

Introduction

This book will tell the story of the power of words and of how this power is particularly crucial for abstract concepts and the words that express them – words like “fantastic,” “freedom,” “furious,” and “ideas.” In recent years, the topic of abstract concepts has become increasingly debated, as testified by the special issues on the subject (e.g., Borghi et al., 2018, 2022; Bolognesi & Steen, 2018), and by a recently edited book (Bolognesi & Steen, 2019) and two monographs focusing on the theme (Borghi & Binkofski, 2014; Dove, 2022).

The rising interest in abstract concepts is partially due to the increasing success of embodied and grounded views of cognition (e.g., Robinson & Thomas, 2021). According to some embodied theories, concepts encode bodily states during acquisition and use (Myachykov et al., 2014). Grounded views of cognition, more generally, propose that cognition involves not only bodily states but also physical and social situations (Barsalou, 2008; 2016; Pezzulo et al., 2011). Compelling evidence now supports these views. However, in the domain of categorization and language, this evidence is mainly confined to concrete concepts and words (e.g., nouns of manipulable objects, action verbs). Demonstrating that abstract concepts like “freedom” are also embodied and grounded is an important challenge. New views have emerged, showing that to account for abstract concepts, we need to posit that they are not only grounded in the sensorimotor and interoceptive systems but also in the emotional, linguistic, and social systems. Here I will propose that, in order to build a fully fledged theory of abstract concepts, researchers have to seriously consider not only the body but also language and social interaction. In doing this, I will also consider the perspective of more radical embodied views, the enactivist ones. These views negate the idea that language encodes meaning. Rather, they propose that we are linguistic bodies who participate in changing how we constitute ourselves in the language (Di Paolo et al., 2018).

The book will thus deal with abstract concepts and words, how they are acquired and represented in the brain, their varieties, and the flexibility and contextual dependency that characterizes them. Unlike the (few) other books on abstract concepts present in the literature, this book will not focus only on abstract concepts. It will be primarily a book on language and its potentialities. I will try to flesh out how these potentialities have one of their maximal expressions in forming the capability for abstractness and in the masterful use of abstract language. At the same time, this book is not an exhaustive volume on language and its functions. Many excellent books exist that deal with language. This one aims to outline some of the ways in which language shapes our mind and life and to show that this influence of language is particularly evident if we consider abstract concepts and words.

Different Views on Language

Why a book on language and abstractness? To clarify this, I will first need to briefly outline approaches to language that I consider sources of inspiration, starting from embodied and grounded views.

For many years, studies inspired by embodied cognition have focused on how language is grounded in the sensorimotor system (e.g., Barsalou, 2008; Pulvermüller & Fadiga, 2010; Glenberg & Gallese, 2012; Kiefer & Pulvermüller, 2012). They fought the view according to which experience would be transduced in a semilinguistic format and wanted to emphasize the importance of grounding concepts and language in perception and action systems. This strategy has succeeded; embodied and grounded cognition views now represent one of the more prominent and promising theories of language and cognition. According to these views, concepts and words will evoke a simulation, intended as the reenactment of sensorimotor and emotional networks active during the interaction with their referents. For example, when thinking of a dog, or saying the word “dog,” we will reexperience dogs by recruiting the tactile, auditory, and visual modalities engaged when we caress a dog or hear it barking. The attempt to contrast propositional approaches, according to which we access conceptual meaning through the network of verbal associates to the target word, has led researchers to limit the relevance of language: within embodied views, words have been seen either as pointers to objects and entities in the world or alternatively as a shortcut to access meaning. Here, I will argue that words are tools; rather than encoding, they prepare us to act.

Within embodied approaches, enactive views propose that mental processes emerge from the dynamic relations between brain, body, and world (Gallagher, 2017). This implies that cognition is *in* the action, and it is not its cause (Paternoster, 2022). Unfortunately, enactivist work on language is not plentiful. A notable exception is a recent volume (Di Paolo et al., 2018), which, however, focuses more on language emergence. Enactive approaches reject the traditional views of representation. In dealing with the realm of emotions, Shargel and Prinz (2018) explain why enactivism incorporates two notions that they deem critical, the idea of embodiment and that of bringing forth, and can thus outperform a more classical grounded approach: “[E]naction does not posit cool cognitive states to explain meaning but rather locates meaning in embodied activities.” The authors argue that emotions create new possibilities for action; they make “our bodies push and pull us” (p.119). I contend that something similar happens with words. Using words changes and opens new ways of interacting within our physical and social environment.

