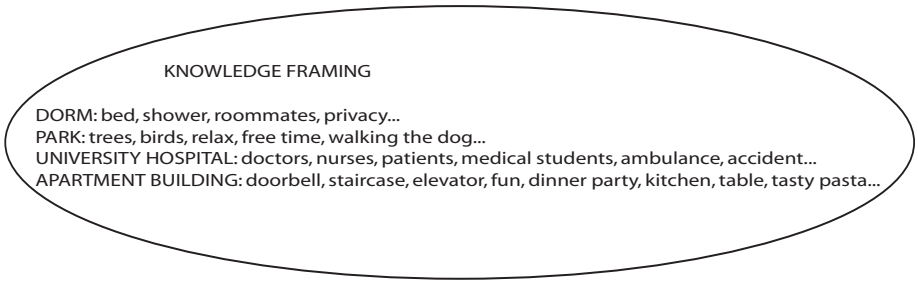
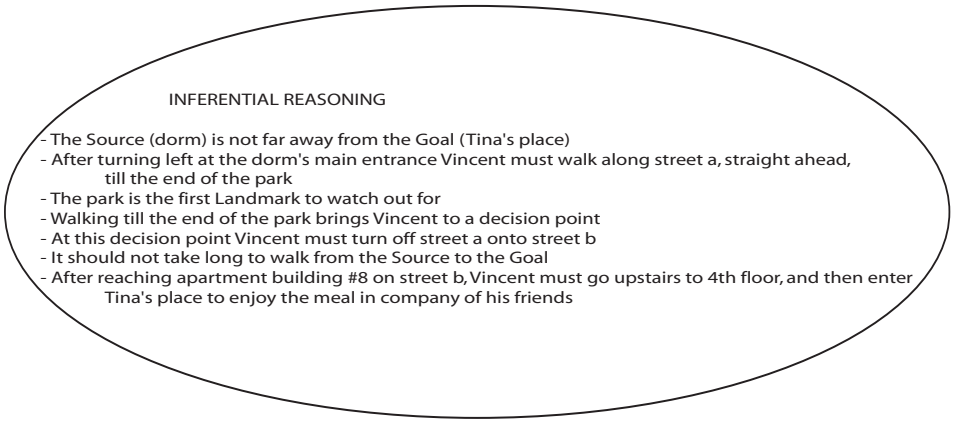


Figure 5: Knowledge Framing and Inferential Reasoning to corpus token E's TW



The four core concepts that showed as entries to this TW Place markings signal the points in the 'cognitive map', as ch.s 1 and 2 above invoke, that constitute the series of LMs which the route in question is conceived of encompassing. These central meaning units activate networks of encyclopedic knowledge in the mind of the interactants. Such connections, as the upper part of Figure 5 describes, help the RD' user to visualize more sharply the trajectory to be covered. Now, the lower part of Figure 5 contains some of the meaning overlay that the propositions patently expressed *via* Function-Advancing yield. The RD' user has no

trouble to understand such implicitly conveyed signification by drawing non-deductive inferences. Thus these natural leaps to conclusions also help the RD' user to interpret the wayfinding instructions more effectively.

Corpus token F

Hi Vicente, ICH habe gerade versucht, DICH anzurufen, aber DU warst nicht DA.
Hi V. I have just now tried, you to phone, but you were not there
Hi V., I've just tried to call YOU, but YOU were not THERE.
Deswegen schreibe ICH ES DIR per e-Mail, wie WIR verabredet hatten.
Therefore write I this to you per e-mail, as we arranged had
That's why I'm writing YOU THIS e-mail, as WE had agreed to do.
WIR essen also MORGEN etwas Brasilianisches zusammen, bei MIR IM Wohnheim. DU kannst kommen, zu welcher Zeit DU möchtest.
We eat so tomorrow something Brazilian together, at to me in the dorm. You can come, to that time you would like
Ok, WE're eating some Brazilian food together at MY place TOMORROW, at THE dorm. YOU can come whenever YOU feel like it.
DU kommst DAHIN (Bugenhagen-Konvikt, Zi. 47, Kalckreuchtweg 89) wie folgt.
You come thither (Bugenh. Seminary Ro. 47, Kalk. Way 89) as follows
Here is how YOU get THERE (to Bugenh. Seminary, Ro. 47, Kalk. Way 89)
S-Bahn Station ist Othmarschen.
Suburban-train station is Othm.
The suburban-train station is called Othm.
Wenn DU mit DER S1 aus Altona kommst, steigst DU ganz HINTEN AM Zug ein/aus
When/If you with the suburban train 1 from Altona come, get you well rear at the train on/off
Riding THE suburban train 1 from Altona, YOU get on/off THE train all the way to THE back

Und gehst wie alle Leute DIE Treppen RUNTER,
And go as all people the staircase downwards
YOU go DOWN THE stairs as everybody else
Auf DER Strasse nach LINKS, AM Taxi-Stand VORBEI,
On the street to left, at the taxi rank past
YOU **TURN** LEFT on THE street, and **WALK** PAST THE cab rank
Und gehst dann LINKS in DIE Beselerstrasse.
And go then left in the Beseler Street
Then (YOU) turn LEFT onto THE Bes. St.
DIE gehst DU immer DER Nase nach,
She go you always to the nose following
Follow YOUR nose on THIS street always straight ahead
Bei DER Gabelung RECHTS bleiben,
At the bifurcation right stay
Keep (i.e., TAKE) THE RIGHT at THE forking
Und in DIE Kaulbachstrasse weitergehen,
And in the Kaulb. Street continue
And continue onto THE Kaulb. Street
Bis DU auf DEN Kalkreuchtweg kommst.
Till you at the Kalk. Way arrive
Until YOU come to THE Kalk. Way
DA biegst DU nach LINKS ab,
There turn you to left off
YOU turn off to the LEFT THERE
Und HINTER DEM ERSTEN Haus (in Richtung Spar-Supermarkt) liegt DIE Einfahrt ZUM Wohnheim (DA steht ein kleines Schild VOM Konvikt).
And behind the first house (in direction Spar-supermarket) lies the gateway to the dorm (there stands a small sign from the seminary)
And BEHIND THE FIRST building (toward THE Spar-supermarket) lies THE gateway to THE dorm (there is a small sign from THE seminary standing THERE)

DU gehst AM Parkplatz VORBEI und gehst in DAS RECHTE Haus in DIE ZWEITE Eingangstür, DIE hat einen Glaseingang.
You go at the parking lot past and go in the right house in the second entrance door, that has a glass entrance
YOU go PAST THE parking lot and into THE building to THE RIGHT through THE SECOND entrance door. IT's a glass door.
DORT sind auch DIE Klingeln. MEINE hat DIE Nummer 47.
There are also the doorbells. Mine has the number 47
THERE (= NEXT TO THE DOOR) are THE doorbells too. MINE is # 47
Insgesamt sind DAS etwa 10 Minuten Fussmarsch.
Altogether are this about 10 minutes foot march
IT (= THE WALK) takes about 10 min on foot altogether
ICH hoffe DU kommst mit DIESER Erklärung zurecht
I hope you come with this explanation to grips
I hope YOU come to grips with THIS wayfinding-instructions set
Und WIR sehen UNS MORGEN abend mit gutem Hunger
And we see us tomorrow evening with good hunger
And WE see EACH OTHER TOMORROW evening hungry enough / quite hungry
Sonst kannst DU ja anrufen. ICH freue MICH schon.
Otherwise can you yes phone. I am pleased already
But YOU can always give (ME) a call. Looking forward to seeing YOU,
Liebe Grüße, Julia
Dear greetings, Julia
Love, Julia

We turn now to the translation of this data token into speech-bubbles format and commentaries thereto *in extenso*. The semiotic dynamics this corpus sample triggers begins with the Discourse World as Fig. 6 below shows it. The World-Building Attributes to this most external representational layer comprise two protagonists. Julia and Vincent are the first counterparts in the CDG to the interactants at a distance in 'material

reality' whose personals assign specific values to the roles RD' informant and RD' user, respectively. Besides, the time marking is filled by the entry corresponding to the temporal interval during which Julia writes the e-mail, and the temporal interval during which Vincent reads it later on. The

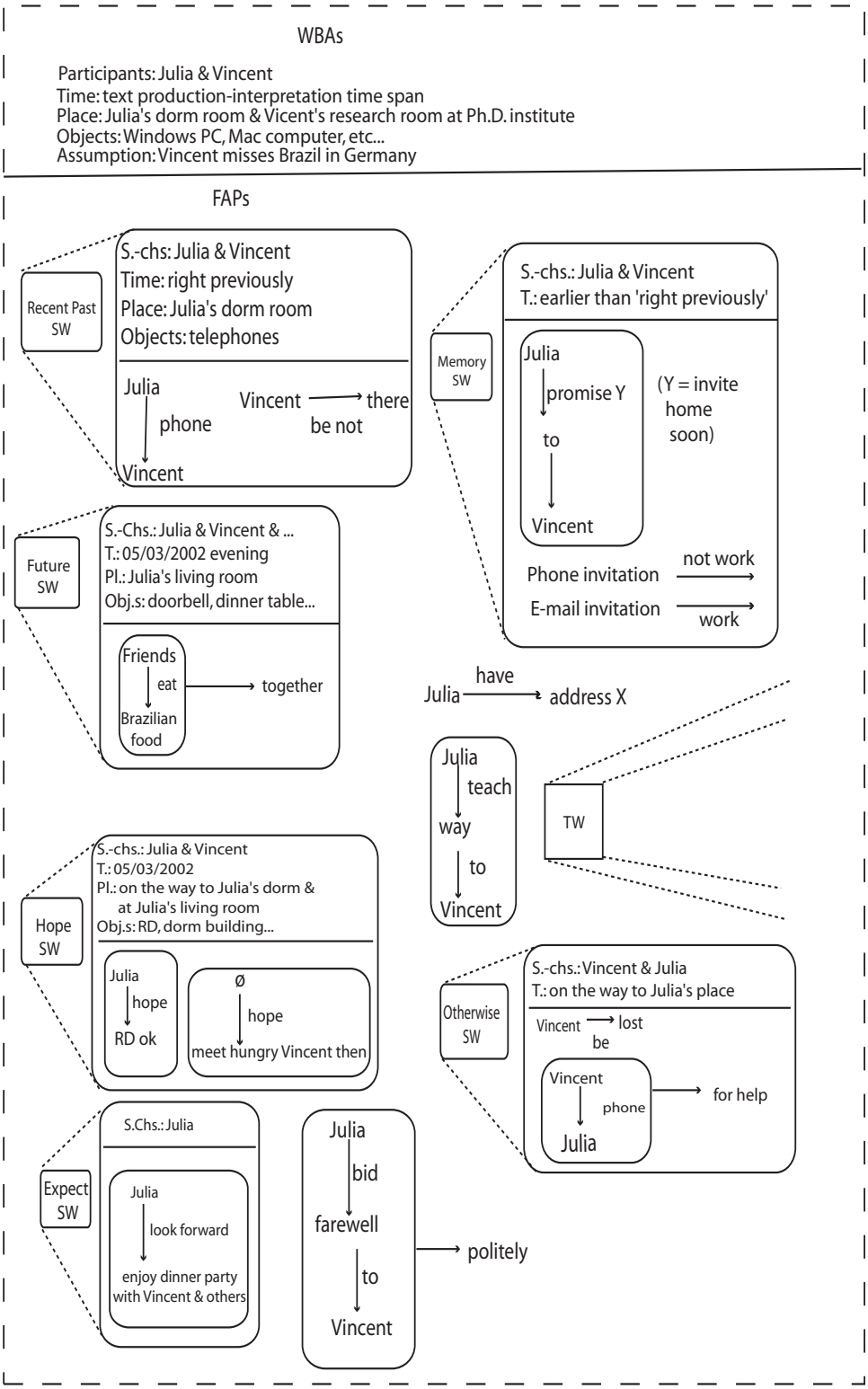


Figure 6: Discourse World to Corpus Token F

Objects that are, mutually and tacitly, agreed to be relevant to the immediate situation out of which the RD come into existence include, above all, the two hardwares that enable Julia and Vincent to run whatever software to communicate with each other electronically. Last but not least, the WB component to this DW also includes the experientially based assumption that, being a foreign graduate student abroad, Vincent misses his home country (See footnote 95 above for a justification). Note that this assumption is different in nature from the assumption that appears in the DW to corpus token E. There, it was SW-creating. Here, it is simply relevant enough to deserve particular mention, though not enough to be separately world building.

Let us now turn to the function-advancing propositions to this DW. Here the semiotic construction process that puts the pieces selected by the world-building mental operation together begins with a deictic sub-world of the Flashback type. The sentient entities involved in it are Julia and Vincent *qua* counterparts as sub-characters to these elements at DW-level as participants. The SW time marking is implied *via* the lexical item 'just', whose anchoring value ends up being locally resolved (= a little before Julia's writing and sending the e-mail in question). The SW place marking is taken for granted based on an inferential computation: Considering that Vincent knows that Julia does not like to spend money on internet cafés, hates the waiting lines on main campus to be able to use a computer at the library which allows one access to e-mail, but does have a PC home. In other words, this information is part of their Common Ground. The non-sentient beings involved in this deictic alternation SW are above all the telephones, most probably the one Julia has at her dorm room, and either the one Vincent has at his dorm room or at his working place. Since it is irrelevant to decide about which, this information is not even entertained as an assumption to be confirmed or disconfirmed later.[98] Now the FAPs

[98] A procedure that has to do with the predominantly non-deductive nature of the inferences people draw in verbal semiotic construal dynamics. Cf. sections 3.1.2 and 3.2.1.5 above. See also in this connection Werth's (1999) case for the 'pending-file' tinge of certain SWs.

to this SW consist in the abstract motion predication that nails down Julia's calling Vincent up, and in the description predication subsequent to it, that advances the Common Ground by implicating that the RD' user could not be reached by phone. For it registers that Vincent was not at the place where Julia tried to call him.

The meaning construction process goes on with the Memory Sub-World through which we vicariously experience a mental state of a discourse participant (How Julia promises Vincent to invite him home soon, and how they agree on doing for this invitation to reach Vincent at any rate). The time signature to this SW is rather vague. The tense of the linguistic form 'verabredet hatten'/'had agreed' only permits the interactants to determine it as being at some point earlier than the time marking established in the Recent-Past SW that precedes the Memory SW currently in force. How these backcloth elements are construed to act among themselves in order to push the plot forwards in this SW is represented by the singled-out proposition in the rounded rectangle notation, and by the two propositions that the horizontal arrows symbolize. Interestingly, both the abstract-motion predication and the description-predication pair subsequent to it have in a way or another to do with 'textual' – also known as 'indirect' and/or 'discourse' – anaphor resolution (Van Hoek 1992; Fox 1987, 1996; Dahl & Fraurud 1996; Langacker 1996; Indursky 1997; McEnery & Botley 1998; Ilari 2001a,b; Marcuschi 2000a,b, 2001).[99]

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[99] But see also Leffa (2001, 2003) for a counter-argument to the proposals that rely on discourse, cognition, pragmatics, function, common sense, human intuition, world/encyclopedic knowledge, etc in order to solve the problem of identifying the ultimate antecedent to a pro-form. Instead, Leffa takes a computational-linguistics perspective and defends the adoption of syntactico-semantico-'textual' restrictions as tools / desirable *criteria*. We must underline though that Leffa understands 'text'/'textual' in the sense of Clark's (1994) 'discourse as product'. The current dissertation, however, takes 'text(ual)' to be rather equivalent with Clark's (1994) 'discourse as process'.

We follow here Bentes (2000:esp. 278) and stress the impossibility to sometimes dissociate anaphoric from deictic pronominal usages. One experiences such a difficulty very often while analyzing real language use. Hence we can never forget that the clear-cut distinction Schiffrin (1990) introduced, as she herself remarks, merely has a pedagogical function: The "basic dichotomy" between anaphorical and deictical meaning senses. In the end, it serves only as a rule of thumb,[100] which must be relativized, we agree with Schiffrin, to the usage-based, interactional, socio-cognitive, construal-oriented aspects invariably present in actual verbal behavior communication events.

The proposition singled-out by the rounded rectangle in our Memory-SW involves anaphor resolution insofar as the content to the promise Julia has previously made to Vincent – built into the verbal semiosis through the lexical item 'it' (in German 'es') – has both anaphoric and cataphoric reference. Anaphorically, reference is made to the previous discourse segments introduced so far. And cataphorically, reference is made to the discourse segments that will be introduced till the end of the communicative act in question. This relates to a distinction between 'endophora' and 'exophora', which lies at the heart of the difficulty to watertight separate deixis from anaphora Schiffrin acknowledges.[101] In this connection, we should still observe that

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[100] In other words, to say that deictic usages point to the real world, while anaphorical usages point to the universe of a text/discourse is a bottom line we can maybe rely on for didactic purposes. But once we roll up our sleeves and undertake the scrutiny of written language performance, it becomes clear that this is just a first approximation, *pace* Ehlich (1982). In order to revise it satisfactorily, the conceptualist-constructivist approach that Koch (2001), Mondada (2003), and Koch & Lima (2004) defend seems promising.

[101] For space reasons we will not go into the deixis vs. anaphora question any deeper. A more careful treatment of the overlap between these usages, and of the sub-classifications involved, is far from being a trivial problem, as Marcuschi (1995, 1996) makes clear. The linguist reviews major prior discussants of the topic (Peirce, Bühler, Fillmore, Lyons, Levinson, Koch, Ehlich, among others) and divides deixis into 'personal', 'spatial', 'temporal', and 'textual'. The last kind shows as 'discourse deixis' in Renkema (1993) and Fillmore (1997). Bublitz (2001) adds 'social' deixis to the array, following Fillmore (1997). Now, what some scholars call 'text''/textual' anaphor, others name 'discourse' anaphor. Marcushi's recent publications show that apart from these two sub-types, one can also classify the phenomenon into 'indirect', 'schematic',

ultimately the whole of the discourse that 'es'/'it' refers to is the e-mail text by itself that Julia sends Vincent. Thus one also sees a deictical sense in this anaphorical expression. We turn now to the description-predication pair that follows the abstract motion predication under scrutiny. The content that both these modifications present for semiotic negotiation refers implicitly *via* embedded clause "wie wir verabredet hatten" (as we had arranged TO DO), and connects to a textual/discourse antecedent in the main clause to which it is subordinated: "Deswegen schreibe ich es Dir per e-Mail" (Literally: That's why I'm writing it to you per e-mail).

We take up now the Future-SW in this rich meaning construction process that the linguistic expressions in corpus token F at DW level lead the interactants to. The 'knowledge-network' (Taylor 2000) conceptual brick in focus is a flashforward-like deictical SW. It signals the ephemeral deviation from the temporal markings pertaining to the most external layer of verbal semiotic dynamics (the DW). This is because the dinner party will/is going to take place "tomorrow", certainly a time deictical concept. Note that the further detailment of a time marking was not made precise once Julia utters vaguely (You can come whenever you want), which automatically gives Vincent the right to decide about a specific moment to show up. The sentient beings belonging to the Future SW in question are Julia, Vincent, and, stereotypically, other guests too, whose identification is assumed to be not so important. The place marking to this SW spots the room in Julia's dorm apartment where she and her roommates host anyone they might have invited over. The non-sentient beings salient for this conceptualization fragment are, among others, the doorbell people have to ring in order to enter the dorm building (CONTAINER Image Schema), the dinner table at which people will sit after stepping into the flat in itself (CIS again), and so on. These WBAs will be combined to push the plot

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'associative', 'mereological', etc. from a socio-cognitive functionalist perspective. Cutting's (2002) "pragmaticization" of Hofmann's (1993) "semantic slicing of the referential cake" into 'exophora', 'anaphora', and 'cataphora' must also be mentioned here to point at the complexity of the issue.

forward *via* the FAP represented by the rounded rectangle. All the guests, friends to one another – either previously acquainted or having just met there – eat Brazilian food (abstract motion predication). And they do that together (description predication), since after all, we are dealing with a party situation.

