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Dialog Systems

A Perspective from Language, Logic and Computation

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Contents

Chapter 1
Introduction

Teresa Lopez-Soto

Abstract This volume represents a multidisciplinary effort in the study of dialog considering multiple research fields, including linguistics, logic and computation. The incorporation of one more monograph into the series that directly tackles language use demonstrates an increasing interest on the disciplinary approach to language. All in all, language and mind, rational thinking and spontaneous conversations are all part of the same highly sophisticated system that characterizes human beings. This monograph is an invitation to consider new methods from various disciplines that can help develop progress in understanding logic, argumentation and reasoning.

Keywords Linguistics · Logic · Philosophy of Language · Automatic Dialog Systems · Computer-Mediated Communication · Pragmatics · Cognitive Linguistics

This monograph is divided into 3 parts, namely: Part I *Some Preliminaries on Dialog from the Perspective of Logic and Cognitive Linguistics;* Part II *Dialogical Approaches: Contextualism, Enrichment and Abduction Revisited*; and Part III *Dialog in Real Life: The Internet, Multimodal Communication and Automatic Dialog Systems.*

Part I Some Preliminaries on Dialog from the Perspective of Logic and Cognitive Linguistics deals with issues in dialog from the crossover between Logic and Cognitive Linguistics. Chapters in this part offer a review of the concept of dialog arguing that all human communication is dialogical in nature. Dialog here is defined as a linguistic-cognitive mechanism that is the basis of our thinking and supports the unilateralist conception that is established between logical affirmation and negation. This part begins with Chap. 2 – *Inner Dialogues: Typology, Uses and Functions* – with attention to "monologism" and "dialogism" that helps us understand the origins of dialog itself. Monologic vs. dialogic features of human dialog are

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also discussed in Chap. 3 – *The Cognitive Construction of Dialog: Language and Mind* – but from a cognitive perspective that presupposes all human communication is dialogic in nature. Both chapters entail a description of (inner) dialogs being some sort of linguistic-cognitive mechanisms that involve thought and discourse planning processes, but Chap. 3 specifically refers to dialog being a dynamic system physiologically wired within the memory systems of the brain which can be constantly enriched and reshaped according to the individual's life experiences. Chapter 3 always refers to dialog as verbal communication (the written text being just a direct transfer from the spoken text) while Chap. 2, interesting enough, posits that the mental dialogs that we recreate in our minds have in common with other verbal discursive structures the same kinds of benefits and are, therefore, based on the same causes. If we are to accept a more cognitive/neurological description of these benefits, dialogs ultimately serve to promote the individual's integration into their social group while gaining more information of the outer world through perception and along our lifespan. This chapter reminds us of the impact of dialog on the life experiences of the individual from its physiological connection with the memory systems in the brain, and also in its impact on social skills. The latter is one of the most current and interesting topics in Neuropsychology.

Inner dialogs also involve, through argumentation, a reflective exercise that aims to convince the (future) listener. In this sense, there is a coincidence in the assumption made from Narrative Theory and Cognitive Linguistic model of Current Discourse Space and the "Construal Hypothesis" that assumes all communication being dialogic in nature even when apparently monologic (as could be the case of inner dialogs). Furthermore, construals represent ongoing cognitive definition through dialog that may be transferred to permanent memory store even in monologic mode, which is defined as "initiating" dialogic. That is to say, monologism for recent models in Cognitive Linguistics is merely the preliminary stage of dialogism where the initiator triggers the global process of communication, but which can be overturned (thus, the initiator would become the recipient) at any time. In light of the Narrative Theory, initiation is seen as "responsibility", with a distinction between "announcer" and "annunciator" meaning that the latter is responsible for what has been said.

Chapter 4 – *In Defense of Unilateralism* – complements the first 2 chapters by reviewing the notion of meaning from the approach of inferentialism. The author defends the idea of meaning being determined by its use and this can be inferred from the meaning of surrounding elements. The idea is also assumed by Psycholinguistics in the sense that meaning is mentally constructed as a complex network of binomial items (phonological and semantic in nature) that are integrated within higher nodes (categories) which are connected in terms of their common attributes. Still, from the perspective of logic, the author defends the idea of bilateralism from two applications: first, an interpretation of logical constants whose premises are assertions/denials, and conclusions are denials/assertions. The chapter proceeds with a discussion of truth-value gaps and gluts to distinguish between denying a sentence and asserting its negation.

Dummett's interpretation of unilateralism implies assertion being first, denial being second. Therefore, answering a propositional question negatively implies the possibility of doing so but positively. Rumfitt, on the other hand, understands assertion/denial as having a bilateral relationship still some issues are left for discussion. All speech acts cannot be said to remain entirely independent, considering that Rumfitt himself also argues that certain principles coordinate assertion and denial. Questions to be answered here would be to what extent can bilateralism maintain the contradiction of assertion/denial being independent. Besides, if coordination principles hold dependent, what relationship can they establish with independent speech acts?

