# Perceiving High-Level Properties: An Introduction

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## 1. Introduction

Suppose you are walking into a park on a grey afternoon while talking on the phone with a friend. Suddenly, a dog comes bounding across the grass, having fun chasing a tennis ball. Then, it snatches the ball and comes back with its tail wagging. Suppose also that, since catching a certain distraction from you, your friend asks what you are looking at. Such a question seems rather easy. And yet a moment of reflection turns it into a philosophical puzzle. That you see the dog's shape, its colour, the arc of its movements, and its tail wagging is pacific. However, do you strictly speaking *see* it as a dog? Do you, strictly speaking, *see* that it is having fun? More generally, does perceptual experience itself reach these kinds of features of perceived objects, or does it deliver only an array of lower-level properties? This is the issue of high-level perception, an issue that has recently taken centre stage in the philosophy of perception, especially after Siegel's (2006, 2010) seminal work.

The purpose of this Topical Collection is to advance our understanding of high-level perception by bringing together a range of approaches to the topic. Philosophers are reframing the question of high-level perception in new and illuminating ways, refining the conceptual tools used to draw the low/high-level distinction, and reassessing the methodologies that have long been used to evaluate high-level perception. These threads, and others, are woven together in the contributions to this collection. In this introduction, we survey the key questions surrounding high-level perception and introduce each contribution to the collection. It proceeds as follows. Section 2 reconstructs the main areas of the debate. Section 3 introduces the individual contributions and the joint outcomes they achieve. Section 4 sums up the discussion and offers some possible directions for further research.

## 2. High-Level Perception: An Overview

This Topical Collection focuses on high-level perception. As we mentioned, discussions on this topic have proliferated in recent decades. The risk of getting lost

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among them is therefore just around the corner. The purpose of this section is to avert that risk by providing readers unfamiliar with the topic with a broad overview of such a debate. We leave it to the contributions that follow to fill in the details of that overview.

## 2.1 The Admissible Content of Perception

The issue of high-level perception has emerged as a natural articulation of the long-standing problem concerning the reach of perceptual experience, whose underlying question can be stated as follows: what can we experientially perceive? Traditionally, philosophers have addressed this issue by asking which objects in our environment can be experientially perceived. In recent decades, the research focus has shifted from the objects of the surrounding environment to their properties, thereby bringing the following question to the forefront of the debate: which properties can we experientially perceive? That is, which properties can make a substantial contribution to the *phenomenal character* of our perceptual experience?[1]

Once framed this way, the issue has immediately directed attention toward a specific kind of properties. As we mentioned at the beginning, there is, in fact, little philosophical controversy about the claim that so-called low-level properties such as colour, shape, and location (for vision), volume and pitch (for audition), odour (for olfaction), sweet and savoury (for taste), and texture (for touch) are experientially perceivable—viz., they can contribute to what it is like to undergo our perceptual experiences. Much more controversial, however, is whether our perceptual experiences also encompass other kinds of properties. For instance, to resume the situation we started with, when we see a dog in front of us, as well as seeing its shape and its colours, do we also see its property of *being a dog*? When we see the dog having fun chasing a tennis ball, as well as seeing its movements, do we also see its property of *being happy*? These are questions concerning the experiential perceivability of so-called *high-level properties*. Thus, in light of the aforementioned reorientation, the quest for the reach of perceptual experience has become the question of whether the range of experientially perceivable properties extends beyond low-level properties to encompass high-level ones as well.

It is worth stressing at the outset that there is no agreed-upon principled way to distinguish between low-level and high-level properties. Although some proposals have been suggested,[2] none of these to date has settled the debate. In the absence of clear boundaries, the most widely held approach among philosophers in the debate has been to list paradigmatic experientially perceivable properties for each sensory modality, treating as high-level any property not included in such a list. In this list-based approach, high-level properties form a heterogeneous class, encompassing all properties that have not typically been considered experientially perceivable. A (likely partial) list of the members of this class includes: natural kind properties (e.g. being a dog, being a pine tree), artefactual properties (e.g.

[1] Phenomenal character is the property a conscious mental state exhibits when, and only when, there is something it is like for its subject to be in it. Phenomenal character is what distinguishes (phenomenally) conscious states from (phenomenally) unconscious ones.

[2] According to Calzavarini and Voltolini (2022), for instance, high-level properties are those properties that depend on low-level ones without supervening on them. According to Burnston (2022), instead, high-level properties are those represented over and above low-level features, without being represented independently of them.

being a chair, being a stethoscope), causal and event properties (e.g. being the cause of the window's shattering), affordance properties (e.g. being kickable, being edible), affective properties (e.g. being happy, being surprised), social properties (e.g. being masculine), and moral properties (e.g. being compassionate).