Next comes the piece of information which is perhaps the most important one in the whole communicative act in question, namely, Julia's address, since it amounts exactly to the Goal LM to corpus token F: The location Vincent must go to. This is represented by the description predication 'have Julia address X', diagramed as a horizontal arrow. The address comes embedded in a sentence that signals a switch from phatic function to informative function. SBM represents such a switch by an abstract motion predication that yields to the main focus of the discourse dynamics at issue altogether: The TW. Since its contents are specified elsewhere (i.e., by a separate speech-bubbles configuration), there are dotted lines spreading out from it in Fig. 6. We come to the TW's internal structure shortly, once we have finished commenting on the second half of the DW that "sandwiches" it.

Therefore we move on to the attitudinal SW that the interactants at a distance attend to after concerning themselves with the TW. The sentient beings salient to this speech bubble continue to be Julia and Vincent *qua* counterparts to RD' informant & RD' user respectively. Observe that the time marking inherits the signature from the last SW that was in force before the conceptualization switched layers to the TW. Such an inheritance results from the **PACKAGED** nature of our model, as a foregoing section of the current dissertation has introduced. Likewise, the place marking is bequeathed in a split manner from the TW that precedes the Hope-SW in force, and from the deictical SW previous to it. The non-sentient beings taken to be salient for the Hope-SW encompass the RD in themselves, and the dorm building that includes Julia's apartment (CONTAINER Image Schema is activated once more) and consequently pins down the Goal LM to this corpus token. All these "actors and props"

(i.e., sentient and non-sentient entities) that World Building nominates affect one another according to the corresponding "play script" Function Advancing presents (stage + billiard ball metaphors). In other words, the FAPs mental operation will arrange these conceptual elements in a certain way, in order to push the plot forwards. Hence, there are 2 abstract motion predications that advance the Common Ground. First Julia hopes the RD are all right. Then, the same Julia, therefore represented as ***ø*** *qua* "external argument" to the second of these 'propositions', hopes again that Vincent be feeling hungry when he makes it to her place on the day of their appointment for the dinner party. Note that these two abstract motion predications involve deictical/anaphorical usage again. 'Du'/(you) is no doubt exophoric (= Vincent), but the formulation 'dieser Erklärung'/(this explanation, set of RD) is at a time deictical and anaphorical. It points to the RD at issue *qua* final product, as an entity in the "real world". But it also refers to the whole discourse segment that constitutes the TW in question, by pointing back to the large verbal semiotic stretch the TW consists in. The **PACKAGED** quality of our model takes care of clearing the reference chain between the lexical item 'this explanation' and the RD' token proper that the TW construes. It also solves the problem of pinpointing when the 'then' time deictical usage is supposed to be anchored, namely, the time span during which the dinner party takes place.

Next conceptual block is the Otherwise-SW that pushes the plot further forwards. The sentient beings prominent in it are again Vincent and Julia as Sub-characters: The counterparts to these entities as Participants at DW-level. The only additional WBA assumed to be relevant here is the time marking, which, technically, conflates both the Time signature and the first entry to the Place signature from the foregoing attitudinal Hope-SW. Through the symbolic means of this Otherwise-SW, the interactants tacitly accept to move on their meaning construction process thinking about a hypothetical / counterfactual situation, which opposes the circumstances that the preceding Hope-SW latches onto. If Vincent happens to be lost, while trying to follow the RD

in question (description predication), then he will/can/should call Julia and ask for further assistance in order to successfully reach the intended destination (abstract motion predication modified by description predication).

Approaching the end of this verbal semiosis, there comes next the second (and last) attitudinal SW pertaining to this DW: The Expect-SW that follows the epistemic Otherwise-SW we have just focused on. The only rich protagonist to this cognitive domain is the counterpart to RD' informant *qua* sub-character: Julia. The single FAP belonging to this speech bubble signals Julia's feelings towards Vincent and the other guests invited over for the dinner party at her place. And so we arrive at the final piece of information to the current DW: The complex abstract motion predication (for it includes 2 vertical arrows composing a singled-out proposition, encircled by a rounded rectangle, that is modified by a description predication, thus the horizontal arrow branching out of it). Such a representational device mirrors how the joint project at a distance comes to an end: The greeting closes the interaction in a socially desirable fashion[102].

We may now turn to the main purpose of the discourse in this communicative event: The TW in question. See figure 7 below. The WBAs nominated by the discourse to erect this representational layer in the interactants' mind include one single protagonist: The counterpart to Vincent (RD' user) in the 'projected world' *qua* character. The time markings slide from the very moment this entity begins self-displacement towards the intended destination, until it reaches the Goal LM aimed at. The place markings pin down the prototypical Landmarks, i.e. LMs which

[102] On how politeness pervades the 'sociology-of-meaning' practice that semiotic construction in ordinary language use amounts to, see, e.g. Brown & Levinson (1987), and Watts (2003).

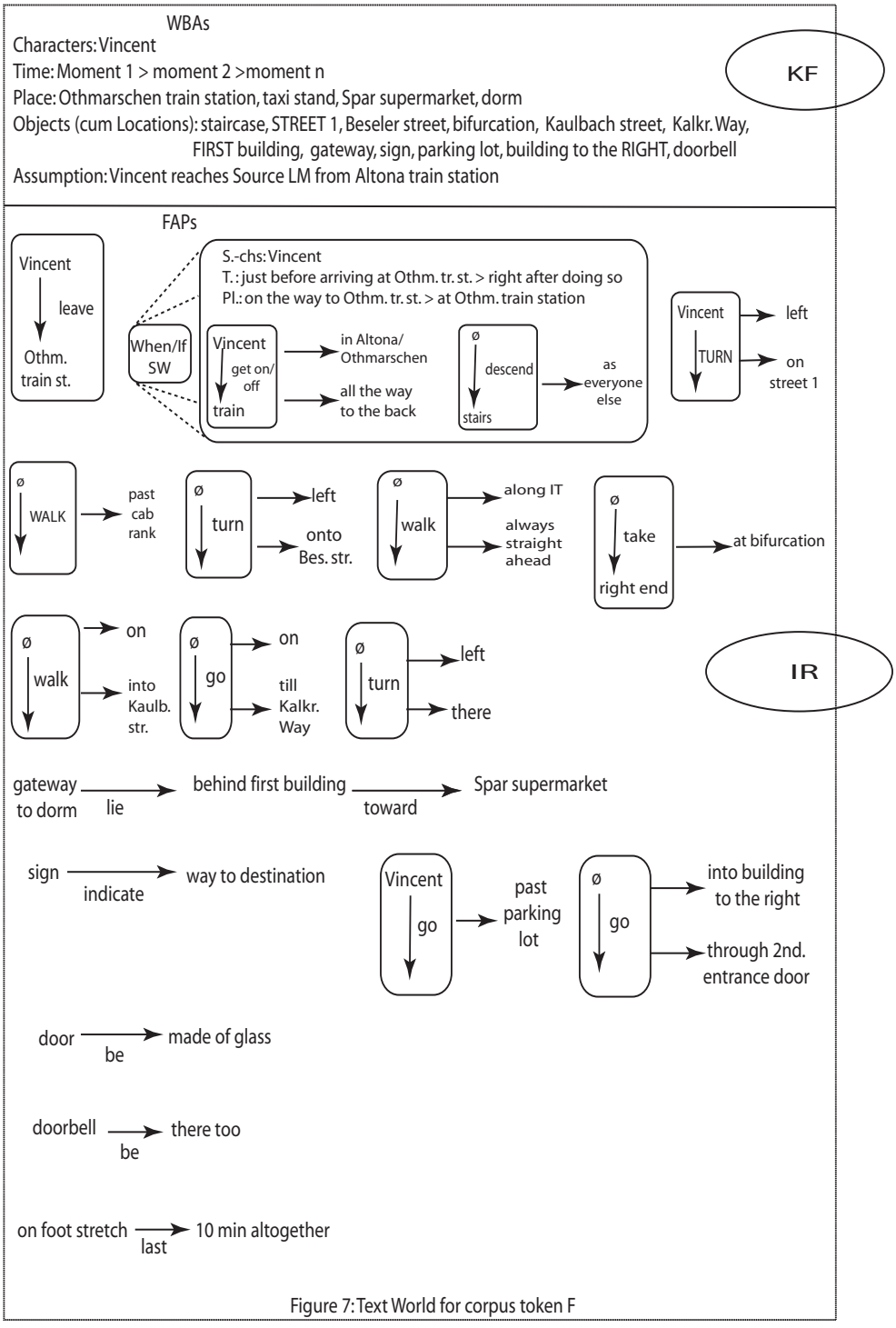

Figure 7: Text World for corpus token F

constitute the starting point and end-point of the journey at issue, plus the stopovers in between them. These entries trigger the Knowledge-Framing mental operation, as shown in Fig. 8 further below. The non-sentient entities (Objects) regarded as salient for the representation of this motion event include all the Paths proper (Pspr) on/along which the Agent should/will move, together with the other prop-like mental elements that sustain the symbolization of the wayfinding behavior at stake.

Besides, there is the Assumption that the RD' informant makes about how the RD' user reaches the Source LM. These scene-setting details are put together by the FAPs mental operation, giving rise to the argument-structure like chart that tells the story insofar as it advances the Common Ground. This set of propositions that Function Advancing manifestly introduces[103] latches automatically onto the follow-up-computations component of SBM (as Fig. 8 further below exemplifies).

Let us take up the commentary on the FAPs mental operation to this TW. First there is the singled-out proposition that represents a physical motion predication: The Agent leaves the Source LM.[104] Since the Assumption in the WBAs is SW-creating, the TW includes at this point a temporary parametrical deviation. In other words, the semiosis must deal for a while with an undergrounded conceptual domain, the When/If-SW, that happens to be at a time both deictic and epistemic.[105] The only sentient being involved is the counterpart of the RD' user *qua* sub-character to its mental representation as character at TW level. The time signature slides from a short period before Vincent arrives at the Source LM to the moment soon after Vincent reaches this same Source

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[103] Remember that although heavily propositional in nature, the notational system the current dissertation adopts defines 'propositions' in a broad, unconventional, innovative sense, different hence, for e.g., from what Slack & Zee (2003:5) mean by this technical term, when they say: "There is no a priori reason why the primitives [such as (half)-lines, topological distinctions, etc] encoding direction [– this notion, they argue, subsumes position/location as well –] must be spatial entities such as axes or vectors. The currency in which direction can be formally or cognitively encoded might as well be algebraic or propositional." See also in this connection Tenbrink (2004).

[104] But note that in this case the CIS (Container Image Schema) is made just subliminally active by the context. Because there is no explicit instruction for Vincent to move from within the closed region of the train station to the external area of this space conceptualized as a bounded object, i.e., as an abstract receptacle. And there is no lexical item triggering this semiosis either, in contrast to corpus token E, where this was precisely the case: "Nach draussen" (lit. 'to outside'). It is the situation of language use alone that activates this mental device in corpus token F.

[105] On a closely related issue to what we have here, namely, an overlap of temporal and conditional shades of meaning, see Werth's (1999:242-4) brief albeit illuminating discussion of what he calls 'Exclusive OR-SWs' vs. 'Inclusive OR-SWs'.

LM. The Place signature slides from Altona station (where the RD' user is assumed to get on its way towards the Source LM) to this very same starting point the RD teach the way from (Othmarschen train station). There are two conceptual blocks in the FAPs component to push the plot forwards, marked by rounded rectangles around singled-out propositions. The first one is rather complex. It conflates two predicates *via* the slash symbol. The same device is resorted to at the first Description predication that modifies this physical motion predication. The slash symbol signals that the physical motion predication and Description predication must be conceived of in doublets (i.e., in parallel). In other words, Vincent gets on the train in Altona, and gets off the train in Othmarschen. And following the RD' informant's advice, he is supposed to do that always from the back of the trains. This is represented by the second description predication modifying this complex proposition. Then a simple singled-out proposition symbolizes how this very same Agent (thus represented by **ø**), goes down the stairs (physical motion: Vertical arrow), following the other passengers (description: Horizontal arrow).

After such a deictic-epistemic parametrical deviation, the semiosis of this TW goes on with a sequence of eight conceptual blocks consisting of simple physical motion predications, each modified by one or two description predications. First there is the singled-out proposition that symbolizes the TW-character's change of orientation. The physical motion predicate TURN, comes in capital letters because it is provided by semantic-pragmatic intrusion. It is not explicitly mentioned in the discourse but implicitly suggested by the wording "nach links"/lit. 'to left', which SBM represents as the first description predication (top horizontal arrow). The second description predication (bottom horizontal arrow) modifies this change of orientation *via* a Ppr that is only contextually provided. Therefore it shows in capital letters among the Objects nominated by WBAs. Since the external argument to the subsequent seven physical motion predications is always the counterpart to the RD' user, Vincent, it is represented by **ø** in the rounded rectangles. The first of these seven propositions has again a predicate that shows in

capital letters because it is automatically introduced in the argument structure by semantic-pragmatic intrusion. The text does not mention it but we must add it to complete the telegraphic message that only reads "Am Taxi Stand vorbei" (past the cab rank), which is precisely the content of the single description predication to this conceptual block.

The other six singled-out propositions are more trivial, since the predicate to each physical motion predication is manifestly provided by the discourse. First Vincent makes a left onto Beseler street. We represent that as 1 physical motion predication + 2 description predications. Second, Vincent again walks (physical motion) along IT (description predication whose anchor is locally resolved) always straight ahead (simple description predication). Third, the same Vincent takes the right end (physical motion) at the bifurcation (description predication). Fourth, Vincent again walks (physical motion) on (description predication meaning continuation) into Kaulbach street (simple description predication). Fifth, the same Vincent goes (physical predication) on (modification meaning continuation) until Kalkreucht Way (simple description predication). And finally Vincent once more turns (physical motion predication) left (description predication) THERE (description predication that must be locally anchored). We should emphasize that SBM/CDG deals easily with the deictic-anaphoric reference maintenance between mental elements that the discourse alludes to by means of different lexical items due to the **PACKAGED** properties that characterize it as an approach to language understanding.

The next "internal brick" to this TW is a compound description predication. There is a property attributed to the gateway to the dorm, namely, its position behind the first building in sight, which is redundantly specified (toward the Spar supermarket): This is already the orientation of the Agent's gaze once it changed directions turning left onto Kalkreucht Way. Next comes a simple description predication that symbolizes a property to the seminary's name-plate sign that should be visible at this

point of the mental journey: It indicates the way to the destination aimed at.

A pair of singled-out propositions advances the Common Ground and pushes the plot forwards. The external argument to the first one is once more the counterpart of the RD' user *qua* Character to the internal representation of Vincent as Participant at DW level. A physical motion predication combines with a description predication to represent how Vincent goes past the parking lot. In the subsequent singled-out proposition the external argument remains the same. Hence, instead of being spelled out again, it is marked by **ø** as a link in this 'reference sub-chain' Werth (1999:161-3). A physical motion predication signals how this entity goes (vertical arrow) into the building to the right (top horizontal arrow represents a description predication) through the second entrance door (bottom horizontal arrow represents another description predication). It goes without saying that the meaning which wordings like 'to the right', 'second entrance door', etc trigger, can only be construed based on the circumstantial underpinnings inherent to real language use. Besides, the formulations 'into' and 'through' activate the Container Image Schema again to reinforce the conceptualization of the Goal LM at issue as a receptacle.

Three simple description predications consist in the last conceptual blocks to the TW currently under scrutiny. The property of being made of glass is predicated of the door the Agent must go through to enter the Goal LM. Then, the location 'at the door' is predicated of the doorbell indirectly, since the RD simply read "the doorbells are <u>there</u> too". Situationally anchored world knowledge and the **PACKAGED** properties of CDG/SBM find the moorings for "da"/<u>there</u> without difficulty. The last description predication symbolizes a property of the trajectory to be covered in terms of the bird's eye view we referred to in Chapter 2: The stretch on foot from Source to Goal is estimated to last about 10 minutes altogether.

We can now briefly comment on the Knowledge-Framing and Inferential-Reasoning mental operations in the TW to corpus token F. See Figure 8 below.

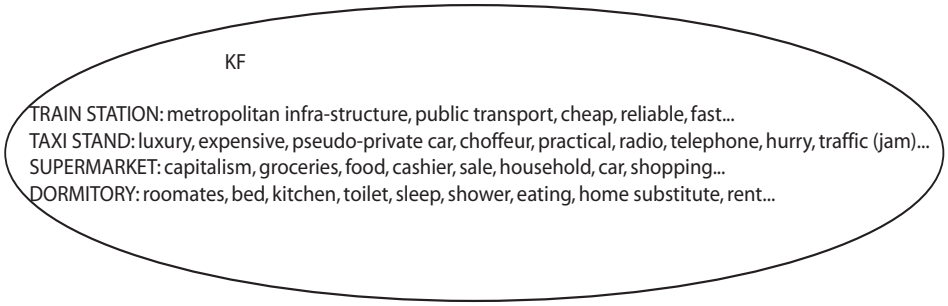

Fig. 8: Knowledge Framing and Inferential Reasoning to Corpus Token F's TW

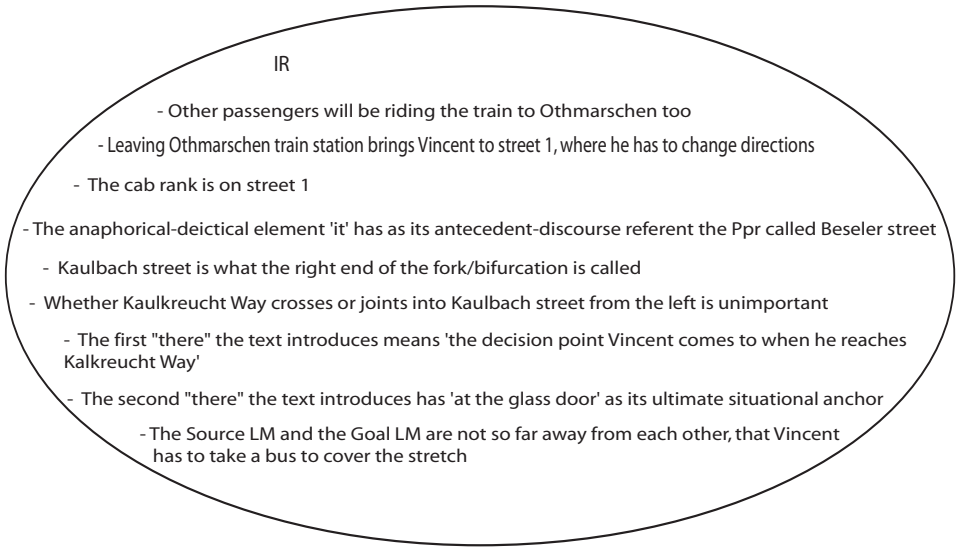

Fig. 8 upper half exemplifies the experiential chunks that the Text-World Place markings activate in the RD' user's mental lexicon. Such connections and associations that structure people's world knowledge via Frames help the RD' user to pay attention to the LMs the route at stake encompasses. After all, these core concepts are rooted in a particular socio-cultural typical way of doing things and linguistically construing the world 'out there'. In other words, the overlaps between Frames reveal a common *Lebensform* (Wittgenstein, 1953) both RD' informant and RD' user share as Westerners. Since SBM/CDG takes a strongly embodied, human approach to language understanding, the follow-up computations

that Inferential Reasoning highlights also rely heavily on encyclopedic knowledge, episodic memory, previous experience, and so on.[106] For instance, from the formulation "Und gehst wie alle Leute die Treppen runter," we can assume that there will be other people on the train besides the RD' user, since this is the case most of the times: Trains are not a means of transport one usually rides alone. As Fig 8 lower half illustrates, the other inferences we focused on here also have such a probabilistic, non-deductive quality. They are leaps to conclusions the RD' user makes based on common sense and similar premises much looser than those which would allow the logical derivation of entailments. Still, they help the RD' user construe the meaning of the route in question beyond the propositions that Function Advancing manifestly presented as verbal semiotic triggers.