Part II Dialogical Approaches: Contextualism, Enrichment and Abduction Revisited, further deals with the theory of discourse but more from the perspective of the Philosophy of Language and Logic. In its Part II, the authors review contextualism, enrichment, and the problem of abduction, from a dialogical approach. The topics covered are the following: meaning and knowledge from dialog; CTT and Immanent Reasoning for the enrichment and composition of meaning; Mirativity; Dynamic Formalism; and Parallel Reasoning in Jurisprudence. In Chap. 9 – *Parallel Reasoning by "ratio legis" in Contemporary Jurisprudence. Elements for a Dialogical Approach* – the authors provide further evidence of a quite innovative trend in legal reasoning that uses analogy, more specifically inferences by parallel reasoning, in the area of Spanish Civil Law. Interesting enough, the use of parallel reasoning in texts have been disseminated especially by researchers in Artificial Intelligence that seek to develop suitable software-support in the area (automatic analysis of case studies, for example, in comparative jurisprudence for sentence parsing). More is said on jurisprudence in Chap. 5 – *Proverbs as Reasons under the Talking-Tree: the Dialogical Articulation of Proverbs within the Baule Tradition* – which revisits the creation of meaning (and reality) through verbal argumentation. The *Talking-Tree* is a designated location in African communities around which members of the community gather to pass law. This space for interactive communication is seen as a democratic and peaceful forum where conflicts are resolved through dialog. Conflict management shows several patterns of argumentation justified by a collection of traditional proverbs that are orally passed from generation to generation. This approach to the interpretation of meaning finds similarities in Chap. 3, which states that meaning serves the final purpose of the individual's social integration within the community. Also, the cognitive approach to dialog sees oral interaction as a two-directional cognitive activity: semantic memory is both accessed to and reshaped according to the (possibly) new meaning that can be created during oral interaction. The correlation with argumentation via proverbs in the Talking-Tree tradition seems evident. Citing the authors, "meaning and knowledge are constituted during dialogical interaction", also "this research should set the basis for a larger epistemological research on the structure of argumentation patterns born and developed in Africa, where meaning and knowledge are constituted during dialogical interaction". This also suggests a wide range of very interesting questions about the understanding of reasoning within our own Western philosophical tradition. Currently, the logics cultivated by traditions such as the

Muslim or African ones are being studied and rescued. It is a subject of great cultural interest, and —in particular— to the Philosophy of Logic.

Chapter 7 – *How Surprising! Mirativity, Evidentiality and Abductive Inference* – revisits complex mirativity and compares it with inferred evidentials and deferred realizations. Mirativity was initially proposed by Scott Delancey as a grammatical category or a linguistic strategy that encodes the speaker's surprise. Contrastive studies give evidence of different mirativity strategies but share the assumption that mirativity is originated in something that has been seen, heard or inferred. The authors analyze this grammatical category in relation with evidentiality and abduction and provide further evidence of mirativity to explain how speakers express commitment (the "annunciator" in Chap. 2) or responsibility of the words being said.

Chapter 8 – *Two Convergences to Dynamic Formalism: Bakhtin's Dialogism and Brouwer's Creating Subject* – argues around recent research of the dialogical framework incorporating materiality in dialog through Bakhtin's criticism of literary formalism. The authors propose a dialogical reading of Kripke's schema, traditionally granted as not constructive, towards a new understanding of its constructive content. Chapter 6 – *What the Weatherman Said: Enrichment, CTT and the Dialogical Approach to Moderate Contextualism* – deals with *Immanent Reasoning*, Martin-Löf's dialogical approach to the constructive Type Theory (CTT) as a form to distinguish Recanati's process of *free enrichment* and *saturation*. The author tackles the issue of pragmatic modulation, where "the speaker-receiver interaction is integrated into the notion of enrichment" and refers to anaphora and time/location grammatical categories as referential elements in the model.

Finally, **Part III Dialog in Real Life: The Internet, Multimodal Communication and Automatic Dialog Systems**, is more specific: it discusses the problem of discursive materiality, the nature of representations and the impact of multimodal communication in the interaction of tourism users; it analyses the potential and challenges in the use of conversational interfaces (computer programs) for the specific area of mental health; and, most interestingly, this part offers a novel approach to dialog that takes into account its non-verbal aspects, not only the paralinguistic characteristics (gestures, body language, gaze), but also the external elements such as signals, location, geographical distribution and behavioral social norms.

This Part III begins with a very novel approach to dialog in which all multiple variables are taken into consideration: non-verbal here involves not only paralinguistic features (gestures, body language, gaze) but external elements to both speaker and listener (signals, location, geographical distribution and norms/rules of societal conduct). In Chap. 10 – *Communication in Tourism: Information Technologies, the Human User, Visual Culture and the location* – the authors take tourism as a general setting (the location variable) and, using a pragmatic approach, analyze multiple discursive practices both at the local, national and international levels within an integrative model of dialog and communication. A whole set of elements are analyzed from turn-takings, pictures/images of cultural artefacts, street signs, etc. together with non-verbal linguistic communication artefacts. The result is an array of strategies of intercultural communication that compel complex

communicative competence: linguistic (lexical, syntactic), discursive, sociocultural and pragmatic. Sensory interaction with the touristic resort evokes retrieval of mental imagery and emotional load that allows for a complex meaning construction. Location is a very powerful component in the creation of meaning and, without making implicit use of the term, they also get inspiration from Cognitive Linguistics in order to build their own proposal. The chapter is a good introduction for readers interested in Ecolinguistics. Chapter 11 – *Conversational Agents for Mental Health and Wellbeing* – and Chap. 12 – *Internet Conversations: the New Challenges of Digital Dialogue* – review some of the most updated trends in both Automatic Dialog Systems (with special attention to applications on health management) and Computer-Mediated Communication (with special attention to dialog in social networks). They give way to a new challenge in dialog studies that have to do with Engineering and Corpus Linguistics, respectively.