Other interesting insights on the role of language come from linguists adopting a distributed cognition or interactionist approach. From their perspective, researchers should not investigate language use by examining single words and sentences and adopting a referential stance. Instead, research should focus on languaging, which is the practice of using language. In this view, language is not composed of single elements, the words, but what counts is the whole interactive experience. Among the major exponents of this view, the linguist Cowley proposes overcoming the dichotomies between life, cognition, and society. As Cowley (2019) argues, “By tracing languaging to living, it ceases to depend on society, individual, mind, or brain.” (p. 465). Similarly, Love (2017) distinguished between languaging, consisting of actions like uttering, receiving messages, etc., which is a first-order activity, and the reflection on languaging, which is an abstraction and gives rise to second-order products like words, sentences, and languages. Languaging is embodied, co-constructed, and interactive. Language is thus second-order products which describe but do not determine first-order languaging activity. In this framework, linguistic units as typically investigated by linguists, are “decontextualized reifications.” While these views capture important aspects of our linguistic experience, they are afflicted by the causality problem (Batisti, 2021): if we fully endorse the languaging perspective, we cannot hypothesize that language influences thought because language and thought cannot be separated.

Other influential theories, such as the distributional semantic views, had the merit of emphasizing the importance of language and language in

context. However, they did not consider its relationship with the physical environment and the body (e.g., Burgess & Lund, 1997; Landauer & Dumais, 1997). More interesting are approaches that merge distributional and embodied views, recognizing the importance of both language and grounding (e.g., Lenci, 2008; Louwerse, 2021; Petilli et al., 2021). However, they do not underline the social and interactional aspects of language. Finally, approaches such as pragmatics and semiotics (Grice, 1975; Levinson, 1983; Peirce, 1991) have highlighted the relationship between language and action, but without sufficiently taking into account how language is represented in the brain.

The view I am proposing is a hybrid one. It maintains the notions of words and concepts and the idea that, although language and thought are strictly interwoven, we can – and need to – investigate how language influences thought and vice versa. It also maintains the idea that we might simulate word referents, reenacting previous experiences with them in order to prepare for action. I am not strongly committed to the notion of representation. Yet, I think a unique aspect of human cognition is the ability to represent what is not present (Donald, 1993). Simulation can be intended as a form of detachment from the sensorimotor loop, from the here and now, as a form of representation. In support of this idea, evidence indicates that simulating activates neural areas that are contiguous but not correspondent to those engaged during the direct experience (Barsalou, 1999; Meyer & Damasio, 2009; Bergen, 2012); this is a signature of the transformations operated by our embodied linguistic experience. This detachment grants flexibility and the possibility to recombine our experiences in new ways (Barsalou, 2016). As convincingly argued (Hommel, 2021), the notion of representation does not necessarily involve some higher cognitive processes, it can simply guide us in interacting with the external world. However, the simulation view has some problems. It still suffers from the symbol grounding problem (Harnad, 1990). If the mind is computational since it operates on internal representation, how can we interact with the real world rather than with symbols? The simulation theory offers a solution by treating symbols as grounded in perceptions, actions, and emotions (Barsalou, 1999). However, I think this solution is only partial, and we should further stress the dynamic aspects of simulations. We might use transient, localist representations, which change over time (Falands, 2022). In my view, we can still speak of simulation only if we emphasize that the reenactments of previous experiences are not useful to know but for us to act (Gallese, 2009). Simulation is more of a predictive instrument, allowing us to predict what we can expect from

entities surrounding us; the reenactment of previous experiences exists insofar as it is functional to prediction and action. Methodologically, this view has consequences. It is more important to focus on the interactional dynamics that occur when we use words than on what we represent when we use words. In this perspective, the meaning of words is not exhausted by their relationship to their referents and cannot be conceived primarily as a form of reenactment, as grounded theories seem to assume. Neither is it explained solely based on linguistic associations, as distributional semantics proposes. It is instead captured by the complex action dynamics words induce.