As previously announced, we carry out from now on the remaining exemplification of CDG/SBM at work in a condensed fashion, for the sake of brevity. In other words, the other two corpus tokens that illustrate the discourse facet of our triple model will have no commentaries on how the diagrams came about. We just break down the verbal semiosis dynamics behind them through charts/figures and tables.

We must also say at this point that, instead of opting for the corresponding section to 2.5 regarding SBM/CDG, the current dissertation will rather postpone it to the concluding remarks in chapter 5. We take this decision because the proposals we advance in the present chapter and the Dialog Model Sketch we defend in chapter 4 elaborate on frameworks that were not conceived of exclusively to account for RD.

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[106] On the similar discourse-driven inherent functioning of both Frames and Inferences that SBM/CDG advocates, see also Fillmore (1982b), Barsalou (1992), Ross (1992), MacLachlan & Reid (1994), Boas (2000), Ensink (2003), Fried & Oestman (2003), and Kalliokuusi, Seppo-Seppaelae & Varantola (2003).

Corpus Token G (only in tables and graphs)[107]

Olá Vicente! ICH habe eine positive Überraschung für DICH
Hi Vic. I have a positive surprise for you
Hi Vincent I have a pleasant surprise for YOU
(nach DEM üblichen Mittagsessen UNSERER kleinen Seminargruppe in DER Mensa HEUTE früh…)
after the usual lunch of our small seminar group in the cafeteria today early
after OUR usual small-seminar-group lunch at THE school cafeteria early TODAY
Damit DU mitkriegst, daß es doch auch Deutsche gibt, DIE nicht ausländerfeindlich sind! ☺
So that you grasp that there sure also Germans are, who not foreign-unfriendly are
In order for YOU to understand/see that there sure are Germans too, WHO are not hostile to foreigners
MEIN Mann und *ich* möchten DICH zu UNS zu einer Abendgesellschaft einladen
My man and I would like you to us to a soirée invite
MY husband and I would like to invite YOU to a soirée at OUR place
Einfach so. Zum Spaß. Anatol, Annina, Daniel, und DIE ANDEREN kommen auch, klar
Easy so to the fun An., Ann., D., and the others come too sure
Just like that. For fun. An., Ann., D., and THE OTHERS are coming too sure
Hast DU schon was vor AM Samstag gegen 20:00?
Have you already something before on the Saturday around 8 PM
Do YOU have already any plans for THIS Saturday around 8 PM?

[107] The RD' informant for this token resorted to upper case to express emphasis in discourse fragment #3. We have been using this device in the current chapter, though, in order to give information or mental entities forcibly linked to the situation of language use the instance arises from. Therefore, we keep our policy and signal the emphasis the RD' informant meant by capital letters by means of underlining instead.

ICH hoffe DEIN Kalendar ist noch nicht dicht...
I hope your calendar is still not dense/closed/tight
I hope YOU are still free (not “booked out”)
Wenn es geht, bring mal was zum trinken mit, bitte
If it goes bring ok? something to drink, please
If it’s ok with YOU try to bring something to drink along, please
Los! (DAS GANZE dauert etwa fünfzehn Minuten zu Fuß)
Off! the whole lasts around 15 minutes on foot
Here we go! THE WHOLE THING lasts about 15 minutes on foot
Um zu MIR zu kommen, nimmst DU am besten ab Dammtor DIE S-Bahn Richtung Elbgaustrasse
In order to to me to come, take you at best from Dammtor the suburban train direction Elbg.str.
To come to MY place YOU take at best THE suburbain train bound for Elbg.str. at Dammt.
An DER DRITTEN Haltestelle (Diebsteich) steigst DU aus
At the 3rd stop (Diebs.) get you off
YOU get off at *THE 3RD* stop (Diebs.)
AM einzigen Ausgang gehst DU nach RECHTS
At the only exit go you to the right
YOU turn RIGHT at THE only exit available
und folgst einem kleinen Weg bis ZUR Straße
and follow a small way till the street
and YOU walk along a small way till THE street
An DIESER Straße biegst DU wieder RECHTS ab
At this street turn you again right off
YOU turn RIGHT again at THIS street
und musst durch einen S-Bahn-Tunnel
and must through a suburban-train tunnel.
and YOU must **GO/WALK** through a suburban-train tunnel

DIREKT NACH DEM Tunnel gehst DU LINKS
Directly after the tunnel go you left
YOU turn LEFT RIGHT AFTER THE tunnel
(DU überquerst dabei DIE Straße an einer Ampel)
You cross in doing so the street at a traffic light
You cross THE street at a traffic light in doing so
MEINE Straße ist dann DIE DRITTE auf DER LINKEN Seite
My street is then the third on the left side
MY street is then THE THIRD ONE to THE LEFT side
Wenn DU an MEINER Straße angelangt bist
When you to my street have come are
When YOU are on / arrive to / have arrived at MY street
biegst DU LINKS ab
turn you left off
YOU turn LEFT
und gehst bis ZUR Hausnummer 58
and go till to the house number 58
and YOU go to THE house number 58
Hoffe DAS hilft!
Hope this helps
I hope THIS helps YOU out
Bis DANN Ciao. Beata
Till then. Bye. Beata
Till THEN Bye. Beata

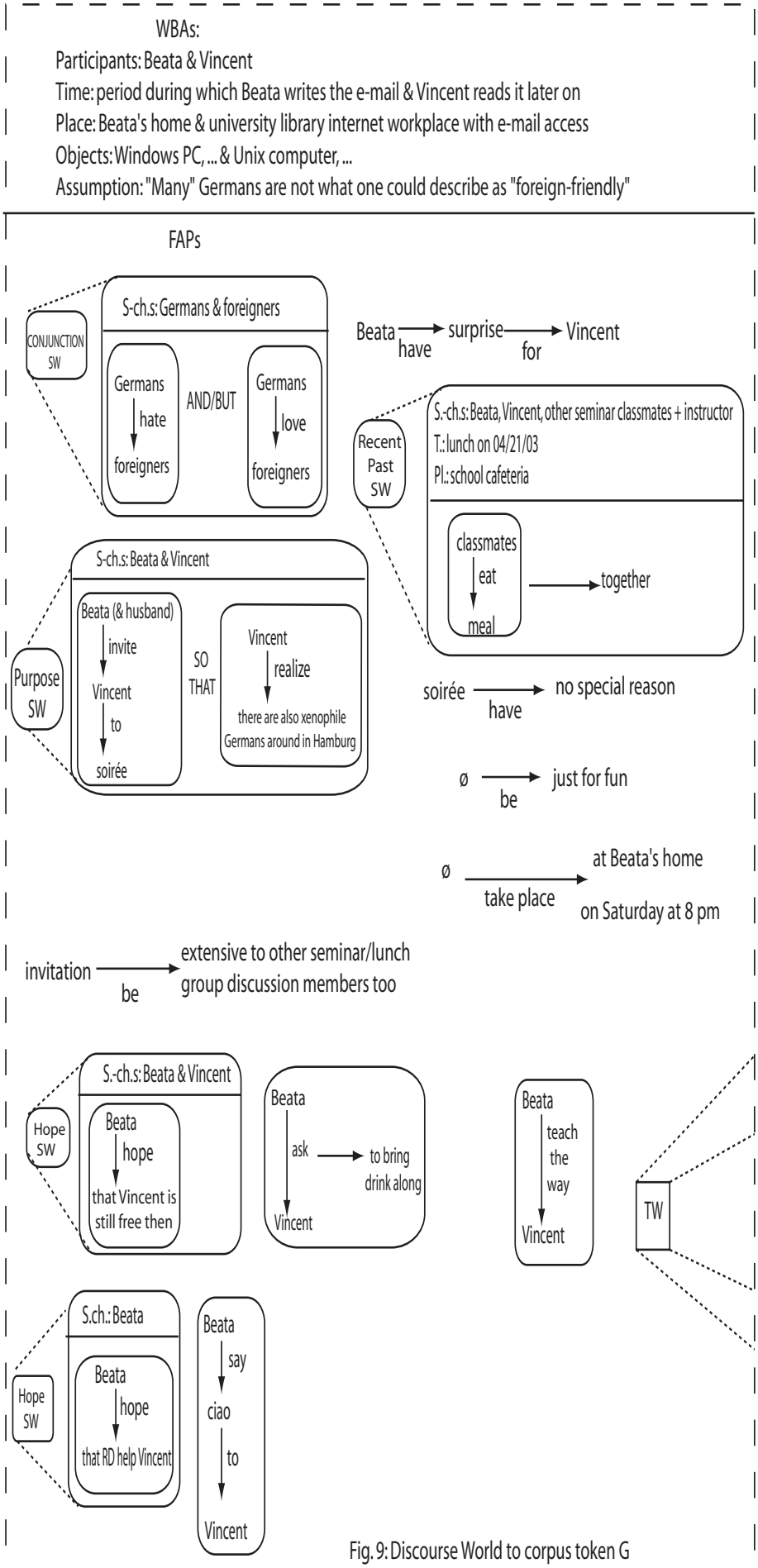


Fig. 9: Discourse World to corpus token G

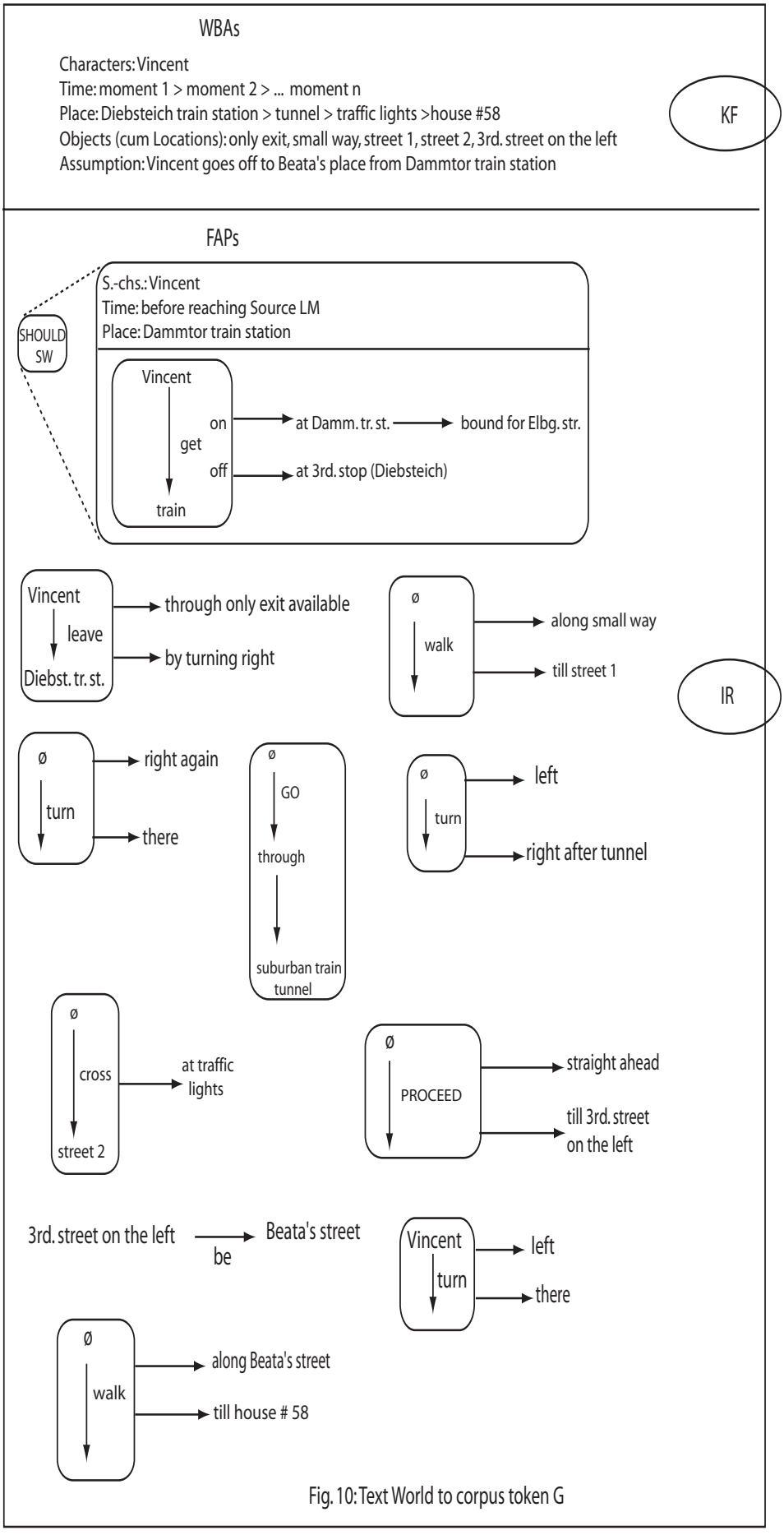


Fig. 10: Text World to corpus token G

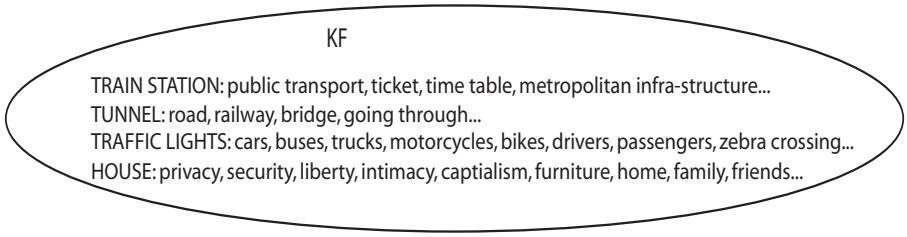
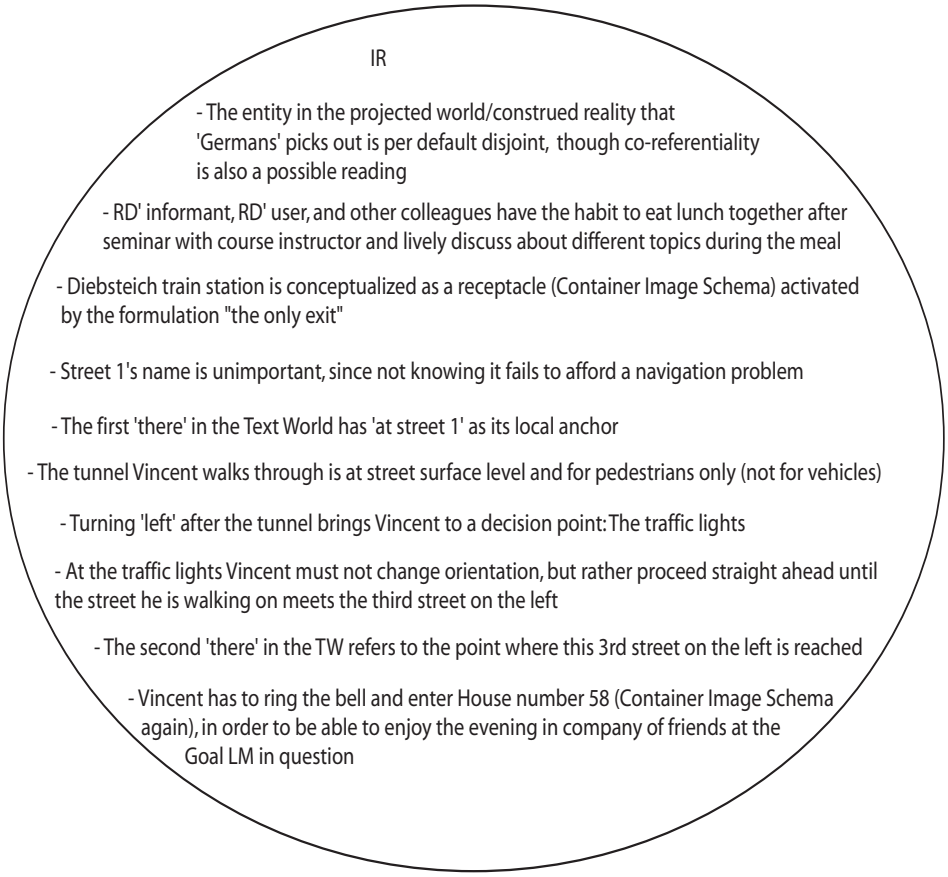


Fig. 11: Knowledge Framing and Inferential Reasoning to corpus token G DW + TW



Corpus Token H (likewise, only in tables and diagrams)

This token, *undated*, was written down on a sheet of paper and was lying in our PO box at the institute where we have pursued our doctoral studies. Nevertheless, since its RD' informant has soon later graduated and has gone to the US for a post-doc, we can approximately locate in time when this specific instance was contributed to our corpus, namely at some point close to the end of 12/2001. The part of this RD' token that has to do with self displacement riding public transport will be rather overshadowed by the part involving navigation on foot. This has been our standard policy since we delimited the current dissertation's object of investigation in chapter 1 (cf. p. 16 above).