Overall, this monograph aims to demonstrate that the problem of dialog is vastly rich, it involves many aspects of our rationality (mental, cognitive, social, behavioral, logical, etc.) through which we deal with the world. Indeed, the authors in the volume address rich issues of contemporary, multidisciplinary and philosophical nature. The focus is, therefore, in line with a broad perspective on the problem of dialog.

Chapter 2
Inner Dialogues: Typology, Uses and Functions

Jesús Portillo-Fernández [ID]

Abstract In this paper we analyse "inner dialogues" as linguistic-cognitive mechanisms involved in thought and discourse planning processes: decision making, resolution of moral dilemmas, conversational positioning, prospective and retrospective emulation of discourse, refutation of an idea by emulating a tribunal, self-convincing and self-deception, prediction of future contexts through discourse, etc. Starting from the review of discursive structures (monologues, dialogues, polyphonic discourses and their respective subtypes), we will analyse the facets of speaker, the mental staging, monological and dialogical perspectives and types of intervention in these, with the aim of defining the "inner dialogue" concept. Finally, we will propose a theoretical approach to the most frequent uses and main benefits of the use of inner dialogues.

2.1 Inner Dialogues and Truth Value

A theoretical approach to the "inner dialogue" concept can be understood as a linguistic-cognitive mechanism involved in thought and discourse planning processes. Interested in the human capacity to imagine conversations, we analyse under what circumstances we do it, focusing our attention on the truth value that we grant it (veracity), benefits that it gives us (or we think it gives us) and the purpose that it pursues. We present a study about the inner experience of the conversation as an exercise of introspection to analyse "backstage" and to understand how we create mental/fictional stages capable of recreating discursive alternatives.

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First, we will analyse in detail the concepts of "dialogue", "monologue" and "discursive polyphony" and their subtypes to understand what these discursive structures consist of and how they work. We focus our attention on the degree of intervention of the narrator, the origin and the function of each subtype, the degree of transformation of words by the narrator, the vehicle of expression used (voice or thought), the degree of freedom and emancipation of the psychic intimacy of the character, syntactic characteristics of each structure and the use of theatrical techniques to carry them out. Starting from this review, we will remember functions of the two facets of speakers (announcer, the person who enunciates or emits the act of speech; and annunciator, the person who takes responsibility for what has been said, referred speech or assertion) and we will approach the distinction between monologism and dialogism to understand the nature of each type and subtype of discursive structures (according to the number of announcers and annunciators).

We will review various polyphonic constructions and we will stop at the analysis of emulation and simulation processes to understand what it is we do when we generate inner dialogues in our minds. The second parameter must be the types of situations we imagine in dialogue form, if there is a tendency to mental recreation of (conversational) situations based on inner dialogues and where the need to create inner dialogues arises. We will return to the distinction between monologism and dialogism to study the double nature of inner dialogues and we will analyse the two forms of intervention that the author has of inner dialogues in relationship with them.

We should wonder about the main benefits of inner dialogues in everyday life and here we analyse their most frequent uses: resolution of moral dilemmas (through observation or participation), re-evaluation of a position or opinion by means of the generation of a (mental) tribunal, strengthening an idea through refutation before making it public, exercises of empathy and understanding of the other, finding solace or recreation of pending conversations through a retrospective use, verification of the degree in which a conversation is feasible or avoidance of improvisation in them through a prospective use and self-convincing (for benefits or for self-deception).

2.2 Theoretical Framework – Discursive Constructions: Monologues, Dialogues and Discursive Polyphony

To begin with, we clarify the meaning of "dialogue" concept, distinguishing it from terms such as "monologue" or "polyphonic structure" (see Fig. 2.1). A dialogue (from Latin *dialŏgus* and from Greek *διάλογος*) is a conversation between two or more people who alternatively manifest their ideas or affections. It is a communication or discussion in which information about one or more topics is exchanged. A dialogue is an external utterance between at least two people that requires oral, signed or written interaction. To be able to speak about dialogue two interlocutors are necessary, a sender and a receiver who exchange their roles in the conversation in turn. Valles Calatrava (2002, p. 296) defines the dialogue as the canonical form of
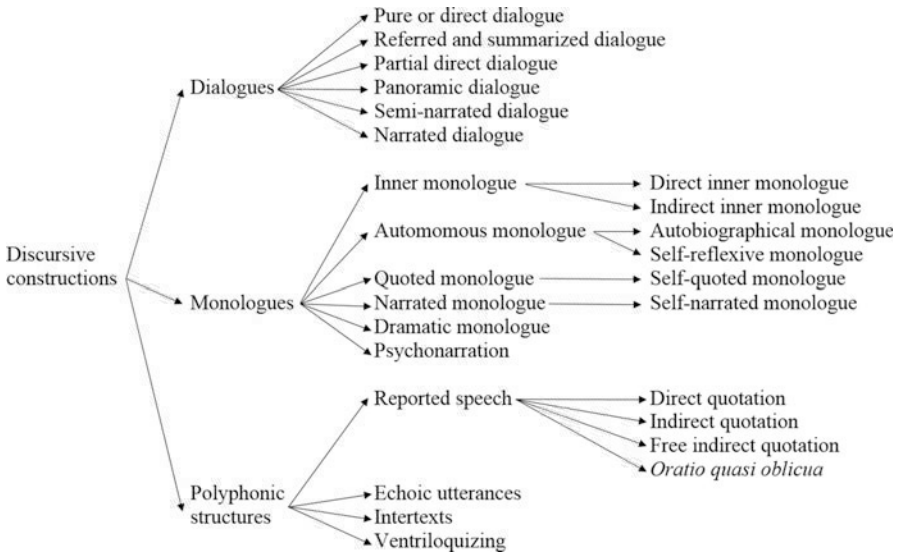
Fig. 2.1 Discursive constructions

verbal interaction of the enunciative and communicative act between speaker and listener (I-You) with permanently reviewable roles. It is a strategy opposed to narration, description and monologue.

