Comment

Rethinking the abstract/concrete concepts dichotomy
Comment on “Words as social tools: Language, sociality and inner grounding in abstract concepts” by Anna M. Borghi et al.

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1. Introduction

The topic of how we acquire and represent abstract concepts is a timely and urgent issue to be addressed since it is one of the most challenging aspects for any embodied theory of human cognition [5], [2], [3]. The WAT theory by Borghi et al. [1], which is a proposal among the so-called Multiple representation theories framework (MRT; for a discussion, see [2]), argue that both concrete and abstract concepts recruit sensorimotor information and linguistic and social knowledge. However, the balance between these components differs depending on the abstract or concrete character of concepts. Indeed, abstract concepts rely on language much more than concrete ones.

Undoubtedly, the WAT theory has the merit to provide a unified framework to explain the role of sensorimotor, linguistic and social information both in the acquisition and representation of concepts. This is an important step forward since other accounts usually do not address both these aspects. Furthermore, to the best of our knowledge, the WAT is the first, and so far unique, embodied approach to concepts that, accounting for the role of language in concepts acquisition and representation, acknowledges as crucial the performative power of words.

However, though its ground-breaking character, the WAT proposal has also controversial issues. In the rest of this paper we will address the WAT problematic aspects and we will then sketch an alternative account of the role that bodily and linguistic and social knowledge play in abstract and concrete concepts.

2. WAT. Problematic aspects

The WAT theory proposes that whereas concrete concepts, i.e., those concepts that have a referent that we can directly experience, are mainly grouped on the basis of perceptual similarity, abstract concepts, i.e. those concepts that do not have such a referent (we cannot touch or see it), are linguistically and socially acquired. The entire WAT proposal seems to be centred on this assumption, presented as the first of the four main tenets of the theory [1, p. 4]. The other tenets depend on, and are derivable from, this first one.
We contend that the distinction between abstract and concrete concepts based on the nature of the concepts referent is an “essentialist assumption” which is theoretically unsound and not fully predictive of how concepts work. Although Borghi et al. [1] agree that such distinction is not sharp, their own conclusion is more optimistic than ours. Indeed, we fear that this dichotomy so defined could not function as the cornerstone for an account of concepts, for at least two reasons, and should be replaced by a more viable alternative.

First, during both individual development and scientific progress, many concepts shift from one category (abstract) to the other (concrete). Golgi’s description of the internal reticular apparatus was considered an abstract (and incorrect) concept, and largely rejected by the scientific community, until the discovery of electron microscopes, about 50 years later. Similarly, physical concepts such as the concept of “atom” are very abstract, and socially and linguistically constructed. But they can become the object of our experience if we access them by using powerful atomic microscopes, or alternative technological tools. In this way a previously abstract concept acquires an experiential (visual) referent.

Second, many concepts are concrete (i.e. they have a concrete referent) though they are linguistically and socially acquired, since linguistic knowledge influences radically the way we conceive them. Even after seeing atoms with atomic microscopes, our knowledge is dependent on our background linguistic knowledge. Similarly, even concepts related to very sensorial experiences such as, for example, that of wine tasting are highly dependent on language and on a socially and linguistically constructed background knowledge. Thanks to this knowledge and by using a specialized terminology, sommeliers become able to distinguish different wine’s flavours and aromas. The sensorial experience per se might not be sufficient in wine tasting. Another interesting case is that of socially constructed concepts, such as the concept of money, constituting our social ontology (Borghi et al., [1], discuss this case, too). The concept of a twenty-dollar bill is clearly concrete: it has a physical referent that very likely we have all experienced. However, without doubts, this concept is entirely linguistically and socially constructed. In fact, whereas the concrete referent for the twenty-dollar bill concept in itself is a mere piece of paper, its motivational and emotional impact is dependent on specific functional attributions by a community of people and by means of a linguistic practice (i.e., thanks to the performative power of words).

The nature of the concepts’ referent, thus, is not necessarily predictive of how bodily information and linguistic and social knowledge work in concepts acquisition and representation. Therefore, to centre an account of concepts on the abstract/concrete dichotomy based on the nature of the referent can be very risky. Indeed, such an approach would have too many exceptions to be accounted for.