Wenn DU zur Abwechselung nach der Arbeit einen kleinen Ausflug machen willst…
When you to the distraction after the work one small excursion make want
If YOU want, for a change, to make a small excursion for some distraction after work…
Start: Informatikum, WSV, Haus F, Z.409
Start Computer Science Campus Knowledge and Language Processing building F Room 409
Start: CSC KLP building F Room 409
Ziel: Firma Media Analizer.com, Alstertwiete 30, Hamburg
Goal: company MA.com, Alstertwiete 30, Hamburg
Goal: MA.com company, Alstertwiete 30, Hamburg
Verlasse DAS Gebäude und DAS Gelände
Leave the building and the ground/terrain
Leave THE building and THE campus area
Gehe ZUR Bushaltestelle DER Linie 181/281
Go to the bus stop of the line 181/281
Go to THE line-181/281 bus stop
SIE ist ca. 50 m LINKS VOM Pförtner aus
She is approximately 50 m left of the doorkeeper stand
IT is about 50 m LEFT TO THE doorkeeper stand
Fahre mit DEM 181 od. 281 ZUR Haltestelle Hagenbeck's Tierpark
Ride with the 181 or 281 to the bus stop HT
Ride THE bus 181 or 281 to THE Zoo bus stop
Steige in DIE U2 um und fahre bis ZUM Hauptbahnhof. DORT aussteigen
Get on the subway # 2 changing and ride till the Central Station. There get off
Change to THE subway # 2 and ride IT up to CS. Get off THERE
Verlasse DEN Bahnhof in Richtung Kirchenallee
Leave the station in direction Kirchenallee
Leave THE station in THE direction of THE Cherry Ave. (Kirchenallee)

Folge DEN Kirchenallee nach LINKS
Follow the Ch.Ave. to the left
Follow THE Ch.Ave./K.a. to THE LEFT
DU kommst an eine Ampelkreuzung
You get to a traffic-lights crossing
You come to a crossing with traffic lights
Gehe einfach GERADEAUS WEITER
Go simply straight ahead on
Go on just STRAIGHT AHEAD
HALBRECHTS VOR DIR siehst DU eine rote Kirche
Half to the right in front of you see you a red church
YOU see a red church BEFORE YOU HALFWAY TO THE RIGHT
Gehe ZUR Kirche und DARAN VORBEI (entlang DEN Kinderspielplatz)
Go to the church and then of it past (along the children playground)
Walk TOWARDS THE church and THEN PAST IT (along THE children's playground)
Biege HALBRECHTS in DIE Alstertwiete ein
Turn diagonally to the right into the Alst.tw.
Turn into THE Alst.tw. DIAGONALLY TO THE RIGHT
Finde DAS Haus mit DER Nummer 30
Find the house with the number 30
Find THE building THAT has THE # 30 on IT
Klingle bei "Steffen Egner" und fordere bei MIR einen Kaffee ;-) (sic)
Ring at Steffen Egner and demand at to me a coffee (smile)
Ring THE BELL at St. Egn. and demand a cup of coffee from ME (smile)

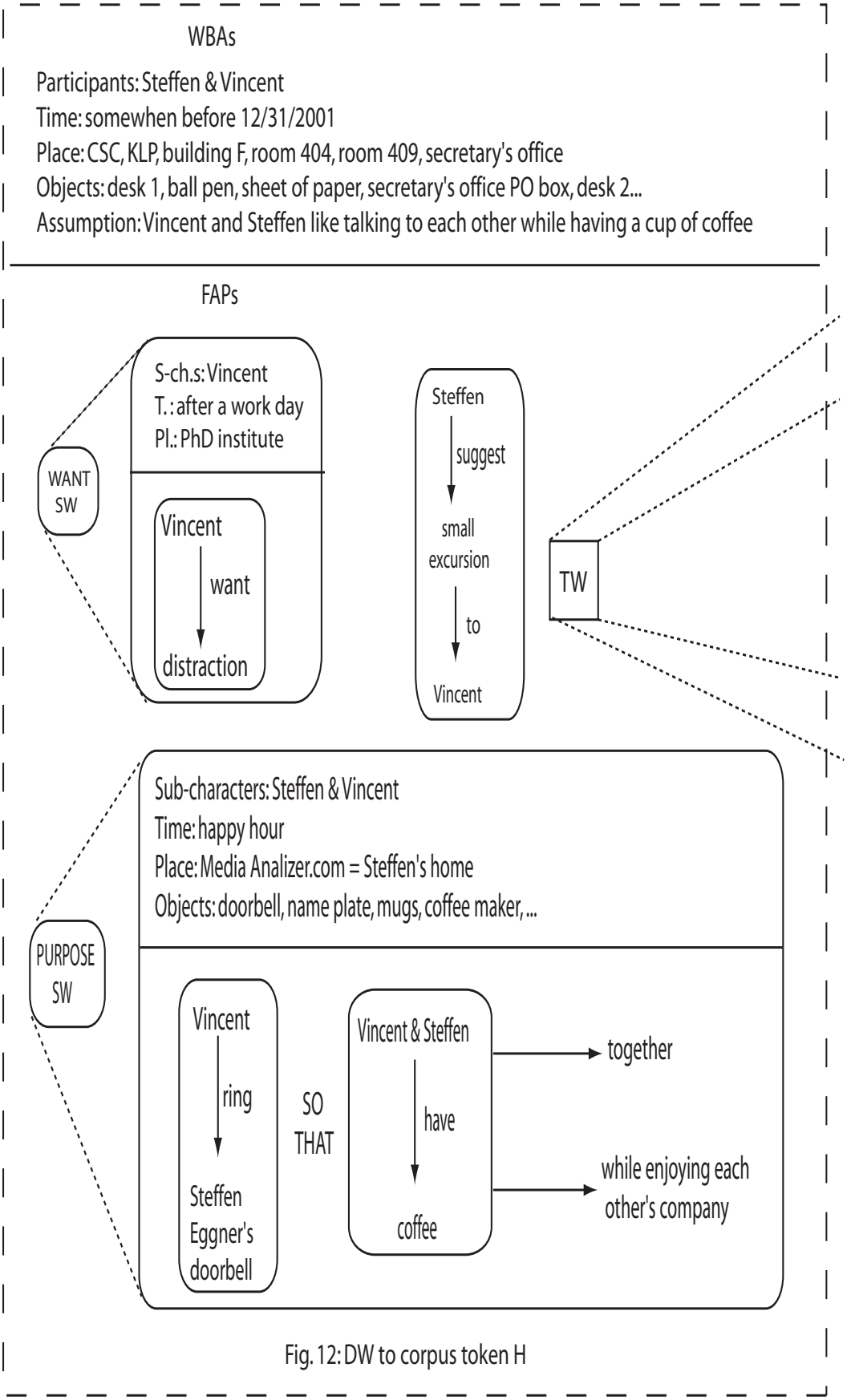


Fig. 12: DW to corpus token H

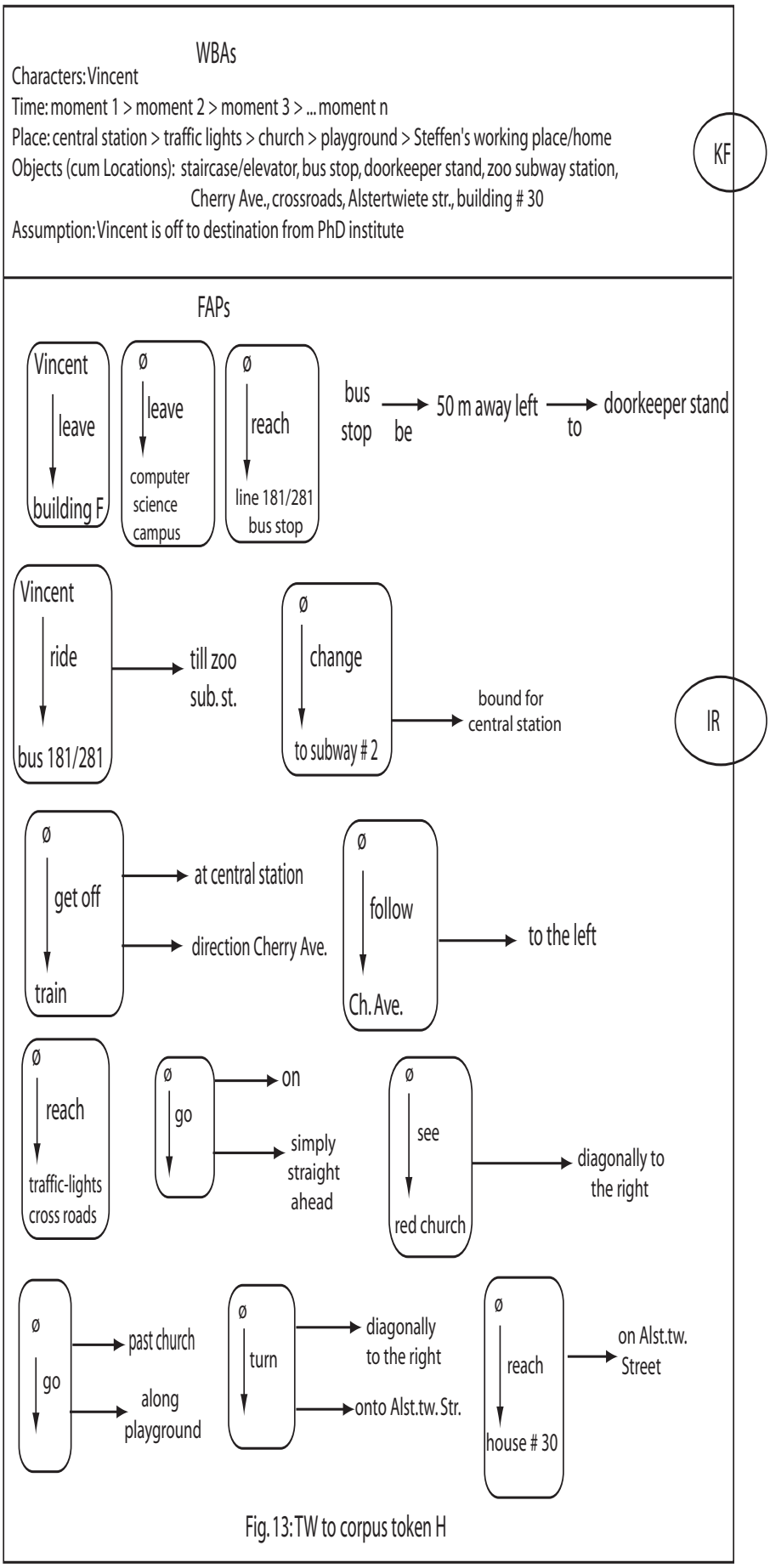


Fig. 13: TW to corpus token H

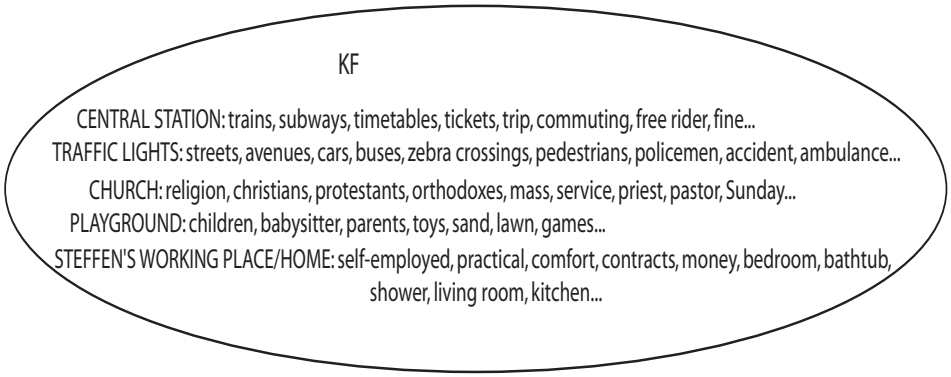
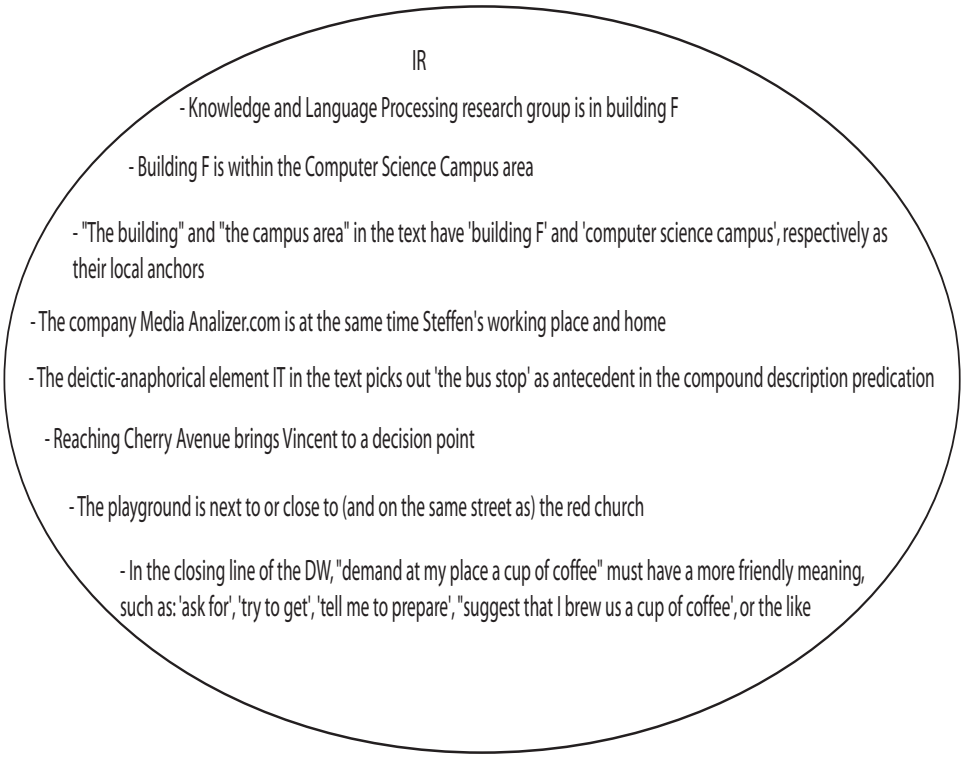


Fig. 14: Knowledge Framing and Inferential Reasoning to Corpus Token H



4. A Dialog Model Sketch for RD

4.1. Preamble

In chapter 1 of the current dissertation we set out on a journey to come up with a triple-faceted model that can account for the cognitive and semantic-pragmatic characteristics of RD as thoroughly as possible. From the very beginning, our aim was to approach the conceptualization and verbal semiosis pertaining to wayfinding instructions from a truly macro-linguistic perspective. Therefore, the present chapter rounds off this project, insofar as we hereafter see to it that we propose an outline to the dialogical nature of the itinerary descriptions that constitute our object of inquiry. Notwithstanding their strictly monological appearance, since we are dealing with spontaneous but still written language, be it gathered in hard format or *qua* e-mail data tokens.

As the title to chapter 4 clearly shows, the dialog facet to our proposals is no doubt less elaborate than the knowledge facet and the discourse facet that chapters 2 and 3, respectively propound. Nevertheless, we are convinced that the Dialog Model Sketch, (henceforth **DMS)** we shortly defend, still adds considerably to the careful scrutiny of the RD' tokens in our corpus.

Here is what chapter 4's structure looks like. First we present the main theoretical foundations DMS builds on. Then we advance DMS in itself. Next, we exemplify DMS in operation, applying it to two new instances of our data sample. And finally, we indicate how Pascual's (2002) development of the Mental Spaces theory can lend further support to the case DMS argues for.

4.2. Major psycholinguistic anchors

The naturally occurring linguistic performance communicative acts / events that we decided to investigate for our doctoral research consist in wayfinding instructions in written German. Considering the specificity of the data, one could be tempted to think that the instances of RD we amassed for analysis amount to nothing but monological discourse. In other words, we are not dealing with spoken language modality. However, the elusive monologism trap is a trick that does not deceive the true wise socio-cognitive linguist / pragmatist that easily. After all, dialogism permeates all kinds of meaning construction in everyday real language use, no matter what *genre* or text type one may happen to examine (Linell, 1998; Jay, 2003). If we may borrow the former's words, p. 35, emphasis in italics in original, emphasis by underlining added:

> "Dialogism will stress *interactional* and *contextual* features of human discourse, action, and thinking. Putting it in somewhat loose and metaphorical terms, we look upon the individual who indulges in communication and cognition as being 'in dialogue'

> with (various kinds of) interlocutors and contexts. The description and explanation of language and language use must be based on a theory of human action and activities in cognitive and interactional contexts. More specifically, we deal with communicative actions which are other-oriented (and *mutually other-oriented*) in character, i.e. they must be couched in social-interactional, rather than intramental and individual, terms. The other-orientation is there even if the other is not actually co-present. (I will use the term 'virtual other' for the (intended or imagined) partner in (seemingly) monological activities, e.g. in many cognitive activities performed by individuals when *not* interacting with an actual, co-present person.) Dialogism stresses the contextual nature of interaction, and the relevant contexts are not only situational but also sociocultural, i.e. historically constituted."

The latter researcher alluded to in the end of the previous paragraph corroborates such a position. After all, his quoted volume also highlights how powerfully language processes take effect and how important verbal behavior turns out to be in trivial social context dynamics. Jay (2003) follows the Austinian steps in demonstrating how much people accomplish by doing things with words day in day out during their communal networking. Concepts such as 'writing and reading', 'thought in figurative speech', as well as 'linguistic embodiment in various emotional and social settings', to mention just a few, are among those that make this publication particularly worth paying attention to as regards the way DMS and SBM/CDG inextricably interweave.

4.2.1. Herbert Clark (& co-workers)

As we have every now and then acknowledged, H. Clark has been – either alone or together with various supporters – doing research on a handful of quests that render his academic career extremely significant to this chapter and to the arguments the current dissertation defends as a whole. Merely as an illustration, and not repeating here the bibliographical references the previous pages have quoted so far, we could mention, *inter*

alia, Clark (1973), Morrow & Clark (1988), dealing with the spatial[108] conceptual domain *per se*; Clark (1985), on the importance of linguistic performance; Clark (1991, 1996b), having to do with the 'projected world' and the interactants' 'verbal construal of material reality'; Clark & Schober (1992), Smith & Clark (1993) on question answering; Clark & Wilkes-Gibbs (1986), Isaacs & Clark (1987), Clark & Bangerter (2004), on indexicality; Clark & Brennan (1991), Wilkes-Gibbs & Clark (1992), explicitly treating Common Ground;[109] Clark & Bly (1995), Brennan & Clark (1996), related to the conceptualization of pragmatics; and Clark (2003), which handles part of the multimodality inherent in the cognitive tasks of locational fixing and spatial memory, as they interface with natural language communication events.

Yet, we will concentrate here on three moments of Clark's scholarly production that happen to be of maximal relevance to our DMS proposal. In the current section, we take up his independent work on virtual interaction (Clark, 1999), and his partnership-treatment of imagination and narrative, building on a theatrical metaphor (Clark & Van Der Wege 2001, 2002). Then, in section 4.3, we examine his co-conducted research on monitored interaction (Clark & Krych 2004).

True, the itinerary descriptions for the navigation on foot within the metropolitan area of Hamburg we set out to modelize are not co-construed *in praesentia* by the interactants involved in this meaning negotiation process (RD' informant and RD' user). Nevertheless, albeit

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[108] As we soon demonstrate, Clark & Van Der Wege's insights with respect to fictional worlds is congruent with our conceiving of Space as the final frontier, following Werth (1999). Jahner (2004) corroborates this position. It compares oral and written narratives *qua* conceptual devices people of different cultures use – sometimes alike, sometimes not so – in order to define and anchor themselves within the arguably most basic of all cognitive domains: The spati(o-tempor)al dimension of thought and natural language semiotic dynamics.

[109] On this core notion to both DMS and SBM, see also Van Dijk (2003b: esp. 23-33).

packages of 'disembodied[110] language' (Clark, 1999) – since the interlocutors are actually *in absentia* – these RD still consist, we sustain, in 'joint projects/ventures/activities' between their writer and reader. Clark (1999:43, italics ours) is kernel at this point:

> "Disembodied language is language that is not being produced by an actual speaker at the moment it is being interpreted. That type of language is all around us (…) and yet it is poorly understood. (…)
>
> [It] takes two main forms. One is *written language* – newspaper articles, novels, *cook books, street signs*, food labels. The other is mechanized speech – pre-recorded television shows, recorded telephone messages, books on tape, pre-recorded fire-alarms ('There is a fire in the building: Leave immediately by the nearest exit'). Both forms are exploited in computers, so it is important to understand how they work."