According to its origin and function, several types of dialogues can be differentiated: (1) dialogues linked to the dialectical problem of the search for truth (for example, platonic dialogues); (2) heuristic dialogues, in which the interlocutors provide arguments susceptible to conclusion. This kind of dialogue has as its main objective the discovery, the inquiry; and (3) eristic dialogues, in which objective is to defeat the adversary, not to complement their arguments. Bobes Naves (1992, 1993) presented in her works a classification of the dialogues according to the intervention of the narrator in them:

- Pure or direct dialogue (also called abruptive dialogue): it consists of the exact reproduction of words and voices of the actors, where the narrator disappears. Pure dialogues do not use tags or interpolations from the narrator.
- Referred and summarized dialogue: it is a summary relating to a dialogue scene that the narrator makes, narrating gestures and movements of the characters.
- Partial direct dialogue: it is the direct intervention of the characters, with their own voice, used to enunciate their own words, after having been previously reproduced by the narrator in the referred and summarized dialogue.
- Panoramic dialogue: it is the summary, offered by the narrator, of numerous and possible identical scenic dialogues. It offers a panorama where the temporal frequency is iterative (repetitive).

- Semi-narrated dialogue: it occurs when the narrator assumes the words of two or more characters and transforms them to a minor degree than in the narrated dialogue.
- Narrated dialogue: it takes place when the narrators completely assume and transforms the words of two or more characters to the maximum degree through their own enunciation and perspective.

On the other hand, a monologue (etymologically μονολόγος, from Greek) is a reflection made internally or out loud. It does not require an explicit answer and it prevents other people from talking or expressing their opinions. Benveniste (1966) defined the monologue as "an internalized dialogue, formulated in an internal language between a sender self – often the only one who speaks – and a receiver self". A monologue is a discourse generated by only one person, that is, it only has a sender. However, it is a complex discursive structure due to its directionality and its typology. According to the directions of the monologue and their respective vehicles of expression we can differentiate (1) monologues through the voice (external monologue) and (2) monologues through the thought (inner monologue).

The theory of the narrative, authors such as Cohn (1978) and Beltrán (1992), following this line, propose a classification of the monologues regarding the greater or lesser degree of autonomy or dependence of the monologue in relation to the narrator.

- Inner monologue: inner monologue concept, "flow of consciousness" in the Anglo-Saxon tradition, is the modality of direct discourse and not said, without interlocutor and without narrative guardianship in which their inner thoughts are reproduced in an analogical way and with basic syntax. Its objective is to mimic the subconscious thought process.

  – Direct inner monologue: it is a subtype of the inner monologue in which the narrator does not appear, and the mental process of the character is directly reproduced. Cohn (1978) called it "autonomous monologue" and Genette (1991) "immediate discourse". This type of monologue is always formulated in the first person.
  – Indirect inner monologue: it is the other subtype of inner monologue, expressed in the third person through an omniscient and heterodiegetic narrator. It is the midpoint between the cited monologue (formula with greater autonomy) and psychonarration (formula with greater dependence).

- Autonomous monologue: it is the expression with the greatest degree of freedom and emancipation of the psychic intimacy of the character (it is always formulated in the first person), its flow of consciousness, without depending on any frame or narrative guardianship.

- – Autobiographical (autonomous) monologue: it is a subtype of autonomous monologue in which the character is the narrator and relates its own thoughts in an orderly manner and in the first person. It generates, textually, the illusion of the existence of an interlocutor although not explicitly.
- – Self-reflexive (autonomous) monologue: it is a variant of the autonomous monologue proposed by Beltrán (1992) in which the character's thinking is directly reproduced but it uses the second person in a formal way to favour, through ungrammaticality and discursive anomalies, alogicity.

- Quoted monologue: in this type of monologues the narrator directly reproduces the flow of consciousness of the character as a soliloquy. Unlike the narrated monologue and the psychonarration, the quoted monologue does not use the third person.

  - – Self-quoted monologue: it is a monologue subtype in which the narrator-character directly reproduces its own thinking through the formal use of the first person and, normally, marking or quoting the text itself.

- Narrated monologue: also called free indirect discourse, it is the intermediate step between quoted monologue and psychonarration. The thoughts of the character are exposed in a relatively faithful way by a heterodiegetic and omniscient narrator, maintaining numerous features of the actor's speech, although with certain transformations.

  - – Self-narrated monologue: it is a variant of narrated monologue in which the perspective of the narrator self (present) and the character self (past) converge. It reproduces the thought indirectly and in the first person.

- Dramatic monologue: it really is a variant of dialogue in which only the voice of one of the characters is reproduced and uses blank lines or dotted lines to represent the voice of the speaker without expressing speech.
- Psychonarration: it is the most indirect technique of reproduction of thought (flow of consciousness) in which an omniscient narrator relates the psychic life of the characters with its voice and discursive features.