In this book, I intend words not as descriptors or pointers but as tools that promote interaction with others and ourselves. In this perspective, the primary function of words is not to represent but to make some experiences possible. Hence, the view I am proposing goes beyond the idea according to which words are grounded; it is not fully internalist. I suggest that abstract concepts are not represented only by their content and the simulation of their referents. First, I think that this content shifts across contexts. Second, I think that a word's meaning does not correspond only to its content. Rather, it includes pieces and potentialities of interaction – for example, the way the word is acquired – and it is socially constructed – for example, relying on others to understand word meaning or negotiating the meaning with them. Hence, the meaning of a word also includes the potential interactions it promotes. In this framework, the focus of this book on abstract concepts and words is motivated by the interest in the dynamics that are evoked by words that are particularly complex and abstract. Abstract words are particularly debatable and open and may elicit intriguing social dynamics. Somehow, they are paradigmatic of the flexibility and context dependency of words.

To provide a convincing account of how we use abstract concepts, researchers need to acknowledge the essential functions of language in shaping the way humans perceive and interact with the physical and social environment. Pragmatist philosophers like John Dewey and George Herbert Mead understood it years ago, as they viewed language not only as the external cloth of thinking but as a disruptive and transformational event that shapes human life. Our experience is thus an “enlanguaged experience” (Dreon, 2022) which constitutes our peculiar and uniquely human way of being in the world. In the last few years, a new view has emerged that grants language the importance it deserves in shaping our minds and mode of interacting with the world. This book will present this view. Language impacts both “low” and “high” cognitive processes. It

influences our perception of the world, our sense of body, the representation of ourselves as agents, and our emotional and inner world. It also impacts increasingly sophisticated cognitive abilities such as prediction, problem-solving, and abstract thought. At the same time, language influences not only our minds but also the social and relational context in which we live. Importantly, this new view proposes not only that language influences cognition but also that various spoken/signed languages impact cognition differently. In line with these views and also with other post-cognitivist approaches, here I view language as a constitutive human experience, which strongly changes our way of being in the world. Language does not reflect or encode but transforms and changes.

Aims and Structure of the Book

The book has a twofold scope. First, it aims to illustrate how language, viewed as a physical, cognitive, and social tool, might shape our minds and impact our interaction with our physical and social environment. Second, it aims to describe how these characteristics of language emerge while using more abstract concepts and words. The underlying theoretical view is that sensorimotor and inner bodily experience plays a pivotal role in all concepts. However, for the acquisition, representation, and use of some concepts, the contribution of the social environment, mediated through language, and the role of inner cognitive processes, likely mediated by inner speech, are particularly crucial. These concepts belong to different categories, from numbers to emotions, and are generally named with the simplified expression “abstract concepts.” The book will address their neural underpinning and focus on their acquisition, processing, and use, starting from the idea that we need new ways to study them within dynamic situations rather than as isolated units.

The structure of the book is as follows. In Part I, entitled “Language and Its Power,” comprising four chapters, I will argue that language can work as a tool. The idea that words are tools is not new and dates back to Wittgenstein (Wittgenstein, 2009) and other influential authors (see Chapter 1.4). Here, I describe different functions that words as tools might have. Language can work as a physical tool, an inner/cognitive tool, and a social tool (see Figure 0.1). In Chapter 1, in light of a review of current literature, I argue that language can work as a physical tool that extends human perceptual capabilities. I decided to use the term “physical tool,” even if words are symbolic, to refer to the fact that words can modify and enhance perception and facilitate action in the physical environment.