Notice that when the psychologist enumerates a few text/discourse categories that belong to 'disembodied language', he gives two types that have to do very closely with the one we examine here. After all, if we want, RD can be seen as a mixture of 'cook books' and 'street signs'. They are primarily instructive in essence and considerably descriptive in quality, and serve the function to assist someone to arrive at a certain destination in an unknown environment or surroundings. In other words,

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[110] Despite the same nomenclature, the content load Clark has in mind has nothing to do with the pertinently criticized 'disembodied mind' concept that Kosslyn & Robin (1999:388) speak about in their encyclopedic entry. Kosslyn & Robin deal indeed with themes related to our object of investigation, since the article mentions 'RD *qua* imagery task', 'routes as imaged objects', RD as visualized 'depictive representations which use space to represent space', and image construction, maintenance and transformation with regards to 'remembering the way to get to the train station…'. On spatial memory and RD see also Allen (2004). Still commenting on Kosslyn & Robin's (1999) rationale, we should observe that their looking askance at the generativist focus on the 'dis(in)carnate subject' (e.g. as in Chomsky, 1975) has been for long advocated or at least been object of a heated debate in the (socio)cognitive-functionalist literature to date. Cf. e.g., Piatelli-Palmarini (1980), Moura-Neves (1999), Oliveira (1999), Salomão (1990, 1997, 2002, 2003c,d), Basílio, Salomão, & Martins (2002), Keller & Keller (1996), Ochs, Schegloff, & Thompson (1996), or Putnam (1980, 1981, 1988).

they are “recipes” but not of the“how-to-bake-a-cake” variety, but rather of the “how-to-reach-a-place” suit. In Clark’s terms, “a street-sign-like cook book’s page.” They are manuals to enable their receivers to successfully get somewhere they have not been to yet.

To make a long story short, here is the main rationale Clark (1999) puts forth: Written language *qua* one form of ‘disembodied’ verbal behavior relies on ‘layering’ – in a quite similar way to the fractal architecture CDG/SBM makes the case for – in order to reveal the dialogical character peculiar to whatever real communicative act one might entertain. Moreover, the thrust of the paper lies in the proposal that written language (as well as mechanized speech, although this second form does not interest us here in particular) is a representation of the embodied language it is mentally construed from. Such a representation requires that the interactants at stake collude in intended imagination for them to be able to achieve something together in the ‘real world’ thanks to the very ‘joint pretense/undertaking’ that they voluntarily engage in, albeit at a distance, since incorporeally.

Clark & Van Der Wege (2001, 2002) take the argument a step further, concerning narratives. And we want to expand their move here, by applying it specifically to RD. We maintain that what Bangerter, Clark, & Katz (2004:1) hold for face-to-face verbal behavior, as well as for dialogs over the phone, is also ineliminably inherent to the co-construal of semiosis undertaken by RD’ informant and RD’ user virtually co-present at the communicative events in our corpus, namely, that (emphasis added):

> “*In conversation*, *the participants* do not just speak – they *do things together*. These joint actions are normally the reason for their encounter, and their talk is shaped by the need to coordinate them. To understand what people are doing in conversation, one must understand the joint activities they are engaged in.”

And how is that valid for the material DMS sets out to analyze? The two co-authored papers in the beginning of the previous paragraph

drop us a helpful hint about what the answer to this question should look like. Let us take them one at a time. Clark & Van Der Wege (2001) convincingly demonstrate in which way narratives are a kind of discourse eminently constructed on imagination. They give six types of evidence for their argument, three of which we hereafter focus on – '**visual and spatial representations'**, '**deixis and point of view'**, and '**mimetic props'** – in order to advance our DMS proposal.[111]

Quoting Clark & Van Der Wege (2001:773, our emphasis) is inevitable in this context:

> "When people tell stories, and when they listen to them, they think about what is going on in the worlds being described. (…) People appear to create **visual or spatial representations** as they understand many utterances. (…) They must (…) [represent] not [each] sentence per se, but the scene [it describes] – possibly in the form of a visual or spatial image. People need to create imaginal representations simply to interpret [even] single words."

Clark & Van Der Wege (2001) go on to show the essential role viewpoint plays in telling and hearing a story. After all, "when the main character in any narrative "moves from one place to the next, his **point of view** changes too. We are to imagine the world as he sees it passing through it" (*idem*:774). Note how this paraphrases the 'imaginary journey/walk' chapter 2 advocates mainly after Klein's insights. Clark & Van Der Wege (2001) follow, among others, Fillmore (1981), Bühler (1982), and Duchan et al. (1995) to prove that the notion of '**deictic center**' – which Perry (1979) had already coined 'essential indexicals' – is

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[111] The other three evidence types – gestures, voices, and emotion – are not directly or so much conspicuously applicable to the text type DMS purports to dissect, considering the specificity of our data tokens. Yet connections with RD in general, i.e., different sub-varieties of wayfinding instructions from the particular ones in our corpus, could also be found, in a transferred sense.

pivotal in telling/comprehending a narrative. They report results different scholars arrived at on how abrupt or sudden breaks in a character's point of view cause performance problems in the production of the text *genre* in question. Besides, Clark & Van Der Wege (2001) adduce experimental support by several researchers on how unexpected viewpoint changes disrupt the content reception of the story being told.

We come now to the third piece of evidence that we find it appropriate to highlight, namely, '**mimetic props**'. The basic idea here is that different *media* resort to different "devices that aid directly in imagining the story world, [by] induc[ing] different thoughts, experiences and emotions" (*idem*:779). In other words, specific to the *medium* at stake – theatrical play, radio play, audiotaped novel, spontaneous story (as in a joke, for instance), puppet show, movie, TV comedy, soap opera, film cartoons, comic book, song, pantomime, etc. – the expedients available to the discourse interactants to engage their imagination in effectively and vividly being transported to the story world will differ: Direct speech, free indirect speech, expressive direct speech, iconic as well as pointing gestures, actors themselves, limited (or rich) scenery, sung speech, sound effects, (limited) visible enactments, naturalistic speaking, close up, expressive and/or background music, and so on…

The point is the following: The basic idea DMS claims is that the RD under scrutiny are a kind of spontaneously occurring "narrative", in an informal sense of the term. The RD' informant resorts to such a "tale" in order to induce the RD' user to engage oneself in a storyworld based on imagination: The experience of carrying out self-displacement in an unfamiliar environment. Now, the mimetic props such a storytelling resorts to are Paths proper (Pspr) and prototypical Landmarks (LMs), as advocated in chapter 2 above. In other words, these are the primary expedients available to the interactants at a distance in order for them to collude on a joint pretense, and enact, in imagination, the "adventure" of going from Source to Goal that the story consists in.

Clark & Van Der Wege's (2002) approach to fictional worlds[112] allows us to take the argumentation a step further. For the sake of brevity, we do not need to repeat here the breadth of this article. Suffice it to say that the authors provide us with a reappraisal of the main elements in the psycholinguistic agenda, scoping over, *inter alia*, 'communication'; 'language settings'; 'joint activities and joint projects'; 'speech acts'; 'Common Ground establishment, maintenance, and updating'; 'perspective taking' and its interaction with 'propositions', 'subject and predicate', 'Figure and Ground', and 'Given vs. New information'; 'functional processing'; 'abductive reasoning'; 'Frames'; 'implicatures'; 'interpretative heuristics'; 'different meaning signaling methods'; and several 'discourse representation topics', among which the following paragraphs spotlight two of primary concern in this context, namely, 'staging' and 'enactment' *qua* features of 'imaginal props', as they rename the mimetic props we have just discussed from their 2001 paper.

Clark & Van Der Wege (2002) stress indeed that the essence of language use in its natural habitat is to be found in spontaneous face-to-face talk having to do with the 'actual world' and people's representations thereof. Yet, the article (p. 250, italics retained, underlining added), also concedes that, in order for people to represent fictional situations, they must irrevocably engage in a joint pretense, which encompasses at least four types of phenomena:

> "*Experience*: People experience selective features of the narrative world as if they were actual, current experiences. These include visual appearances, spatial relations, points of view, movement and processes, voices, and emotions.

[112] Note that Palmer's (2004) conception of narratives (roughly as storyworlds that pile up in the writer/reader's mind and in the mind of the characters) is similar to Clark & Van Der Wege's (2002) stance, which DMS builds on.

> *Imaginal props*: People's imaginings appear to be aided by well-engineered imaginal props, such as direct quotation, gestures, stage sets, sound effects, and background music.
>
> *Participation*: Speakers and writers design what they say to encourage certain forms of imagination, but listeners and readers must cooperate with them to succeed.
>
> *Compartmentalization*: In participating in narratives, people distinguish their experiences in the story world from their experiences in the real world."

Let us try to see how this concession relates concretely with the DMS proposal we further advance in sections 4.3 and 4.4 below.

Very briefly, 'experience' reminds us of one among those essential tenets, if not THE most essential tenet, that the cognitive linguistics stance which chapter 3 advocates embraces. 'Participation', by its turn, has to do with the partnership that even interlocutors at a distance are in, whenever their verbal semiosis – as it is the case here – pertains to the written language modality (or, say, they are talking over the phone). 'Compartmentalization' is nothing but a technical term which paraphrases the 'layering' inherent to joint activities in linguistic performance in Clark's parlance, or the 'fractal nature' of SBM/CDG in the wording the previous chapter has minutely defined, besides its connection to the notions of 'projected world' and 'construed reality' this dissertation has been invoking. 'Imaginal props', tough, deserve scrutiny in a bit more detailed fashion from the current thesis at this point.

As we have already seen when the previous paragraphs highlighted Clark & Van Der Wege's (2001) importance for the present chapter, different *media* convey one and the same narrative in different ways[113].

[113] Or, more accurately, different *media* ignite in different ways the construction of the same (or quite similar) basic content load, considering the indeterminacy of

More concretely, Clark & Van Der Wege (2002) show that all in all there are five possible stratagems to engage the audience engrossed in a fictional world: 'Quotations', 'iconic and deictic gestures', 'enactments', 'staging', and 'sound effects'. Since, out of these five, three are exclusively or primarily linked to the oral language modality – 'quotations' optionally so, by on-purpose voice change; 'iconic and deictic gestures' and 'sound effects' necessarily so, for obvious reasons – we focus here on the two remaining ones, which allow exploration also by communicative acts/events that ensue from written verbal behavior.

Enactment, as the word suggests, would be the set of devices in oral venues for fictional language according to which the actor plays the character/part that the drama stipulates and the director assigns him or her. While the actor is playing his or her part, what the actor looks like, their voice, body language, and so on will match or not the idea the audience to this stage performance first had of the character in their mind: The idea the audience made as they got in touch with the plot/script to the play by reading the story as a novel, for example, in the first place, before coming to the movie theater to see it put off, say. For the case we want to make here for DMS, though, enactment means the palette of manners the RD' informant has in order to perform the teaching-the-way task. Enactment for DMS amounts to any means according to which the RD' informant functionally achieves what the RD' user expects from her, namely, to conceptualize, in a sequence of 'local views', the "saga" of an Agent moving from a starting point to an intended destination. To mention just two elements out of this array of means, take for e.g. the switch from route

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meaning in relation to form, or, put differently, the maxim à-la-Fauconnier 'expression underspecifies semiosis' that we tenaciously adhere to, as chapter 3 above has demonstrated *in extenso.* This is precisely why we have been careful to hedge our proposals with 'reminiscently', 'suggestively', 'indicatively', 'redolently', or the like, whenever we use the verb 'convey', or talk about the semantic-pragmatic import 'carried over' by the message that the RD' token under discussion provides the interactants with as semiotic trigger.

to survey perspective that Montello et al. (2004) reiterate,[114] as well as the correcting formulations à-la Clark & Krych (2004), which sections 4.3 and 4.4 below discuss with care. In a nutshell, as chapter 2 argued after Denis, teaching someone the way can be done by telling the addressee to follow you, by drawing him or her a route, or by providing the wanted information verbally. The specifics to each of these variants would be the enactment options available to the person furnishing somebody with wayfinding instructions at large.

Staging, as Clark & Van Der Wege (2002:249) sum up, includes all the "tricks of the fictional trade", all the 'scenery-supporting' devices that "the production crew engineers, such as scene changes, timing, close-ups, and other features, to help engross the audience in the right fictional world." Applied to our object of inquiry, these would cover the different verbalizations a RD' informant can choose from in order to concatenate Pspr and LMs in cohesive arrangements all along the route in question. Good staging (= a felicitous wording) selects mental elements salient enough and patches them together so that the RD' user may visualize the track from the Source to the Goal as unambiguously and sharply as feasible. Bad staging, in contrast, is what you have when an infelicitous wording ends up failing to engross the audience in the right fictional world. That is to say, linguistic expressions that do not enable the addressee to visualize the constellations of mental entities as they relate among themselves along the route at issue.

Sections 4.3 and 4.4, we repeat, examine how Clark & Krych (2004) contribute other insights for us to finish up sketching DMS. Yet, before doing that, it is perhaps appropriate to see how a separate strand of research provides support for the claims DMS makes by elaborating on the Clarkian tradition particularly concerning RD as well.

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[114] Since chapter 2 went over such perspectivization changes in detail, we do not bother to explore the issue further at this point.

4.2.2. Gary Allen

Indisputably, Gary L. Allen has been for decades, either alone, or with various collaborators, so active in developmental and cognitive psychology that the outcome from this dedication stands out *a fortiori*. His research interests range from spatial cognition to declarative learning, and he is involved in several major projects nowadays that deserve our careful attention. Particularly notable is his contribution to the Grammar of Space field, as chapter 1 above invokes, which for instance the following publications illustratively attest: Allen (1982, 1997, 1999a,b, 2000, 2004b), Allen & Haun (2004).

Out of this tiny sample, though, we hereafter take just one paper, namely Allen (2000) in order to examine it somewhat minutely as THE representative of the psychologist's individual or team-work-like investigation, which most closely supports the Clarkian arguments we have stressed in the previous pages to the present chapter.

Allen (2000) begins by recapitulating the major research on RD within psycholinguistics and cognitive psychology that had been till then conducted by prominent scholars such as Talmy (1975b), Klein (1982, 1983), Wunderlich & Reinelt (1982), Johnson-Laird (1983), Myers-Scotton (1987), Vanetti & Allen (1988), Freundschuh et al. (1990), Taylor & Tversky (1992a,b), Couclelis (1996), Denis (1996, 1997), and Daniel & Denis (1998), among others.[115]

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[115] Assuming, from our personal experience, that the off-print Myers-Scotton (1987) is the only reference in the list the reader will have difficult access to, we provide here a short synopsis to the talk: The main point of the paper is to prove that the spatial textual *genre* which RD constitute is construed by the interlocutors involved, probably uncounsciously, in a way that amounts to quite remarkable prototype-effects. "In direction-giving, speakers form a clear consensus as to what is the unmarked discourse structure. (…) At least for its constituent parts, direction-giving is a clearly conventionalized exchange for which community members share a sense." Myers-Scotton (1987:10) Compared with other formulaic exchanges such as buying a train ticket, RD routines were expected to encourage more disparity (in terms of gender

Allen (2000) elaborates on the starting point these scholars' conclusions represent and sheds more light on the conceptualization and semantics-pragmatics behind itinerary descriptions. Crucially, the paper does that from the cooperation-between-interactants perspective that DMS defends. In other words, Allen (2000:333, italics added) also advocates the partnership-like co-construal of verbal semiosis stance that the current chapter argues for:

> "The potential theoretical richness of this problem – the production and comprehension of wayfinding directions – stems from the series of transformations required in the context of communication. In the case of RD, spatial knowledge of a large-scale environmental area, which itself is the product of perceptual and perceptual-motor experience, is transformed into a set of verbal productions. In comprehending and following RD, the listener constructs an action plan from the set of verbal productions and refers to this plan during travel. Thus, *comprehending and following RD are outcomes of a collaborative, goal-oriented communication process* (Clark, 1992, 1996; Golding et al., 1996)."

And the psychologist goes on to investigate experimentally how effective a certain set of wayfinding instructions is *qua* an episode of route communication in ordinary life. But first he summarizes the structure and components pertaining to RD by dividing the route communication episode à-la Wunderlich & Reinelt (1982). Allen (2000:334, our emphasis) thus presents an outline of the constituents inherent to RD that matches by and large the proposals chapters 2 and 3 above put forth:

> "RD involve specific components, most importantly, <u>environmental features</u>, <u>delimiters</u>, <u>verbs of movement</u>, and

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differences, as regards the extent to which the overall internal structure of the sequence varied across speakers and addresses, for instance) than the study could confirm.

state-of-being verbs. Principles and practices influencing the relative effectiveness of RD are concerned with the organization and distribution of these components. Thus, each requires a brief description.

E.f.s are nominals that refer to objects, both artificial and natural, or attributes of objects that can be experienced observed along the path of movement. *Landmarks*, pathways, and choice points are the most common e.f.s used in RD. (…) A Landmark may be described as an e.f. that can function as a point of reference. (…) In essence, LMs serve as sub-goals that keep the traveller connected to both the point of origin and the destination along a specified *path of movement*. *Pathways* are nominals that refer to actual or potential channels of movement such as streets, sidewalks, or trails. (…) *Choice points* are nominals that obviously refer to places affording options with regard to pathways, with intersections being the most typical example (…)

Delimiters are verbal devices that constrain or define communicative statements or provide discriminative information about e.f.s (Allen, 1997). *Distance designations* specify (…) spaces separating points of reference, [while *d*]*irection designations* include relational terms to specify a spatial relationship between the traveller and e.f.s or between (…) e. f.s.

V.s-of-m. and s.-of-b.-v.s yield different types of communicative statements. [The former], which can be distilled semantically into either 'go' or 'turn', connote directives, which prescribe where the traveller is supposed to go. [The latter], which are reducible to 'is', connote descriptives, which provide the traveller with information about relations among e.f.s along the route, [as well as] refer to perceptual experience. Directives and descriptives can be used to provide the traveller with different *perspectives* along the route (see Tversky, 1996)."

The outline the quotation above encapsulates shows congruence with the ideas ADKM and CDG/SBM endorse. Maybe even more

significant for DMS though, is the nature of the approach that the cognitive psychologist takes, in line with recent discoveries in discourse processing and psycholinguistics,[116] in order to empirically investigate what differentiates good from poor itinerary descriptions. This is because such an experimental quest aims at recognizing best practices and overall principles that optimize the verbal semiosis of RD in a fashion all in all congenial with the argument the present chapter makes the case for.

Allen (2000) examines how relevant the following three principle-based practices are for/to effective route communication episodes:

=> The principle of natural order (PNO), based on Levelt (1989)

=> The principle of referential determinacy (PRD), based on Clark & Wilkes-Gibbs (1990/1986), and Clark (1992, 1996)

=> The principle of mutual knowledge (PMK), once more based on Clark (1992)

We refrain here from describing the methodological *minutiae* of the experiments Allen (2000) conducted to test assertions predictable from these three principles and practices. However, to say a word about PNO, PRD, and PMK before we relate Allen's empirical conclusions does seem to be desirable at this point. Very briefly, PNO, which Levelt (1982) had already introduced as a tacit rule inherent to successful communication events in ordinary spoken language use, chapter 2 of the current dissertation dealt with when we treated the natural response to the 'linearization problem' that by default characterizes effective instances of wayfinding instructions.

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[116] As, for instance, Landau & Gleitman (1985), and Talmy (1995) mirror.