Valles (2002, p. 442) states that monologue is a type of discourse in which a character speaks (soliloquy) or thinks (inner monologue) for itself, expressing its most intimate thoughts and feelings with authenticity and disinhibition. In addition to the types of monologues described by Narrative theory, there is a theatrical technique called "comical monologue" or "stand-up comedy" in which the interpreter exposes a situation or a topic on which it makes observations from a comical point of view (dubitative repetitions, decontextualization, sudden interruptions, irony, absurd communication and contexts, free indirect style, inclusion of thoughts of the character in the story of the narrator, etc.).

We carefully review the types of dialogues and monologues described previously to analyse the relationship between them and to be able to understand the "monologism" and "dialogism" concepts. Both terms classify utterances depending

on the number of perspectives and the control the author has over the voices in the discourse (Bajtín 1929).

- Monologism refers to a single vision of world, a discourse in which the use of different voices is subordinated to the controlling purpose of the author of the story.
- Instead, dialogism does not intend characters to be simple objects in the author's universe, but rather subjects of their own significant world; that is, there is a free and independent contrast of words and conceptions of the characters not subordinated to the author of the story.

It is important to understand the difference between both concepts because one and the other, monologues and dialogues, can create monologisms and dialogisms. A speaker can basically play two facets (Fuentes 2004, p. 129):

- Announcer: the person who enunciates or emits the act of speech (complement of the discursive enunciation and reformulation, complement of enunciation and modality).
- Annunciator: the person who takes responsibility for what has been said, referred speech or assertion.

When we distinguish monologism from dialogism, we consider the number of annunciators involved in the discourse, that is, the number of people who assume responsibility for what has been said, regardless the number of announcers. However, in principle, when we differentiate monologue and dialogue, we consider the number of announcers involved in the locutionary act. For this reason, we will review the polyphonic structures and their types, with the purpose of defining the object of our investigation: the "inner dialogues". Bajtín (1989) takes up the musical term "polyphony" (from Greek πολυφωνία) related to the harmonic composition of a voice from many, to explain a social and dialogical linguistic self. He establishes the concept of polyphony to designate the presence of numerous voices in the fictional text, intimately connected with its plurilingualism or social dimension and, especially, with dialogization. The author defines it as a plural situation where different voices and points of view are not vehicles of truth, nor are subordinated to a conceptually dominant idea potentially embodied in the voice of the material author of the message. He understands it as the dialogical configuration of the relations of multiple voices in the same discourse in which each voice involved does it with independence (a principle respected by the announcer), being the notion of absolute truth logically impossible.

Bajtín (1929, 16–17) explains it as the "plurality of independent and unmistakable voices and consciences, the authentic polyphony of autonomous voices", as a singularity due to the integration of different discourse, languages and social voices. From the studies by Bajtín, as we analysed in detail in Portillo-Fernández (2012, 2018), multiple studies on discursive polyphony have taken place, such as those by Benveniste (1966, 1974), Goffman (1974), Authier-Revuz (1982), Ducrot (1984, 1986), Sperber and Wilson (1986), Reyes (1984, 1987), Roulet (1987), Clark and Gerrig (1990), Nølke (1994), Tordesillas (1998), Günthner (1999), Donaire (2000,

2008), Espuny (2008) or Bango and Prieto (2008), among others, that shaped the traditional distinction between reported speech (direct quotation, indirect quotation, free indirect quotation and *oratio quasi oblicua*), echoic utterances, intertexts and ventriloquizing.

As we have previously seen, the discursive constructions (monological, dialogical or polyphonic) can be classified from the level in which they are made (voice-external or thought-internal). Up to now we have focused our attention on analysing the external discursive constructions (the utterances). Nevertheless, the inner discursive constructions (mental), constitute an interesting field of study of discursive planning, of decision making and even of the modification of thought or opinion.

2.3   Understanding "Inner Dialogue" Concept

In this section, we will attempt to develop a definition of "inner dialogue" by following the structure portrayed in Fig. 2.2. Among the many capacities of the human mind (to reason, calculate, remember, etc.) we will focus our attention on the ability to emulate. From Latin *aemulāre*, to emulate is to imitate the actions of others trying to match them and even exceed them. The emulation does not imply falsification or pretence, that is, it tries to make a replica. A similar term to emulation, sometimes confused with this, is simulation. To simulate (from Latin *simulāre*) is to represent something, faking or imitating what is not.

We often emulate dialogues in our mind (inner dialogues) in which we imagine and plan conversations. Inner dialogues constitute an emulation mental exercise based on the knowledge, the experience, the emotions and the will (expectations) of the person who generates them. The purpose of the person who imagines them is to emulate the conversation as it would really happen, however, the inner dialogues simulate conversations adapted to the author's vital coordinates (knowledge, experience, emotions and expectations). Inner dialogues are not only based on
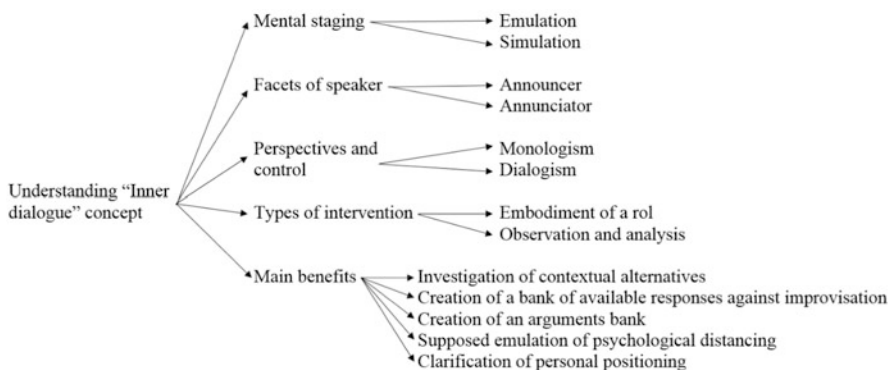

Fig. 2.2   Understanding "inner dialogue" concept

imagination or fantasy (which they also are, as we will explain later), but on the theoretical-practical heritage, the desires and the fears of who generates them. It is a versatile linguistic-cognitive mechanism, capable of carrying out multiple functions: making explicit latent information, making reasoning based on emulation of dialogues, planning a conversation and anticipating possible discursive alternatives, etc.