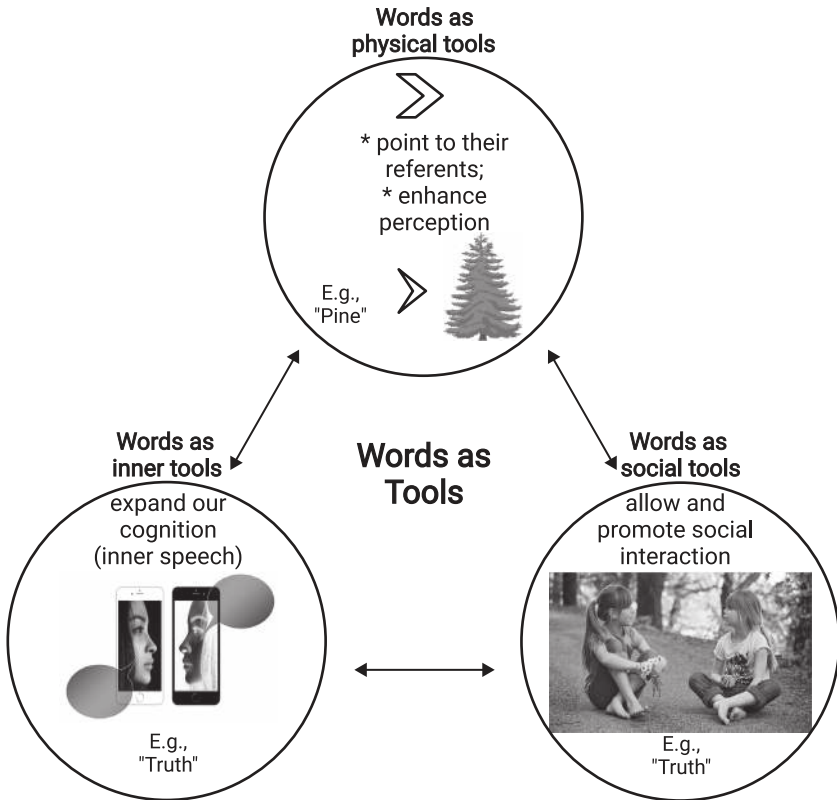


Figure 0.1 Words as tools. Words can work as physical tools, pointing to their referents and enhancing our perception, as inner tools that expand our cognition – for example, through inner speech – and as social tools, instruments for social interaction.

I also describe how different languages influence the human mind and behavior. In Chapter 2, I show, as research on inner speech suggests, that language also functions as an inner tool that enhances human cognition. In Chapter 3, I discuss why we can view language as a social tool. In Chapter 4, I show how language evolves from interacting with the world and with others and how people converged in using the same – or different – words (see Figure 0.1).

Part II of the book, “Abstractness and Language,” includes four chapters that focus on abstract words and the concepts they express. After defining them, in Chapter 5, I argue that different varieties of abstract concepts exist. Then, I clarify why abstract words can be viewed according to the

identified parameters. Chapter 6 discusses how abstract words can be physical tools because they evoke perceptual and especially interoceptive properties and might enhance perception. More crucially, they are inner tools and, in Chapter 7, I propose that inner speech is crucial for their acquisition, processing, and use. Finally, as I show in Chapter 8, abstract words are social tools; due to their difficulty and indeterminate nature, they promote social interaction, which is fruitful both in enabling better understanding of their meaning by learning from experts and in negotiating word meaning with others. I explore the relationship between abstract concepts and social interaction and propose to define them as concepts for which we need others more. Adopting this framework, I sketch a model of abstract concepts acquisition and use, describe empirical evidence supporting it, and argue that intending abstract concepts in this way requires a profound methodological shift.

The perspective adopted in this book extends embodied/grounded cognition, integrating insights derived from distributional semantics views, pragmatics, and semiotics. It is deeply indebted to authors as diverse as Vygotsky (e.g., Vygotsky, 1934/1986), Wittgenstein (Wittgenstein, 2009; 2013), who also considered words as kind of tools, and, more recently, Lieberman (Lieberman, 2009), who has emphasized the relationship between language and the motor system. I will mostly consider psychological and neuroscientific literature, but also philosophical and anthropological studies on abstract concepts, and literature on language evolution. I contend that current methods for studying abstract concepts are compelling but insufficient to capture their nature, which has its ground in linguistic and social interactions. Researchers should seek to adopt new methods to capture how word meaning varies across contexts and real-time dialogues and interactions. This methodological shift is vital for investigating language overall, but mainly abstract concepts, the meaning of which is highly variable, context-dependent, and debatable. Importantly, I am committed to the view that we cannot study concepts and language without investigating their development. The book will thus leave a lot of space for developmental studies. The conviction is that only an integrated approach that gives both linguistic and bodily experiences the role they deserve will be able to meet the challenge of explaining our sophisticated capability of abstractness.

In conclusion, this book is about how words free us as human beings. Words release us from the current context, from the here and now. Words are a matter of improvisation (Christiansen & Chater, 2022); with them, we constantly invent new games (Wittgenstein, 2013). They allow us to

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imagine, fantasize, and dream; they smoothen but at the same time add complexity to our interaction with others. Among all words, abstract ones grant us more freedom. The freedom words offer us is particularly evident when words are not tightly linked to their referents, when their meaning is debatable and open – open to the context, the suggestions of others, the conflicts with them, and our sudden and unpredictable thoughts. This freedom that words grant is an essential part of what makes us human, and abstractness reveals it with power and strength.

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