PRD and PMK, by their turn, are related and have to do with – in Allen's terms – the concentration of 'delimiters' and that of 'descriptives' around 'choice points' to afford wayfinding instructions that provide more reliable navigational aid. Definitely these are issues we have also been concerned with previously. In chapter 2 we examined the RD' informant's strategy to provide a heavier load of prototypical Landmarks at decision points in order to make sure that the RD' user will be able to visualize the cognitive map around the route in question appropriately. And LMs in general are selected based on the salience that informant and user are expected to mutually agree on as regards the orientational function such beacons serve, which chapter 3 reiterated, by highlighting the Frame activation that Place markings at TW level trigger. Allen (2000:335-6) summarizes:

> "PRD is concerned with reducing uncertainty along choice points along the route. The challenge of giving useful instructions [in general: NOT yet specific to RD] is to establish and maintain Common Ground between interlocutors (…). Now, CG while understanding and following RD is in jeopardy when multiple courses of action are possible, as at intersections, e.g.. Maintaining CG by reducing uncertainty suggests a principle of referential determinacy. Including a number of direct definite references (…) in describing choice points is one way to achieve referential determinacy by making it clear exactly what environmental features will be encountered by the traveller at choice points and how he or she should respond. PRD encompasses two practices (…), one involving the density of delimiters in choice point statements, and the other the use of descriptives in conjunction with choice points. These facilitate orientation and correct path selection at choice points and thus increase the likelihood of arrival at the specified destination.
>
> PMK, by its turn, concerns the selection of delimiters. It emphasizes the role of shared knowledge in facilitating CG during communication. The delimiters included in RD should be appropriate for the environment and for the traveller. For

> example, city blocks are more useful than meters as a unit of distance if an urban area is laid out in a square grid. And references to cardinal directions may not be useful if a traveller is either not accustomed to or not facile with such a frame of reference."

The five experiments Allen (2000) runs to test PNO, PRD, and PMK at the same time check conclusions advanced by prior research concerning discourse processing (e.g. Ohtsuka & Brewer 1992), image construction (e.g. Denis & Cocude 1992), 'anchor-components' in verbal descriptions (e.g. Ferguson & Hegarty 1994), or gender differences with respect to LM density (e.g. Galea & Kimura 1993). Coming straight to the results, the three hypotheses that were experimentally tested by Allen (2000) proved the effects that had been anticipated for the study: RD' protocols consistent with the three principles examined turned out indeed to be more effective, as expected, than those not consonant with PNO, PRD, and PMK.

Sure, the experiments Allen (2000) carries out deal with memory-recall navigational task performance from RD conveyed orally. Therefore, they all have to do with the spoken language modality. Nevertheless, since the current investigation focuses on rather naturally occurring, usage-based, colloquial written language material, we maintain that Allen's results can be extended to our data and hence do endow evidence for the overall proposals we defend. After all, Allen's emphasis on the collaboration between informant and user RD subsume, as well as his underlining the role Common Ground plays in the verbal semiosis of this particular spatial discourse type amounts to an approach that matches the perspective our triple-faceted model subscribes to roundly.

4.3. A more concrete outline of DMS

As the last paragraph in the previous section reinforces, the material we gathered for analysis is rather informal in style. For example, the tokens ammased electronically contained typos here and there we had to edit, and the handwriting in the hard-format tokens was sometimes difficult to read. In other words, the instances were produced in a casual, conversational manner. We could thus practically say that the data under scrutiny lie on the borderline between spoken and written spontaneous linguistic performance. Therefore, it is arguable to maintain that recent findings pointing to an interactional constructivist approach to spoken verbal semiosis[117] may also be applied to the meaning negotiation enterprise that each RD' token in our written corpus amounts to.

In other words, despite our not being concerned here with oral language use, this dissertation holds that the communicative events it investigates still have a dialogical dimension. This is because, albeit incorporeally, RD' user is also present, and actively so, during the signification-building process that the linguistic forms the RD' informant furnishes trigger. In the introductory chapter to the current dissertation, we have anticipated how this collaboration *in absentia* ensues during the on-line conceptualization and meaning construction dynamics of the RD in our corpus. Specifically, we would like to highlight in this context the functional principle of economy, which, roughly, determines that human beings do their best to achieve the most gain out of the least effort possible; as well as the golden rule, loosely put, "Union is Strength", that seems to be fundamental to our (often unconscious) insight that two persons working together afford already much more than one person working by oneself.

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[117] Cf. in this regard, among others, Clark & Fox-Tree (2002), and Morato (2004).

The former maxim is mirrored in various publications, as *inter alia* Levelt (1983), Grice (1989), Bock & Levelt (1994), Givón (1995), Levinson (2000), Van Valin (2001), and Clark & Krych (2004) attest. Likewise, the latter rule of thumb is reflected in another number of articles, as for instance, Geluykens (1988), Schegloff (1982, 1991), Streeck (1994), Traum (1994), Traxler & Gernsbacher (1992, 1993, 1995), Levinson (1995b), Bavelas & Chovil (2000), Engle (2000), Kraut, Gergle, & Fussel (2002), Trautmann (2004) and Clark (2004) exemplify.

Definitely, Levelt's findings about the mechanisms according to which speech production takes place are simply too relevant to pass unnoticed. The volume edited by Pechmann & Habel (2003) is only the tip of the iceberg to reinforce this evaluation. However, the state-of-the-art research on dialog studies – cf. Bangerter & Clark (2003); Bangerter, Clark & Katz (2004); Clark & Krych (2004) – demonstrates that linguistic performance must be approached from a '**bilateral perspective**'. And Levelt's scholarly work is, as the last of these three articles puts it, indeed "implicitly unilateral", since it was not conceived of in the first place to explicate language use from an interactional point of view. Such a co-construal approach to verbal behavior wholesale is exactly the perspective we advocate here to further dissect our RD' instances by making the case for DMS.

Therefore, DMS defends viewing the RD' tokens that constitute our corpus as 'language games'[118] whose semiotic load is conceptually built by the interlocutors in partnership. Although we are not dealing with oral language modality, informant and user still coordinate at a distance to collude on a meaning construction. The interactants engage in a joint pretense to conceptualize together the RD as a narrative. A narrative the RD' informant comes up with to engross the RD' user as a virtual partner

[118] For how significant the late Wittgenstein's legacy remains to the contemporary philosophies of language and mind see Martins (2001), and Glock (2001), among others.

in a storyworld based on imagination: A story about how the addressee (the RD' user) is to find the way around and reach a certain place in an unfamiliar environment. The point is that the RD' user, unfleshed but all the same perceptibly present, engages in a duo with RD' informant *in absentia*. In other words, taking Clark & Krych's (2004) case for face-to-face communication episodes a step further, we maintain that the virtual partner also plays an active role in the incorporeal joint pretense he/she engages in with the RD' informant. Hence, cooperation between interactants, though at a distance, can also be verified for the instances of RD in our corpus. This is because the RD' user – albeit physically intangible – will make oneself noticeable by exerting influence on the RD' informant's telling the story.

How does that take place? The virtual partner, even as a disembodied presence, urges that a **double-sided monitoring** run on line in the head of the narrator: RD' informant's self-focused monitoring for precision + RD' informant's user-targeted (other-oriented monitoring) for personal preferences. The former involves the way the RD' user *qua* virtual partner forces the RD' informant to watch out for the clarity and non-ambiguity of the message that tells the story, that gives the mimetic/imaginal props the RD consist in, as section 4.2.1 described. The latter involves the way the RD' user's immaterial presence forces the narrator to adjust the lines the story advances according to the individual profile that the virtual partner ends up constituting.

Nevertheless, as chapter 1 has already alluded to, the RD' user's presence as a virtual partner is not only a burden on the RD' informant, whose role as narrator no doubt takes the lead in their meaning construction joint venture. After all, the RD' user, just by being "there", makes oneself available as somebody to count on, as someone who is determined to cooperate with RD' informant to be full-bloodedly engrossed in the storyworld. Such a predisposition that the RD' user automatically brings along to the joint pretense with the RD' informant

plays a decisive part in facilitating the latter's job as the one who tells the story.

Now, the double-sided monitoring that the RD' informant is pressured to adopt by the RD' user immaterial presence *qua* virtual partner is a practice that shows linguistically as **two different editing tactics** the narrator resorts to. Thus the narrator/informant supervises his/her own formulation of the RD proffered as semiotic triggers in two ways:

=> Signaling local scope repair by means of discourse markers

=> Signaling global scope repair by means of one or two sentences

What is the difference between these two cases that DMS subsumes? When the double-sided monitoring operates at the small scale, we will have corrections of the RD' formulation scoping over the last proposition that has advanced the Common Ground. On the other hand, when this self-focused and other-oriented supervision operates at the high scale, we will have corrections of the RD' formulation ranging over propositional content at entire or partial textual level. I.e. either the whole RD' discourse provided so far, or a considerable stretch thereof will be corrected.

Let us take up the last 2 tokens of RD in our corpus sample to demonstrate DMS at work. Afterwards the reader will find a few paragraphs comparing our DMS proposal and the thrust behind Pascual's (2002) notion of 'imaginary trialogues'. Chapter 5 then summarizes both SBM's and DMS's achievements – after briefly evaluating ADKM's gain once more, since section 2.5 above went over it in detail already – in order to reassess altogether the current dissertation's contribution to the investigation of our RD.

4.4. DMS in operation

Corpus token I [119]

Lieber Vicente, vielen Dank fuer DEINE Karte von DER schoensten Stadt DER Welt (aber ICH dachte, DAS ist Hamburg!)
Dear V. many thanks for your card from the most beautiful city of the world (but I thought, this is Hamburg)
Dear V., thanks a lot for THE postcard from THE nicest city in THE world, (but I thought THAT was Hamburg)
Viele Gruesse, Hildegard
Many greetings, H.
Lots of greetings, H.
JETZT geht ES los.
Now goes it off/on
Off WE go NOW / HERE WE go / NOW WE begin / "Here we/you are…"
Wie komme ich/ICH von DER U-Bahn Hagenbeck ZUM Informatikum.
How come I from the subway station H. to the computer science campus
How to go from THE subway station H. to THE computer science campus
Wenn du/DU DIE U-Bahn verlässt,
When you the subway station leave
When you/YOU leave THE subway station
gehe in Fahrtrichtung weiter ganz bis ZUM Ende DER Unterführung.

[119] The two last instances of our data sample constitute thematically a third sub-group within our corpus tokens. In chapter 2, ADKM's functioning was exemplified *via* RD teaching the way to some public/commercial fun place in Hamburg. In chapter 3, SBM/CDG's running was illustrated by RD teaching the way to some RD' user's friend's home (the RD' informant's dwellings). Now, DMS will be shown operative with the aid of a different kind of trajectory. Corpus token I communicates a route from a subway station to our working place during the graduate school program we have pursued in Germany. And corpus token J a route from a subway station to a bus stop equally leading us to this very same Knowledge and Language Processing research group PhD institute.

go in direction of travel on all till the end of the underpass
walk facing THE engine all along till THE end of THE underpass
DORT führt eine Treppe bzw. ein Fahrstuhl nach oben.
There leads a staircase or an elevator to the upstairs
THERE YOU'll find a staircase or an elevator to go up to the street level
Oben wende DICH nach LINKS,
Upstairs turn yourself to left
Turn LEFT upstairs
überquere DIE Strasse an DER Ampel
cross the street at the traffic lights
cross THE street at THE traffic lights
und gehe LINKS an DER Skulptur einer Giraffe VORBEI
and go left at the sculpture of a giraffe past
and go LEFT PAST THE sculpture of a giraffe
immer geradeaus bis ZUR NÄCHSTEN Kreuzung.
always straight on till the next crossroads
GO always straight ahead till THE NEXT crossroads
DORT biege RECHTS ab,
There turn right off
Turn off to THE RIGHT THERE (=at the crossroads)
gehe immer geradeaus bis ZUM Ende DER Strasse
Go always straight on till the end of the street
Go always straight ahead till THE end of THE street
und biege dann AM Haupteingang von Hagenbecks Tierpark LINKS ab
And turn then at the main entrance of the zoo left off
And then turn off at THE main entrance of THE zoo to THE LEFT
immer DEM Verlauf DER Strasse folgend
always the course of the street following
always following THE course/run of THE road

bis ZUR ZWEITEN Kreuzung BEIM Blumenladen.
till the second crossroads at the flower shop
till THE SECOND crossroads at THE flower shop
Biege RECHTS ab
Turn right off
Turn off to THE RIGHT
und gehe bis ZUR NÄCHSTEN Kreuzung,
and go till the next crossroads
and go till THE NEXT crossroads
dann weiter geradeaus bzw. leicht nach LINKS GEWANDT über DIE Ampel
then onwards straight on or-better-said slightly-to-left-turned over the traffic lights
then **GO** onwards straight ahead, I mean, (rather) slightly DIAGONALLY TO THE LEFT over THE traffic lights
und folge DER Strasse, DIE einen leichten Bogen nach LINKS macht, bis ZUR NÄCHSTEN Kreuzung.
and follow the street that a light bow to left makes till the next crossroads
and follow THE street THAT makes a light curve to THE LEFT till THE NEXT crossroads
HIER wende DICH BEIM Bäcker scharf nach RECHTS,
Here turn yourself at the bakery sharply to right
HERE turn sharply to THE RIGHT at THE bakery
überquere DIE Ampel
cross the traffic lights
go over THE traffic lights
und gehe geradeaus bis ZUM Eingang ZUM Informatikum.
and go straight on till the entrance to the computer science campus
and go straight ahead till THE entrance to THE computer science campus

We refrain here from commenting on aspects DMS shares with SBM/CDG and ADKM, such as the reference-chain establishment that

links mental entities all along the motion event symbolization, no matter how differently these conceptual elements might have been deictically/anaphorically alluded to; or the ultimate resolution of the egocentric perspective taken by the Agent – the flying crow along the cognitive map – which is likewise *par excellence* contextually determined. That is to say, for the sake of brevity, we highlight here only two DMS aspects that have not been covered by ADKM or CDG/SBM yet.

First, the personal pronouns "Ich"/I, and "Du"/you at discourse fragments 4 and 5, respectively, in the table above show that RD' informant and RD' user tacitly agree on a given degree of vagueness concerning which mental entities have been / are being paid attention to. This is because two readings for these linguistic forms are possible: The exophoric reading, and the so-called impersonal reading. The first construal assigns Hildegard to "Ich"/I, and Vincent to "Du"/you as personalia labels to these expressions. The second construal, however, leaves the Roles RD' informant and RD' user without Value fulfillment, in other words, blank. Instead of anchoring these deictic pronouns to the biographical data of the interactants at stake, the impersonal interpretation prefers a more anonymous content load: 'Somebody, someone, anybody, anyone, a person', or the like, that can animate the entity undertaking self-displacement from the Source to the Goal in question. Likely, the impersonal reading is a possibility licensed by the cultural Common Ground (Clark 1998, elsewhere) that can be assumed to be the initial knowledge base on which the verbal semiosis at issue relies: Whoever gets off the subway at the Zoo station has either the choice to take the exit before the underpass or the exit at the end of the underpass in order to reach street level.

Second, the situationally moored different meaning that the same linguistic form can be attributed, when instantiated twice in the same text. There is a blunt contrast in the content load that RD' informant and RD' user unproblematically coincide upon as regards a certain linguistic expression that occurs in two discourse fragments of our corpus token. We

mean here the conversation-flow steering device "bzw." (short for "beziehungsweise"), which we glossed as simply 'or' at text fragment 7, and as 'or better said,' at text fragment 19. The former occurrence instantiates a phenomenon Chapter 3 has already touched on: The symbolization of what Werth (1999:244) tangentially calls 'exclusive OR', basically circumstances pertaining to a complex state-of-affairs where two or more possibilities cannot be verified at the same time. Here, EITHER the Agent will take the escalator, OR the staircase, OR still the elevator, to go upstairs from the platform level, after getting off the subway and walking all the way through the underpass. One simply cannot take two out of these three possibilities at a time.[120] Crucially, the second occurrence of this linguistic form ("bzw.") along the data instance suggests/prompts/induces a totally different meaning construction process: Text fragment 19 brings this discourse marker again, but this time, RD' informant and RD' user have no trouble whatsoever to attribute it the monitoring content load that DMS focally advocates. At this moment of the conceptualization, the two parties allied at a distance in this verbal semiotic dynamics automatically realize that the discourse marker does not introduce a disjunction, but rather a correction. In other words, this time the discourse marker serves the purpose to signal a revision of what has been just introduced in the Common Ground, namely, the propositional content that the Ppr (Path proper, as defined in chapter 2 above) in question amounts to a straight line. Rather, and this is exactly what the discourse marker this time calls the interlocutors' attention to, the course of motion at stake has a subtle bow shape. The way along which the Agent must go on walking in order to approach the intended

[120] To be honest, the 'escalator-3rd-possibility' we add here on our own, knowing the furnishings of the subway station in question well enough by now. Nevertheless, strictly speaking, this content load is not latched onto from the linguistic expressions that guide the conceptualization of this motion event. The RD' informant has not used the term 'Rolltreppe', but simply 'Treppe'. In other words, not 'escalator', but simply 'staircase' is provided among the meaning construction guidelines by the corpus token presently under scrutiny, in contrast with 'elevator'.

destination turns slightly to the left. And this is precisely the signification value that the semiotic partners *in absentia* leap to. Thanks to DMS.

Corpus token J

Moin Vincente, HIER IST ES (idiom), endlich.
Morning V. here is it finally
Morning V., HERE YOU ARE (idiom), at last.
Von DER U-Bahn Hoheluftbrücke ZUR Haltestelle VOM 181er Bus.
From the subway station H. till the stop from the 181st bus
From THE subway station H. till THE bus stop of THE 181 line.
Wenn DU DIE Treppe RUNTER KOMMST,
When you the stairs down come
When YOU COME DOWN THE stairs
nimm DEN RECHTEN Ausgang.
take the right exit
take THE exit to THE RIGHT
Geh DIE Straße HINUNTER.
Go the street down
Go DOWN THE street
An DER Kreuzung dann RECHTS.
At the crossroads then right
TURN RIGHT at THE crossroads then
DU musst dann eine ganze Weile DIE Straße entlanggehen,
You must then a complete while the street along go
YOU have to walk along THE street for quite a while then
bis DU ZUR NÄCHSTEN Kreuzung kommst
till you to the next crossroads come
until YOU come to THE NEXT crossroads
(nicht DIE Einmündung!).

not the (T-)junction
not THE access/off road
An DER Kreuzung ist dann DIE Haltestelle.
At the crossroads is then the stop
THE bus stop is (right) at THE crossroads then
DIE landschaftlich attraktivere Variante hast DU mit FOLGENDER Route:
The landscape-more attractive variant have you with the following route
THE FOLLOWING route gives you THE more attractive landscaped variant
Wenn DU DIE Treppe RUNTER KOMMST,
When you the stairs down come
When YOU COME DOWN THE stairs
nimm DEN LINKEN Ausgang.
take the left exit
take THE exit to THE LEFT
HINTER McDonalds ist dann DIE Kehre einer Sackgasse.
Behind McD. is then the return of a blind alley
THE U-turn point of a dead-end street is then BEHIND McD.
DIESE Straße musst DU entlanggehen.
This street must you along go
YOU must walk along THIS street
RECHTS VON DIR ist dann DIE Isebek, ein kleiner Kanal.
Right to you is then the Isebek, a small canal
Then TO YOUR RIGHT is THE Isebek, a small canal
DA also immer weiter RUNTER
Here so always further down
Ok, YOU **WALK** always FURTHER DOWN THERE
bis DU zu einer Brücke kommst.
till you to a bridge come

until YOU (have) come to a bridge
DIE überquerst DU.
that cross you
YOU cross IT /WHICH YOU cross
Dann noch über DIE NÄCHSTE Kreuzung
Then still over the next crossroads
(YOU **WALK**) still over THE NEXT crossroads
und DU hast DEN Bus ZUM Informatikum erreicht.
and you have the bus to the computer science campus reached
and YOU have gotten to THE bus bound for THE computer science campus
Gruß, Hedda.
Salutation, H.
Greeting, H.