One of the most interesting aspects of inner dialogues is their double nature: dialogism (as purpose) and monologism (in reality). When we create inner dialogues in our minds, we intend to generate dialogic discourses in which each voice is independent. However, it is inevitable that these voices participate in expectations, emotions, experiences and knowledge of who imagines them.

Nevertheless, inner dialogues have a great potential for reasoning since they try to emulate conversations by means of voices that represent different roles with the aim of positioning, making a decision, clarifying doubts, trying to predict events, etc. They are based on the staging of the imagined communicative situation, from which a discursive polyphony with different perspectives (voices/roles) is generated. The main difference between these and the traditional types of polyphonies is that the inner dialogues do not have phonation (they do not need to be pronounced, since they take place in the mind) although the voices of the conversation make quotes, use echoic utterances or ventriloquize.

We can differentiate two types of inner dialogues according to the intervention of the person (author) who generates them:

- Inner dialogues in which the author is one of the interlocutors of the conversation. In this case the author embodies one of the roles of dialogue and directly interacts with the rest of the speakers.
- Inner dialogues in which the author is not one of the interlocutors of the conversation but stays on the sidelines observing and analysing the imagined conversation to draw conclusions from a (theoretically) more objective point of view.

The first type tries to emulate conversations in which the author intervenes with the intention of anticipating the words of its interlocutors and be prepared to answer. The second type, as we will analyse later, aims to provide an impartial perspective, or at least external and non-participatory, of the communicative situation to the author.

Inner dialogues are a mechanism of mental organization and representation that use conversation to recreate credible communicative situations (for the person who generates them) and extract or make explicit information. It is the ability to create internal conversations which can later be externalized and used for communicative purposes. As we explained before, its use involves the cognitive and emotional fields since it allows reasoning and experiencing emotions when observing or analysing these imagined dialogues. Highlighted among its benefits are the following:

- The investigation of contextual alternatives to understand a communicative situation.
- The creation of a bank of available responses against improvisation.

- The creation of an arguments bank to convince the interlocutor or himself (persuasion/self-persuasion).
- The supposed emulation of psychological distancing to get a more objective perspective.
- The clarification of personal positioning in a specific situation.

Inner dialogues, unlike the flow of consciousness described by inner monologues (direct discourse, without interlocutor, without narrative guardianship, alogical reproduction and basic syntax), use the dialogical structure to mentally create a communicative situation (that substitutes or complements the flow of consciousness) with the intention of taking distance and being a participant or spectator of the scene. The polyvalence of inner dialogues is also observed in the ability to integrate echoic utterances in their construction, to make direct, indirect quotes and any types of reported speech, to establish implicit and explicit intertextual relationships, and even to mentally use ventriloquizing. Bellow, we will analyse some of its most frequent uses.

2.4 Inner Dialogues – Analysis of the Most Frequent Uses

Considering that it is impossible to describe all uses of inner dialogues, we will analyse some frequent ones, as a propaedeutic study that will serve as a basis for future research. The creation or recreation of polyphonic communicative situations capable of staging the author's thought makes imagining the future possible, modifies memories, predicts events, puts oneself in the place of another (empathy), raises a moral dilemma discursively, etc. Occasionally, the author of the inner dialogue participates as one of the interlocutors of the mentally recreated conversation and, other times, they only act as spectators extracting information from the possible discursive variants, information that could later be used in real conversations (see Fig. 2.3).
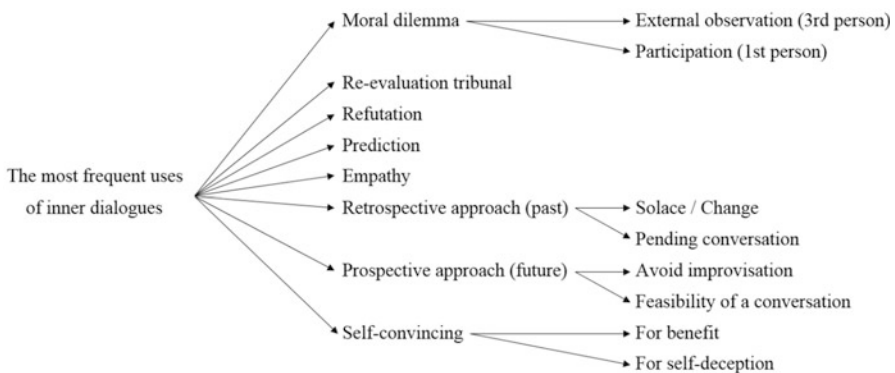

Fig. 2.3 The most frequent uses of inner dialogues

- Moral dilemma: a dilemma is an argument formed by two opposing propositions disjunctively in such a way that, denied or granted either, a certain conclusion is demonstrated. A moral dilemma occurs in situations in which a person is forced to choose between two options, usually contrary or incompatible. Inner dialogues allow to stage moral dilemmas through two simple ways: (1) through observation of the conversation between two people who represent the options of the dilemma, or (2) through mental participation in a conversation with another person who has the second option raised by the dilemma. The analysis of the moral dilemma can allow extraction of conclusions, the prediction of consequences of each of the positions and the consequent positioning. Its function is to decide between exclusionary options.