Furthermore, and more importantly, we find really unsound the idea that concrete concepts acquisition might not rely on language and we consider controversial the data supporting this claim. Children are literally immersed in a linguistic reality from birth and even before (they are exposed to their mother tongue since when they are in their mother’s womb; [9]). And even before they are able to speak, they are already and clearly linguistic creatures. In fact, language comprehension comes much earlier than language production (Cuccio and Carapezza, [4]). Thus, even though children acquire concrete concepts before the abstract ones, this does not mean that the acquisition of concrete concepts does not rely on language or relies less on language compared to the acquisition of abstract concepts. None of the data on concepts acquisition discussed by Borghi et al. [1] directly support the claim that language is not involved in concrete concepts acquisition or is less involved. These studies only support the claims that language certainly is essential for the acquisition of abstract concepts and that more sophisticated linguistic and social abilities are likely involved in the acquisition of concrete concepts. However, these latter claims are different, and less demanding, compared to the WAT main tenets.

In addition to this, we also consider misleading the discussion about abstract concepts acquisition in deaf children. In fact, Borghi et al. [1] predict that deaf children should have a selective impairment in the acquisition of abstract concepts compared to concrete ones because abstract concepts acquisition is mainly a linguistic experience. We think that there is a conceptual mistake in this claim. The authors identify linguistic experiences with acoustic linguistic experiences. However, deaf people use sign languages and, as thousands of papers have now widely shown, these are real natural languages even though they use the visual modality (e.g. [10], [11–13], [16], [14]). Therefore, linguistic experiences do not necessarily have to take place in the acoustic modality. Linguistic exchanges take place also in the visual modality. In this light, and contrary to what Borghi et al. [1] suggest, we do not predict that deaf children will be selectively impaired in the acquisition of abstract concepts if they have been exposed a sign language since their birth or very early on. Obviously, in case they have not been exposed to a sign language early on, then that could be a reason for a delay in the acquisition of abstract concepts. But this would happen to any other child, hearing or
deaf, not exposed to a natural language since birth. In this case, children would miss a linguistic experience, it does not matter what modality this has. As for the data that Borghi et al. [1] discuss in support of their prediction, in our opinion they are controversial for two reasons. The first reason is that we do not know whether the deaf children of the study reported (Wauters et al., [17]) use a sign language and, if this is the case, we do not know whether these children acquired it early on or were late learners. To claim that deafness, as a deprivation of acoustic linguistic interactions, leads to a selective impairment in the acquisition of abstract concepts, it is necessary to compare hearing children to deaf children exposed to sign language from birth and to deaf children not exposed to a sign language early on. Only if both the deaf children groups have a delay in abstract concepts acquisition we can claim that deafness per se determines a selective impairment in the acquisition of abstract concepts. Second, and importantly, in the study by Wauters et al. [17], reading abilities of deaf and hearing children are compared. However, a reading task cannot be the basis to assess children acquisition of abstract concepts. In fact, deaf people have difficulties with written text (e.g. [15]). Sign language does not have a written form. For example, Italian deaf children use Italian Sign Language (LIS) and read and write in Italian. However, for a native LIS user, Italian is comparable to a second language. Thus, comparing deaf and hearing children in a reading task is similar to comparing reading performances of native speakers to that of second language speakers [7].

3. Towards a new account of the abstract/concrete concepts dichotomy

Summing up, our suggestion is to take very seriously an idea that is advanced, but not fully developed, by the authors of the WAT theory: that the traditional view of a dichotomy between abstract and concrete concepts based on the nature of the concepts’ referent needs to be rethought. The abstract/concrete concepts dichotomy blossoms from an essentialist approach assuming objective differences characterizing different types of concepts. We suggest that this dichotomy is not predictive of which kind of knowledge, sensorimotor or social and linguistic, will prevail in the concepts’ structure. Nor it is predictive of how concepts are represented in the brain. In contrast, we believe that a more promising strategy can be obtained by replacing the essentialist approach with an approach centered on two different factors. First, by paying attention to the modality of acquisition of concepts, regardless of their referent. Second, by considering how concepts relate to cognitive models, i.e. our encyclopaedic knowledge structures [8], [6], [5]. The latter are composed by different kinds of information (e.g., linguistic, social, sensorimotor, interoceptive, emotional, etc.). In our view, concepts are not isolated items. They are embedded in cognitive models and relate to them to be defined. Importantly, these relations are not fixed. They can change accordingly to the concept usage in context.

References