Adhering to the same policy we have stated for the analysis of the last corpus token again, we will concentrate at this point on two aspects of DMS that ADKM and SBM did not handle (satisfactorily or at all) in chapters 2 and 3, respectively. The first one of these two points has to do with discourse fragment 9, while the second one concerns discourse fragment 11.

The linguistic form we examine first is quite peculiar. Text fragment number 9 is actually what in English language grammars is usually called a ‘sentence fragment’: In this case, a noun phrase of the definite description type, which is modified by a plain adverb, the negation element. There is no verb, or grammatical subject, for that matter, accompanying this complement-like string, which hence stands there helplessly alone, without constituting, by the rules of English syntax, a real sentence. Thus the terminology ‘sentence fragment’. Be it as it is, the point to our argument lies in the fact that this linguistic form seems to have been introduced in the corpus token’s surface text by a covert

discourse marker. Accordingly, text block # 9 instantiates monitoring that scopes over the last proposition that incremented the ongoing Common Ground. The postposing of the information being corrected confers emphasis to the editing tactics adopted, and dispenses with the spelling out of the discourse marker in itself: In this case 'i.e.'/'that means'. Instead of saying "bis Du zur nächsten Kreunzung, d.h. nicht die Einmündung, kommst", the RD' informant omits the discourse marker and stresses its complement *via* right-dislocation, brackets and exclamation mark. Ultimately, the monitoring operation remains local, since it ranges over one single proposition. Here what we have is a clear-cut contrast between two lexical entries that belong both to the STREETS' CONFIGURATION Frame, namely, crossroads and T-junction. In other words, the RD' informant resorts to text fragment # 9 to make the RD' user choose the right kind of street's confluence. The virtual partner must be engrossed in a storyworld that involves a crossroads, and must hence disregard/negatively pay attention to the distractor-like configuration, the T-junction.

Discourse block # 11, on the other hand, instantiates correcting formulations at large scale. The scope of the editing tactics this time is global, rather than local. Here personal Common Ground (Clark 1996b, elsewhere) between the interactants plays a vital role. Why is that so? Hedda and Vincent have shared enough experience as classmates in the same PhD program. This allows the RD' informant to delineate a personal profile for the RD' user as a young man who admires beauty a great deal. Such a personal profile is most likely the information that the RD' user, as a virtual partner, brings to the joint pretense to force the RD' informant to provide a more scenic variant of the route as a whole. It is because the RD' informant knows that the RD' user appreciates natural and man-made beauty, that it occurs to her presenting an alternative route to the one she had already formulated. Thus, Hedda offers Vincent another route. This new trajectory stretches from the same starting point to the same destination but is much more enjoyable to the eyes. Thus, the RD' informant judges it more adequate to the RD' user personal preferences. It

suits the virtual partner's specifics much better. Since we are dealing with repair of an extended stretch of text, the linguistic signaler used is a sentence. In other words, discourse block # 11 tells the RD' user that the narrator will provide him with a more landscaped trajectory extending from the two exits at the subway station to the Goal LM bus-stop at issue.

Now, Pascual's (2002, 2003) case for 'imaginary trialogues' is very much in tune with the proposal DMS defends: It is the RD' user's immaterial presence as a virtual partner which causes the double-sided monitoring the RD' informant *qua* narrator undergoes and the editing tactics adopted as a result of that. This is because the Catalan scholar extrapolates the realm of research in the most well studied sphere of fictive reality, namely, fictive motion[121] and proposes the notion of 'fictive interaction'.

Pascual's framework elaborates on the Mental Spaces Theory insofar as it desirably pushes the Blends/Conceptual Integration Networks paradigm towards an approach that takes the text/discourse realm more thoroughly into account.[122] The main point Pascual advances is the following: Dialog is so prevailing and quintessential to verbal semiosis that it impregnates apparent monologs, and it also powers up seeming dialogs to the 'trialogical' dimension. The idea is that within the Language Game of a legal trial, the prosecution and defense lawyers, say, while delivering their closing arguments, are only factually talking just to the accused. *A fortiori*, they are at the same time fictively talking to the other-party attorney, to the jury, and to the judge, in order to exert influence

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[121] Put simply, the cognitive phenomenon according to which we construe static referents as if they were endowed with movement, as when we say that a highway goes from Rio de Janeiro to São Paulo; or when we think about a blackboard that extends from one wall to another in a classroom. Confer in this regard, for instance, Talmy (1996), and Matlock (2004).

[122] Brandt (2004) agrees with this evaluation. Note that Salomão (1999b) had already signaled the necessity of such a move and taken a step in this direction.

upon the final verdict of the law court case at hand as skillfully and almighty as feasible. Furthermore, while preparing these last statements, the prosecuting and defense attorneys will be already imaginarily talking to each other, as well as to the other two parties involved besides the defendant, i.e., the jury and the judge. By doing so, the attorneys anticipate what all these virtual interlocutors would be thinking and/or counter-arguing in a sort of "rehearsal-like" last debate. Such an artifice helps the attorneys optimize their last statements in order to produce an argumentation as cogent as possible that pleads for the conviction or not of the protagonist to the drama at issue.

Sure, Pascual's object of inquiry is spoken-language verbal behavior. Yet, in line with the elaboration on many Clarkian insights that DMS advances, we can perhaps extend her line of reasoning to account for the written-language-modality semiosis of our RD' tokens. The RD' informant, while delivering the 'imaginal props' that the RD consist in, would be fictively talking to the RD' user. As a result, the addressee would imaginarily ask for clarification whenever the delivery of the route happened not to be precise enough. Or the virtual partner would, for example, in the end comment: "Isn't there an easier way to go? I'm a bit confused. I'm not sure if I can follow your instructions and really get there…" To which the narrator could reply: "Well, there is another way. It takes a bit longer, but I guarantee you won't be lost trying to find". And would deliver a variant trajectory to the one the RD' user had already been provided with. The alternative route would suit the personal profile of the RD' user better, since it would take into consideration the fact that the virtual partner is a person whose sense of orientation soon yields navigational errors, even when following wayfinding instructions.

5. Conclusion

The following pages contain some self-examination of what we have achieved along our journey, considering the trajectory we set out to cover in chapter 1. The procedure will be divided into two parts.

First, section 5.1 looks back and summarizes our progress step by step concerning ADKM (chapter 2), SBM/CDG (chapter 3), and DMS (chapter 4), as we approached more and more the target to propound a global triple model to account for the conceptual-semantico-pragmatic aspects that the verbal semiosis of the RD' tokens in our corpus unveils.

Then section 5.2 points to a few aspects regarding our enterprise that we were not able to tap during the trip we are about to finish, and leaves these issues as a plan for future travels that we ourselves and/or other researches will eventually undertake.

5.1. Retrospective view

Be it manifestly or subliminally, functional-cognitive linguistics has for long acknowledged the quintessentially spatio-temporal nature of our general conceptualization and of our verbal behavior backstage mental landscape. Clark 1973, Talmy 1978, Traugott 1978, Palmer 1978, Johnson 1987, Lakoff 1987, Pontes 1992, Fillmore 1994, Almeida 1995, Salomão 1996, Bloom et al. 1996, Werth 1999, Levinson 2003, Fauconnier 2004, Majid et al. 2004, Senft 2004, and Wildgen 2004, among others, testify to this acknowledgement. The current dissertation chose the Space branch of the fork as its overall object of inquiry. In order to render it a feasible enterprise, we then selected the theme 'Language of Space', and thereof the sub-field RD *qua* discourse type, or textual *genre*. Finally, we homed in the written language modality, from a usage-based perspective, and gathered the spontaneous, naturally occurring instances of RD for the navigation on foot within the metropolitan area of Hamburg, Germany, which amounted to the concrete material for our investigation.

To begin with, ADKM – the alternative to the Denisian Knowledge Model of RD' production we advance – takes care of the psychological processes that the generation of itinerary descriptions necessarily encompasses. The current dissertation's proposal concerning the knowledge facet of the triple model it puts forward builds closely on the Denisian outline, primarily as encapsulated in Denis (1997), Daniel & Denis (1998), and Denis et al. (2001). Such a theoretical foundation has specifically to do with RD. As a corollary, we saw the need to compare ADKM with the Denisian tradition it elaborates on immediately after we presented it (see pp. 69-81 above). In contrast, the other two facets of our triple model draw upon frameworks that were not conceived exclusively to account for RD. Thus we postponed the discussion of their gain to the current chapter, since there was no concrete outline particularly concerning our object of inquiry for us to compare our proposals with.

Therefore, at this point, to avoid being unduly repetitive, we summarize briefly what section 2.5 of the present thesis details. Basically, ADKM enables us to explain – from the point of view of the RD' informant – the mental operations that the task to verbally teach someone the way to an unknown place involves. The account ADKM contributes turns out to be theoretically sounder and intuitively more cogent than the Denisian tradition it develops from. The analytical tools ADKM embraces are: The distinction between Paths proper (Pspr) and prototypical Landmarks (LMs), 11 categories of informational units (Opening, Closing, 1a, 1b, 1c, 2a, 2b, 2c, and 3a, 3b, 3c), and a supplementary 5-question-checklist kit. Having classified Pspr into 'pre-existing' and 'nonce', as well as LMs into 'direction-giving' and 'position-confirming', we showed how these conceptual elements intertwine in order to structure the visual mental image that sustains the verbal message the RD' informant generates.

Based on the crucial functional distinction between two classes of concepts, namely courses of motion (Pspr), and orientational beacons (LMs), ADKM allows us to make a prediction about the overall structure of RD. The propositional expressions that underlie a given RD' token under scrutiny can be expected to show the following pattern: 'Opening' and 'Closing' will occur in the beginning and end of the token, respectively. In between them, informational units belonging to Cover Classes 1 and 2 will by far outnumber those belonging to Cover Class 3. A more specific prediction ADKM makes has to do with the distribution of LMs in a given RD' token. A position-confirming LM will only be introduced in the verbal message after the reorientation problem at the decision point that coincides with the origin of the route segment in focus has been solved. Such an orientation redefinition can have taken place by introduction of a direction-giving LM or otherwise: Instruction for the Agent to align with a cardinal point, to turn right or left, or to take up a new Ppr.

Moreover, the scheme allows us to sort the material under scrutiny into good and bad RD' tokens. The RD' informant retrieves from memory (and perceptual input) the cognitive map around the route in question. Such a visuospatial and propositional load of information is converted into linguistic expressions. This verbal output induces the RD' user to retrace in an imaginary journey the dislocation from Source to Goal that the informant had activated to visualize the route at issue and formulate it as a verbal message. Now, whenever the RD' informant is not careful enough to verbalize the route in order to induce the RD' user to reconstruct the trajectory at hand without ambiguity, ADKM ticks the RD' token being screened with a question-mark diacritic. In other words, ADKM detects any imprecision in the conceptualization/verbalization of a route by identifying all wordings in the verbal message that do not yield only one possibility as a visualization of a mental image. Such problematical formulations are only reducible to a vague or unclear arrangement of Pspr and LMs. Therefore, they compromise the quality of the RD' token, rendering it a less promising verbal means to navigational assistance. Ultimately, ADKM can thus explain why some RD' instances are more reliable than others in providing linguistic support for intentional self-displacement in an unfamiliar environment.[123]

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[123] This particular spatial discourse type that RD constitute is very closely related to the motion event conceptualization that Van Der Zee & Nikanne (2000:8-9) refer to as "extrinsic movement (movement along a path)", an entry in a list of "some of the entities and relations that are represented both at the level of spatial and conceptual structure" (*idem:ibidem*), which also includes 'location and region', object and path axes', 'object contours', 'distance', etc. Van Der Zee & Nikanne (2000:10) recognize that, at least as regards direction specification, spatial cognition seems to be language/culture sensitive, since, for instance, even within the Indo-European family, as the contrast between Dutch and American English shows, directional marking is handled differently by these two closely related particular grammars. On the cultural dimension of language and conceptualization in general, see Nisbett & Norenzayan (2002), as well as various contributions both in Soares, Torres & Gonçalves (2004) and in Achard & Kemmer (2004). As a last observation concerning Van Der Zee & Nikanne (2000), this dissertation takes issue with their grasp of Cognitive Linguistics as a theory that "is not based on representations" (p.13), a stance which Talmy (1977), as one of the founding fathers of the movement, already disproves. Van Hoek (1999), Lee (2001), Croft & Cruse (2004), Sinha (forthcoming), and many other researchers support our view, following Lakoff, Taylor, Fillmore, Langacker, Fauconnier, Werth, etc, as esp. chapter 3 above minutely argues for.

Chapter 3 reverses the focus and takes the viewpoint from the RD' user. In other words, changing the spotlight to language usage understanding, we propose a facet of our triple-sided framework that takes care of the discourse dynamics the comprehension of wayfinding instructions subsumes. SBM/CDG (the Speech Bubbles Model/Cognitive Discourse Grammar we defend) streamlines and develops the late Paul Werth's sketches of a Text Worlds Theory in order to contribute a well-delineated theoretical proposal able to explicate the discourse maneuvers RD happen to encompass. Crucially, SBM/CDG pays to context the amount of attention it deserves and hence underscores the macro-linguistic dimension of analysis. In other words, the dissection of the data does not stop at the sentential scope. It ranges over entire texts, and it also incorporates the non-linguistic situation such texts are moored in. That is to say, verbal and non-verbal contextual factors are taken into consideration as broadly as possible.

SBM/CDG is firmly anchored in the Cognitive Linguistics front, since it shares basic assumptions with various key frameworks within this field. Among others, the discourse model for RD we advance holds Lakoff's experientialist commitments, embraces Fillmore's encyclopedic conception of the mental lexicon, and involves the interaction of the billiard-ball model and the stage model that Langacker's Space/Cognitive Grammar posits.

Put simply, SBM defends that the RD under scrutiny are understood because RD' informant and RD' user erect in their mind a string of stacked conceptual domains guided by the discourse but also heavily relying on extra-linguistic Context. Such cognitive spaces, namely Discourse World, Text World, and Sub-Worlds, represent in the head of the interlocutors the complex states of affairs their communicative act unfolds into. As a result, the interactants agree on a load of signification to symbolize the RD as the main purpose of their joint project. Each representational tier runs on four quasi-concomitant information-handling processes: World Building, Function Advancing, Knowledge Framing,

and Inferential Reasoning. Besides, CDG encompasses a few meta-principles of discourse, whose influence is taken to be omnipresent and paramount: Communicativeness, Coherence, Cooperativeness, and 'the underdetermination of meaning in relation to form' maxim, which the discourse facet of our proposals inherits from the Mental Spaces Theory.

Precisely because form underspecifies meaning, the text that the RD' tokens under scrutiny consist in merely serve the purpose to cue up a particular semiosis. The linguistic expressions of each instance in our corpus prompt RD' informant and user on a very rich meaning construction process by latching onto stacks of cognitive spaces / speech bubbles. Such a dynamics crucially counts on contextual import to deal with key semantic-pragmatic matters, such as deictic-anaphoric reference chain resolution, as well as Common Ground establishment, maintenance, and incrementation between RD' informant and user engaged at a distance in a linguistic performance act.

CDG/SBM allows us to make two generalizations about the understanding of the RD' tokens we amassed for analysis. The first generalization is that sometimes the RD' user must resort to the Container Image Schema in order to be able to pick out the ultimate referent to the Source LM at issue. This is because the first Place marking at Text World level is not mentioned at all on the surface of the text, but indirectly, the RD' informant alludes to it by a formulation that reads " Go out through the main/side entrance." The interpretation of such a wording thoroughly depends on the situation of language use. Besides, it no doubt conceptualizes the starting point of the journey at stake as a receptacle the RD' user must step out of in order to be on the way to the intended destination.

The second generalization the discourse facet of our triple proposal allows us to make has to do with how situationally anchored world knowledge often plays a vital role too in the understanding of the RD under scrutiny. A verb of movement either meaning progression without

change of orientation (WALK/GO), or progression with change of orientation (TURN) must be contextually fed to render the argument structure in the Function-Advancing-Propositions component complete. Here we mean telegraphic passages in a RD' token which concisely function as semiotic triggers by simply reading, e.g. " Straight ahead till the church", or "At the traffic lights, left."

The extent to which CDG/SBM draws on Common Ground to nominate certain mental entities as salient and arrange them according to a specific constellation in a propositional-like chart of Motion predications and Description predications also reveals the emphasis our proposal gives to Context at larger-scale linguistic representations. After all, the Place-markings at Text-World level activate Frames. And the propositions that the discourse manifestly introduces to push the plot forwards enable the RD' user to draw various inferences that go through at the Discourse World and the Text-World layers of symbolization. Since SBM/CDG brings whole RD' tokens as textual categories under the microscope, it accounts for the contextual foundation of natural language performance much more satisfactorily than its main predecessor, the Mental Spaces Theory, manages to do, even in its latest developments, as our Blending/Conceptual Integration Networks analysis of RD attest.

In a nutshell, we can maybe borrow Werth's (1999:60, emphasis by italics in original, by underlining added) summary of his sketches, to pinpoint here once more some very important traits to SBM/CDG this dissertation elaborates on the silhouette the scholar has put forward:

> "The kind of analysis I [we] have carried out here is based on the following principles, stated informally: (**i**) It takes its point of departure to be *discourses*, rather than sentences. (**ii**) It is concerned with *human processes*, rather than formal systems (specifically, it is <u>embodied and experiential</u>). (**iii**) As a consequence of (ii), it is *cognitive* [≈ having to do with situated understanding, associated with practical reasoning, functionally motivated] in its orientation rather than semantic [≈ restricted to

> truth conditional meaning] (in particular it takes non-semantic [≈ non-deductive, non-monotonic, probabilistic] types of inference seriously). (**iv**) As a consequence of (iii), it is explicitly related to the human *conceptual faculty* (involving representation, knowledge, beliefs, assumptions)."

Afterwards, chapter 4, albeit incipiently, builds a bridge between ADKM and CDG/SBM by defending DMS (a dialog model sketch for the RD under study). DMS attempts to unite the point of view from the RD' informant and that from the RD' user the proposals in chapters 2 and 3, respectively, sustained. The main claim DMS makes is the following: RD transpiring with written language are only apparently strictly monological. In actuality, they also have dialogical features.

The dialog facet of the current dissertation's triple proposal takes various insights Herbert Clark (and colleagues) contributed to research in psycholinguistics a step further. In a few words, we maintain that although our data does not pertain to the oral language modality, the interlocutors involved (RD' informant and RD' user) still coordinate at a distance to collude on a meaning construction. The interactants engage in a joint pretense to conceptualize the RD as a storytelling. The RD' informant tells this kind of "tale" as mimetic/imaginal props to engross the RD' user as a virtual partner in a storyworld based on imagination. In this storyworld, the addressee (the virtual partner, the RD' user) finds his/her way around in an unfamiliar environment and successfully reaches a certain place he/she has never been to.