- Re-evaluation tribunal: the emulation of a tribunal capable of evaluating a situation or behaviour, constitutes a very useful polyphonic resource to remember opinions already heard, to imagine others and to contrast them with the point of view of the author's inner dialogue. The purpose of the tribunal is to collect information and different opinions, stored or generated by the author about a behaviour or situation, to distance themselves from their own opinion and re-evaluate their position.

- Refutation: refutation, as a scientific term, is the criterion of truth that seeks to reinforce a theory trying to deny it; that is, the author of the theory becomes the main enemy of it, with the aim of finding its weak points, before making it public. The more times the author tries to deny it without success, the stronger its theory will be. Inner dialogues allow generating a list of interlocutors who present objections to an idea in order to correct possible failures. We usually use refutation to verify the correctness and authenticity of our ideas or arguments before presenting them to others.

- Prediction: it consists of the announcement by revelation, founded knowledge, intuition or conjecture, that something must happen. Inner dialogues, through the discursive staging of a given situation, can be used to expose, as premises, the known information about a situation and draw conclusions by means of inductive, deductive or abductive reasoning. Its function is to anticipate events before they occur, using a dialogical structure as an explanatory engine of the premises of prediction.

- Empathy: it is the ability to identify oneself with someone else and share their feelings. Its etymology (from Greek ἐμπάθεια / πάθος) tells us about a relationship of trust and the ability to share passions. Empathy is an exercise of transcendence, the emulation of feeling what the other person feels without being certain of experiencing that same feeling. Inner dialogues help to generate this fiction through the creation of communicative situations in which the author mentally occupies the place of the other person, emulating the responses and behaviours of other people's vital coordinates.

- Retrospective approach (past): inner dialogues are capable of reconstructing and modifying past communicative situations in order to find out what would have happened if there had been different interactions among speakers. This retrospective modification allows us to conform and to find solace through the creation of

credible discursive versions to give the author a chance to change what happened in its memory. Another habitual use of inner dialogues with retrospective approach is to generate conversations that never took place (because the interlocutor has died, because we have no relationship with them, etc.) with the intention of living, in some way, that pending experience.

- Prospective approach (future): likewise, and as we have already described before, inner dialogues are capable of imagining future contexts caused by conversations. Its main functions are to avoid improvisation in an important conversation (which is going to take place) and to prepare responses for possible discursive alternatives. They can also be used to study how feasible a conversation is (which is not predicted in principle) and to decide if it is profitable or advisable to realise.

Finally, we would like to focus our attention on the capacity of self-convincing or self-persuasion of inner dialogues. Persuasion (from Latin *persuasio, −ōnis*) is the exercise of inducing, moving or forcing someone with reasons to believe or to do something. Self-persuasion implies offering arguments to oneself and becoming convinced, even changing one's mind. Aristóteles (2005), in the fourth century B.C. in his work *Rhetoric*, already distinguished between arguments linked to *ethos* (authority, credibility and honesty of the speaker), to *pathos* (emotions and feelings) and to *logos* (logical and rational arguments). He conceived rhetoric as a branch of dialectics which does not require any particular knowledge of science and could be used by any intelligent person, as "the ability to see all possible ways to persuade people in any matter" (Rhetoric I, 1. 1355 b26), including ourselves. The classic distinction between being convinced (having a firm position towards an idea or opinion which is born from within) and being persuaded (being externally induced, moved or forced to believe or do something; a psychological process linked to communication). This distinction presents the ability of inner dialogues to self-convince as a tool capable of generating fictitious speakers who make us change our mind, as if they were real external persuasive sources.

Despite not having the opportunity, at this moment, to delve into the prolific research on argumentation and persuasion made since the mid-twentieth century to the present to be very extensive [Cf. Ducrot (1983, 1986), Van Eemeren and Grootendorst (1984), Perelman and Olbrechts-Tyteca (1989), Cialdini (1990), Plantin (1990, 1998), Weston (1993), Anscombre and Ducrot (1994), Eggs (1994), Lo Cascio (1998), Vega Reñón (2003), Fuentes and Alcaide (2005, 2007), Marafioti (2005), Walton (2006), Toulmin (2007), Marafioti and Santibáñez (2010), Vega Reñón and Olmos (2011), Guastini and Álvarez (2014) and Claramonte (2016), among many other reference works], it is pertinent to analyse the function of inner dialogues in terms of self-convincing.

Firstly, when we talk about self-convincing, we are referring to the mental exercise of giving us arguments to believe, think or do something that we originally did not believe, think or plan to do. In other words, self-convincing is an inner discursive process that seeks to change the will, opinion or beliefs of the person by argumentation. It is a reflective exercise in which the argumentator and the person whom one wants to convince coincide. Inner dialogues, as we explained before, can

mentally generate communicative situations in which self-convincing shaped as soliloquy (monologue) is reinforced by interlocutors who argue in favour of the idea which they intend to adhere. Self-convincing is a complex mental mechanism in which the person is not always able to differentiate self-persuasion to real benefit or to self-deception. Research studies such as those by Goleman (2004), Trivers (2013) o Mele (2016) deal in depth with self-deception from psychological and philosophical perspectives, one of the facets of self-convincing based, sometimes, on the discursive mental polyphony staged by inner dialogues.