The thrust of the argument is that the virtual partner plays an active role in the incorporeal joint venture with the narrator. The RD' user's disembodied presence urges that a constant double-sided monitoring run on line in the head of the narrator. Such a phenomenon shows in the editing tactics that the narrator-informant is pressured to adopt by the virtual partner/RD' user's immaterial existence.

As a corollary, DMS yields the following generalization about the verbal semiosis of the RD' tokens in our corpus: RD' informant's self-focused monitoring aims at precision, has to do with local scope repair, and is signaled by discourse markers. In contrast, RD' informant's user-targeted (other-oriented) monitoring aims at the addressee's personal preferences, has to do with global scope repair, and is signaled by means of one or two sentences.

In sum, DMS demonstrates that the virtual partner's existence is what causes the double-sided monitoring the RD' informant undergoes, and the editing tactics this narrator carries out. Ultimately, the narrator and the virtual partner work interactively. Hence, seeing RD' communication that emerges from written language in a bilateral perspective, we realize how concretely the RD' user, *qua* virtual partner, ends up influencing the RD' token's surface text.

In addition, chapter 4 related Allen's (2000) experimental results as indirect evidence supporting the co-constructional approach to RD that even our written data amounts to, which DMS + SBM/CDG make the case for. Allen (2000) also corroborates the framework ADKM maintains, since it advocates an outline congruent with the one our chapter 2 propounds with respect to the basic components pertaining to RD as a particular spatial discourse type.

Last but not least, chapter 4 hinted at how expanding Pascual's (2002, 2003) elaboration on the Mental Spaces Theory *via* the notion of 'imaginary trialogues' to our object of inquiry can also back up the proposal DMS defends. From a fictive interaction perspective, the collaboration at a distance that RD' informant and RD' user undertake during the verbal semiosis of our corpus tokens becomes even more vividly noticeable. After all, both parties would then be seen as imaginarily talking to each other, in order to negotiate the meaning construction of a given instance of wayfinding instructions.

5.2. Outlook

The previous section briefly reviews what we have achieved as far as the objectives that were set in the introductory chapter are concerned. The following paragraphs serve the purpose to give an idea about the amount of work that still remains to be done in order to further substantiate the findings of our investigation.

The most serious deficiency in the current dissertation's proposal is its feeble empirical support. If we had analyzed the 47 tokens that make up the totality of our material, the disadvantages of a weak data basis would perhaps have been decreased to an acceptable level. However, such a move would have for sure massively hindered the readability of the thesis. This is a problem we still must find a solution to, but it is definitely desirable to apply the outline to an enlarged corpus in order to strengthen the predictions and generalizations that the triple-facet model we advance makes with more ample evidence.

Another possible way to render the present enterprise more robust could be to see if the conclusions we have come to concerning RD in written German are also valid for RD written in other languages, such as English (of the same Germanic group), or Portuguese (of the Romance group, but sill Indo-European) or, say, Japanese (non-Indo-European).

In addition, we could, for instance, try to deepen our results by checking the extent to which they confirm or disconfirm (i.e., mirror or do not reflect) the communication dynamics pertaining to wayfinding instructions construed orally. In other words, we could attempt to verify whether our discoveries for the written language modality are also applicable to RD transpiring with spoken language, where other dimensions of meaning negotiation are inevitably co-present: Body language, gestures, eye gaze, intonation contours, and so on and so forth.

Of course the reader can think of various other imaginable paths to suggest us as worthwhile continuations of our journey / academic endeavor. Yet, we think it fair to say that we attained our goal to account for the complex mental landscape that the RD' instances in our corpus conceal as thoroughly as feasible. After all, we elucidated to a considerable degree the intricacies that their verbal semiosis encompasses in three planes of abstraction:

a. The cognitive conceptual psychological knowledge plane;

b. The inferential textual interpretive discourse plane; and

c. The co-constructional interactive bilateral dialog plane.

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7. Appendix

7.1. Transcriptions

Corpus token A

Lieber Vincent, hier mein Vorschlag fuer ein Ausflugsziel an der Alster. Start ist der Dammtorbahnhof. Dann gehst Du in Richtung Osten, bis Du auf der Bruecke zwischen Binnen- und Aussenalster stehst. Du richtest Dich dann nach Norden aus und gehst am Westufer der Aussenalster (ein sehr schoener Weg!) entlang. Nach einiger Zeit (vielleicht 15-20 min, je nach Deiner Geh- Geschwindigkeit) erreichst Du eine Art Pavillon mit einer schoenen Terasse. Dieser Laden heisst “Cliff”. Das Bier ist etwas teuer, aber Du hast einen sehr schoenen Blick. Viele Gruesse, Reinhard. Wed, Jul 17 2002.

Corpus token B

Hi Vicente, also hier meine Wegbeschreibung. Der Start ist der Bahnhof “Feldstraße”, das Ziel ist das Restaurant “Parkhaus”: Wenn Du aus der U-Bahn aussteigst, einfach eine der beiden Treppen hoch und oben den einzigen Ausgang nehmen. Dann läufst Du auf eine Ampel zu, die leicht rechsts vom Ausgang liegt. Mittels der Ampel überquerst Du die Straße und läufst weiter gerade aus, so daß Du in eine neue Straße kommst. Sie heißt, glaube ich, “Marktstraße”. An der nächsten Möglichkeit biegst Du rechts ab, in die “Ölmühle”. Dann weiter bis zur nächsten Kreuzung in den “Marktweg”. Auf der rechten Seite kommt dann nach wenigen Metern das Restaurant. Meistens sitzen auch ein paar Leute davor. Da es aber nur zwei Restaurants in dieser Straße gibt, kannst Du es nicht verfehlen. Ciao, Lars. Tue, Jul 16 2002.

Corpus token C

Moin Vincent! Ich weiss Du magst Schauspiel. Hier also eine Wegbeschreibung, die damit zu tun hat: Der Weg von Jungfernstieg zum Thalia-Theater. Du nimmst die U-Bahn 2 Richtung Centrum und fährst bis zur Haltestelle Jungfernstieg. Im Tunnel Jungfernstieg gibt es vorne ganz am Ende eine Rolltreppe nach oben, die Du nehmen kannst – Richtung Raboisen, Alstertor, glaube ich. Da fährst Du hoch (das geht dann über mehrere Ebenen hoch und immer wieder gerade aus). Wenn Du aus dem Tunnel hoch kommst, brauchst Du nur noch geradeaus zu laufen, Alstertor entlang, auf der gleichen Straßenseite bleiben. Nach zwei, drei kleinen Straßen, findest Du links gleich das Thalia-Theater. Viel Spaß da! Gruß, Sven. Fri, Sep 21 2001.

Corpus token D

Hi Vincente! Da Du gern tanzen gehst, hier eine Wegbeschreibung zu einer Disco im Kiez. Nehme die U-3 Richtung Hauptbahnhof und steige St. Pauli aus. Du gehst die Treppen hoch, ich glaube Richtung Reeperbahn stetht dran. Dann stehst Du an einer großen Kreuzung, von der die Reeperbahn abgeht [ist unschwer zu erkennen welche der Strassen dies ist]. Und unten in dem ersten Haus auf der linken Seite der Reeperbahn ist der Mojo-Club mit drin. MfG, Jan. Tue, Oct 30 2001.

Corpus token E

Hi Vincente, wenn du Lust auf leckere Pasta hast, komm mal bei mir vorbei übermorgen gegen 20:00. Keine Bange: ich bin nicht dran! Giuseppe kocht uns Linguini al Salmone. Du hast gesagt du schreibst die Diss über Wegbeschreibung… Dieser Zettel schlägt dann 2 Fliegen mit einer Klappe (ein Spruch). Ok. Durch den Haupteingang nach draussen. Dort links. Am Ende des Parks nach links abbiegen (gegenüber des Haupteingangs von UKE). Diese Strasse jetzt immer grade aus. Ich wohne im Haus Nummer 8 (linke Strassenseite). Im 3. OG. Hoffe das hilft dir weiter. Bis dahin. Tina. (25.03.2003)

Corpus token F

Hi Vicente, ich habe gerade versucht, Dich anzurufen, aber Du warst nicht da. Deswegen schreibe ich es Dir per e-Mail, wie wir verabredet hatten. Wir essen also morgen etwas Brasilianisches zusammen bei mir im Wohnheim. Du kannst kommen, zu welcher zeit Du möchtest. Du kommst dahin (Bugenhagen-Konvikt, Zi. 47, Kalkreuchtweg 89) wie folgt: S-Bahn Station ist Othmarschen. Wenn Du mit der S-1 aus Altona kommst, steigst Du ganz hinten am Zug ein/aus, und gehst wie alle Leute die Treppen runter. Auf der Strasse nach links, am Taxi-Stand vorbei, und gehst dann links in die Beselerstrasse. Die gehst Du immer der Nase nach. Bei der Gabelung rechts bleiben, und in die Kaulbachstrasse weitergehen, bis Du auf den Kalkreuchtweg kommst. Da biegst Du nach links ab, und hinter dem ersten Haus (in Richtung Spar-Supermarkt) liegt die Einfahrt zum Wohnheim (da steht ein kleines Schild vom Konvikt). Du gehst am Parkplatz vorbei und gehst in das rechte Haus in die zweite Eingangstür, (die hat einen Glaseingang). Dort sind auch die Klingeln. Meine hat die Nummer 47. Insgesamt sind das etwa 10 Minuten Fussmarsch. Ich hoffe Du kommst mit dieser Erklärung zurecht und wir sehen uns morgen abend mit gutem Hunger. Sonst kannst Du ja anrufen. Ich freue mich schon. Liebe Grüße, Julia. Thu May 02 2002.

Corpus token G

Olá Vicente! Ich habe eine positive Überraschung für Dich (nach dem üblichen Mittagsessen unserer kleinen Seminargruppe in der Mensa heute früh…) damit Du mitkriegst, daß es DOCH auch Deutsche gibt, die nicht ausländerfeindlich

sind! :-) Mein Mann und ich möchten Dich zu uns zu einer Abendgesellschaft einladen. Einfach so, zum Spaß. Anatol, Annina, Daniel und die anderen kommen auch, klar. Hast Du schon was vor am Samstag gegen 20:00? Ich hoffe Dein Kalender ist noch nicht dicht… Wenn es geht, bring mal was zum trinken mit, bitte. Los! (Das ganze dauert etwa fünfzehn Minuten zu Fuß). Um zu mir zu kommen, nimmst Du am besten ab Dammtor die S-Bahn Richtung Elbgaustrasse. An der dritten Haltestelle (Diebsteich) steigst Du aus. Am einzigen Ausgang gehst Du nach rechts und folgst einem kleinen Weg bis zur Straße. An dieser Straße biegst Du wieder rechts ab und musst durch einen S-Bahn-Tunnel. Direkt nach dem Tunnel gehst Du links. (Du überquerst dabei die Straße an einer Ampel). Meine Straße ist dann die dritte auf der linken Seite. Wenn Du an meiner Straße angelangt bist, biegst Du links ab und gehst bis zur Hausnummer 58. Hoffe das hilft! Bis dann. Ciao. Beata. Mon Apr 21 2003.

Corpus token H

Wenn Du zur Abwechselung nach der Arbeit einen kleinen Ausflug machen willst… Start: Informatikum, WSV, Haus F, Z. 409. Ziel: Firma Media Analizer.com, Alstertwiete 30, Hamburg. Verlasse das Gebäude und das Gelände. Gehe zur Bushaltestelle der Linie 181/281. Sie ist ca. 50m links vom Pförtner aus. Fahre mit dem 181 od. 281 zur Haltestelle Hagenbecks Tierpark. Steige in die U2 um und fahre bis zum Hauptbahnhof. Dort aussteigen. Verlasse den Bahnhof in Richtung Kirchenallee. Folge den Kirchenallee nach links. Du kommst an eine Ampelkreuzung. Gehe einfach geradeaus weiter. Halbrechts vor Dir siehst Du eine rote Kirche. Gehe zur Kirche und daran vorbei (entlang den Kinderspielplatz). Biege halbrechts in die Alstertwiete ein. Finde das Haus mit der Nummer 30. Klingle bei “Steffen Egner” und fordere bei mir einen Kaffee.;-) (Dec 2001).

Corpus token I

Lieber Vicente, vielen Dank fuer Deine Karte von der schoensten Stadt der Welt (aber ich dachte, das ist Hamburg!) Viele Gruesse, Hildegard. Jetzt geht es los. Wie komme ich von der U-Bahn Hagenbecks zum Informatikum. Wenn Du die U-Bahn verlässt, gehe in Fahrrichtung weiter ganz bis zum Ende der Unterführung. Dort führt eine Treppe bzw. ein Fahrstuhl nach oben. Oben wende dich nach links, überquere die Strasse an der Ampel und gehe links an der

Skulptur einer Giraffe vorbei immer geradeaus bis zur nächsten Kreuzung. Dort biege rechts ab, gehe immer geradeaus bis zum Ende der Strasse, und biege dann am Haupteingang von Hagenbecks Tierpark links ab. Immer dem Verlauf der Strasse folgend, bis zum zweiten Kreuzung beim Blumenladen. Biege rechts ab und gehe bis zur nächsten Kreuzung, dann weiter geradeaus bzw. leicht nach links gewandt über die Ampel, und folge der Strasse, die einen leichten Bogen nach links macht, bis zur nächsten Kreuzung. Hier wende Dich beim Bäcker scharf nach rechts, überquere die Ampel und gehe geradeaus bis zum Eingang zum Informatikum. Tue Aug 07 2001.

Corpus token J

Moin Vincente, hier ist es, endlich: Von der U-Bahn Hoheluftbrücke zur Haltestelle vom 181er Bus. Wenn Du die Treppe runter kommst, nimm den rechten Ausgang. Geh die Straße hinunter. An der Kreuzung dann rechts. Du musst dann eine ganze Weile die Straße entlanggehen, bis Du zur nächsten Kreuzung kommst (nicht die Einmündung!). An der Kreuzung ist dann die Haltestelle. Die landschaftlich attraktivere Variante hast Du mit folgender Route: Wenn Du die Treppe runter kommst, nimm den linken Ausgang. Hinter McDonalds ist dann die Kehre einer Sackgasse. Diese Straße musst Du entlanggehen. Rechts von Dir ist dann die Isebek, ein kleiner Kanal. Da also immer weiter runter, bis Du zu einer Brücke kommst. Die überquerst Du. Dann noch über die nächste Kreuzung und Du hast den Bus zum Informatikum erreicht. Gruß, Hedda. Fri Apr 12 2002.

7.2. Zusammenfassung

Menschen sind einzigartige Kreaturen, weil sie natürliche Sprache erwerben und verwenden. Dies erlaubt ihnen, die Organisation der durch die Sinne perzipierten Welt zu kommunizieren. Es erlaubt ihnen auch, die soziale Welt, in der alle möglichen Handlungen des alltäglichen Lebens durchgeführt werden, zu strukturieren. Entscheidend für unser Handeln in der Umwelt ist unsere Navigationsfähigkeit. Sprachliche Wegbeschreibungen unterstützen uns dabei, uns effizient hin und her zu bewegen, um unsere existentiellen Bedürfnisse zu erfüllen. Da solche Wegbeschreibungen zwei menschliche Kernleistungen zusammenbringen – Sprachgebrauch und räumliches Denken – öffnen sie ein Fenster zu Mechanismen des Geistes, die Gegenstand steter Untersuchung sind.

Die Hauptthese dieser Dissertation ist es, dass die Semantik-Pragmatik von schriftlichen Wegbeschreibungen sowohl linguistische als auch nicht-linguistische Aspekte integriert. Die ersteren haben damit zu tun, wie wir ein Wissensmodell erzeugen, um die externe Welt psychologisch wahrzunehmen bzw. zu begreifen. Die letzteren beinhalten ein Diskursmodell und ein Dialogmodell von Wegbeschreibungen als sprachliches Verhalten.

Ein Wissensmodell ist notwendig, denn vom Standpunkt der Sprachproduktion her, muss der Instruierende eine propositionelle und visuell-räumliche Repräsentation eines Bewegungsereignisses aus dem Gedächtnis abrufen und in eine sprachliche Mitteilung umwandeln. Dies wird dem Instruierten ermöglichen, die sprachliche Mitteilung, zurück in eine propositionelle und visuell-räumliche Repräsentation des Bewegungsereignisses umzuwandeln. Dadurch kann der Instruierte die Strecke zurückverfolgen vom Startpunkt zum Ziel. Hier baue ich auf Versuchsergebnisse in der Kognitionspsychologie über die Konzeption von Wegbeschreibungen auf (z.B. Denis 1997, Daniel & Denis 1998, Denis et al. 2001). Zuerst führe ich einen Unterschied zwischen 'prototypischen Landmarken' und 'echten Pfaden' ein. Darauf basierend schlage ich eine Alternative zur Denisischen Kategorisierung von 'informationellen Einheiten' vor. Die analytischen Werkzeuge teilen die Korpusinstanzen in zuverlässige und unzuverlässige sprachliche Mitteln zur Navigationsunterstützung ein.

Ein Diskursmodell ist notwendig, weil natürliche Sprache nicht in isolierten Sätzen benutzt wird. Deswegen müssen Wegbeschreibungen auch auf der Textebene untersucht werden. Hier wird das erledigt dadurch, dass ich sie in 'Sprachblasen' bzw. 'konzeptuelle Welten' zerlege. Diese sind Konstrukte, die Instruierende und Instruierte mental errichten, um sich anhand einer im Kontext verankerten kognitiven Diskursgrammatik, die ich auf Werth (1999) aufsetzend weiter entwickle, über die Symbolisierung einer Route zu einigen. Der Ansatz, vom Standpunkt der Sprachrezeption her, erklärt die interne Dynamik, die dem Verstehen von Wegbeschreibungen zu Grunde liegt, als 'Argumentstruktur' (explizit übermittelt) und als 'Frameaktivierung' und 'inferenzielles Schließen' (implizit übermittelt). Das System – verglichen mit der Theorie Mentaler Räume (z.b. Fauconnier 1994, 1997), aus der es hervorgeht – hat den Vorteil, Sprachgebrauch global unter die Lupe zu nehmen. Es behandelt Wegbeschreibung als Texte – über die Satzebene hinaus.

Ein Dialogmodell ist notwendig, da situierter Diskurs stets eine Partnerschaft zwischen zweit Seiten umfasst: Sprachproduzieren und Sprachrezipieren. Obwohl die hier analysierten Texten schriftlich gegeben sind, zeige ich, dass ein bestimmter Instruierender eine Wegbeschreibung für eine bestimmten Adressaten als 'imaginäre Stütze' (H. Clark & Van Der Wege 2002) erzeugt. Die Anwesenheit des Instruierten als 'virtueller Partner' (H. Clark 1999), obgleich immateriell, trägt noch zur semiotischen Konstruktion der narrativartigen Botschaft bei. Solch eine kollaborative Zusammenarbeit deckt eine interaktive Ebene im Korpus auf, die ihre strikt monologische Erscheinungsform aufbricht. Diese Entdeckung führt die Clarkschen Einsichten ein Stück weit fort: Sie beweist, dass Imagination auch bei virtueller sprachlicher Interaktion instruktiver Art wie bei den Wegbeschreibungen, die ich hier erforsche, eine wesentliche Rolle spielt. Darüber hinaus plädiere ich dafür, dass Clark & Krychs (2004) Argumentation auch für meine schriftlich gegebenen Wegbeschreibungen gilt. Dadurch zeige ich, wie konkret die immaterielle Anwesenheit des Instruierten die sprachliche Formulierung einer Wegbeschreibung beeinflusst.