Self-deception, when it comes to using inner dialogues, goes through the confusion between the voices generated by the person (announcers) and the real independence of these affirming or denying a certain position (annunciators). That is to say, when instead of gathering heard and real voices (announcers and annunciators) in our mind, we mentally use the voice of another person (announcer) to listen to our own ideas (annunciator), we falsify the conversation by using the voices of others as a vehicle to express ourselves. It is a kind of mental ventriloquizing by means of which we create false interlocutors, with their respective voices and physical aspect that actually embody our own perspective. This type of inner dialogues generates a false discursive polyphony in which there are several voices but only one annunciator responsible for everything that is said.

2.5   Conclusions

The main purpose of this research was to understand the functioning of conversations that we imagine in our minds, their causes, benefits they bring us, characteristics they have in common with the rest of spoken discursive structures, their idiosyncrasies and their most frequent uses. We have called this type of conversations "inner dialogues" and we have analysed them from an exhaustive review of types of monologues, dialogues and polyphonic structures of discourse.

Inner dialogues constitute a versatile linguistic-cognitive mechanism capable of carrying out multiple functions, a mental emulation exercise based on the knowledge, the experience, the emotions and the will (expectations) of the person who generates them. They are based on imagination, fantasy, theoretical-practical heritage, the desires and the fears of who generates them. Inner dialogues have a double nature: dialogism (as purpose, since we intend to generate dialogic discourses in which each voice is independent) and monologism (in reality, since it is inevitable that these voices participate in expectations, emotions, experiences and knowledge of who imagines them).

Inner dialogues have a great potential for reasoning since they try to emulate conversations by means of voices that represent different roles, they are based on the staging and generate a discursive polyphony with different perspectives (voices/roles). Despite not having phonation (since they take place in the mind), we can differentiate two types of inner dialogues according to the intervention of the person (author) who generates them: (1) inner dialogues in which the author embodies one

of the roles of dialogue and interacts directly with the rest of speakers and (2) inner dialogues in which the author stays on the sidelines observing and analysing the imagined conversation to draw conclusions from a (theoretically) more objective point of view.

They represent a mechanism of mental organization and representation whose use involves cognitive and emotional fields. We highlight, among its main benefits, the clarification of personal positioning in a specific situation, the supposed emulation of psychological distancing to get a more objective perspective, the creation of an argument bank to convince the interlocutor or oneself (persuasion/self-persuasion), the creation of a bank of available responses against improvisation and the investigation of contextual alternatives to understand a communicative situation.

Among its most frequent uses we highlight the following: (1) the discursive approach of a moral dilemma through observation or mental participation in a conversation; (2) the emulation of a tribunal capable of evaluating a situation or behaviour in order to re-evaluate its positioning; (3) the generation of a list of interlocutors who present objections to an idea in order to correct possible mistakes (refutation); (4) anticipation through the use of a dialogical structure as an explanatory engine of prediction premises; (5) the creation of communicative situations in which its author mentally occupies the place of the other person; (6) the ability to reconstruct and modify past communicative situations in order to find out what would have happened if there had been different interactions, to find solace through the creation of credible discursive versions for the author or to generate conversations that never took place with the intention of living, in some way, that pending experience; (7) the study of how feasible a conversation is, to decide if it is profitable or advisable to be carried out; and (8) the capacity of self-convincing or self-deception.

The theoretical and introductory nature of this research invites to delve into the human capacity to change one's perception of reality through the creation of alternative versions of it, to build bridges between psychological and linguistic studies on self-convincing and self-deception, to analyse implicit contents that are involved in this type of mental-discursive constructions and its relationship with verbal courtesy.

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Chapter 3
The Cognitive Construction of Dialog: Language and Mind

Teresa Lopez-Soto

Abstract The rapid spread of interdisciplinary methods on the study of language has provoked a massive reconfiguration of the concept of dialog in research. Likewise, computer-based communication and the large data that it provides has completely changed our notion of what language entails: we have moved away from written text to spoken conversation, from a sentence-based approach to large corpora and from monologic to an increasing dialogic view of language. This chapter reviews the human memory system and establishes a connection with some theories in the field of Cognitive Linguistics in order to shed some light in understanding the final purpose of human communication and how it connects our most social nature with knowledge and information across our lifespan. Interactions are described as being dialogic in nature having the ultimate goal for the initiator of the communicative interaction to collect information from the outside, and the recipient of that interaction in the role of instantiating that objective. Dialog is seen as specific (the present time frame determines meaning construction), focused, prominent and dynamic (users alternate roles during dialog from initiator to recipient and viceversa). Communicative interaction ("usage events" according to Cognitive Linguistics) is so important in our lives that it shapes the way the brain is wired and posits some interesting theories on how language usage is constructive *per se*. The chapter finally draws on the correlation that exists between these usage events ("construals" in Current Discourse Space), the subjects of conceptualization, the objects of conceptualization and cognitive mapping, more in particular Working Memory, as the main engine that allows for repetitive stimulation and Long-Term Memory (Semantic and Episodic Memory) which finally stores complex semantic networks made up of form (phonological load) and meaning (semantic load). These sophisticated cognitive patterns stand for knowledge as we know it and represent permanent structures from which users can retrieve, reshape and extend along life experience.

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