Although the question about the experiential perceivability of high-level properties is in principle compatible with any metaphysical account of perceptual experience (e.g., Naïve realism, Sens-data theory, Representationalism), the literature typically addressed it within a representational framework of perceptual experience, somehow reflecting the fact that the latter is by now orthodoxy in current philosophy of perception. Representationalism construes perceptual experiences as states with representational content, where the latter roughly correspond to conditions under which experiences are accurate. Accordingly, within this framework, the issue of high-level perception is typically couched as the question of whether high-level properties can be phenomenally represented in the content of perceptual experiences, that is, represented in a way that affects the experiences' phenomenal character.[3]

The qualification of the representation in question as "phenomenal" is normally taken to be necessary; for it ensures that we are still confronting the issue of whether we can *experientially* perceive high-level properties. Certain properties, in fact, may figure in the representational content of a perceptual experience without making any contribution to what it is like to undergo such an experience. However, few theorists would be willing to maintain that, in this case, we grasp such properties in a perceptually conscious way. What matters for the issue at stake is not so much whether high-level properties can enter the representational content of perceptual experience, but, to borrow from Bayne (2009), whether they can enter its phenomenal content.[4, 5]

[3] It is worth stressing that the question of whether high-level properties can be phenomenally represented in perceptual experience is not straightforwardly equivalent to the question of whether such properties are genuinely experientially perceivable. As Raleigh (2022) points out, a property can figure in the representational content of a perceptual experience—whether accurately or not (e.g., in cases of systematic misrepresentation)—without thereby being perceived. This is because perceiving a property plausibly requires satisfying additional causal conditions beyond mere representational accuracy. Accordingly, framing the debate in terms of representational content introduces a subtle but non-trivial shift of topic.

[4] Roughly, phenomenal content is that part of an experience's representational content which supervenes on its phenomenal character (cf. Bayne 2009: 386).

[5] In the relevant literature, it is quite common to follow Bayne (2009) and frame the debate at issue in terms of the phenomenal content of perceptual experiences. However, it is worth noting that this is a bit misleading. A supporter of high-level perception might accept that a perceptual experience can phenomenally represent a high-level property without committing to the idea that this representation depends on the experience's phenomenal character. What is crucial to view is rather the thesis that high-level properties can be reflected in the phenomenology of experience. This requirement corresponds to what Ashby (2020) calls the *Phenomenal Reflection Claim*. How exactly this claim has to be understood is itself a matter of controversy. Some endorse a strong reading, maintaining that, when two properties are metaphysically distinct, they are reflected in the phenomenology if, and only if, they determine a phenomenal difference. Others favor a weaker reading, allowing that metaphysically distinct properties may be reflected in phenomenology even without generating a phenomenal difference (Ashby 2020; Sacchi 2025). The most permissive weakening of the phenomenal reflection claim is offered by Papineau (2021), who argues that phenomenal character places no intrinsic constraint on representational content.

So far, the debate over the admissible content of perception has been dominated by two main camps, namely, the so-called Conservative (or Spare) view and the so-called Liberal (or Rich) view. Conservatives claim that only low-level properties can be phenomenally represented in perceptual experiences. On this view, for instance, when we see a dog having fun with a tennis ball, the only properties of the dog we can see are its shape, its colours, its movement, and so on. High-level properties of the dog, such as being a dog or being happy, may be inferred or recognised from the visual experience we undergo, but they are not themselves experientially perceived; that is, they do not make a contribution to what it is like to undergo such an experience.[6] Liberals, by contrast, hold that we can experientially perceive a range of high-level properties. The extent of this range varies significantly among liberals, but the camp is unified in denying that the reach of perceptual content is exhausted by low-level properties. Hence, according to liberals (or, at least, to some of them), when we see the dog having fun with a tennis ball, we do not merely see shapes and colours and infer that there is a happy dog before us; we can genuinely see the dog *as a dog*, and the dog *as happy.* These features contribute to what it is like to undergo the visual experience in question.[7, 8]

## 2.2 Establishing High-Level Perception

The disagreement between liberals and conservatives is not just substantive, but also methodological. Once the debate is framed in terms of which properties can be objects of perceptual experience, a further methodological question arises: *how* can we determine whether a candidate high-level property is genuinely perceived, rather than inferred, recognised, or supplied by some cognitive activity? Relatedly, what does count as evidence that a high-level property is genuinely perceived?

The questions are pressing, especially because both liberals and conservatives may often agree on the phenomenological starting point. They may agree that, in many cases, the expert botanist and the novice, as well as the expert radiologist and the layperson, may seem to have different experiences while being exposed to the same stimulus. What is disputed is how that difference is to be explained. More specifically, is it the case that to a difference in experience corresponds a difference in perceptual content itself or is it, rather, that the experiential difference is reflective of differences in subjects' attention, judgment, memory, familiarity, or recognition abilities? Establishing criteria for high-level perception seems to require more than analysing and producing examples. What is needed is a method to distinguish contributing cognitive or affective elements from genuine perceptual experiences. The most influential method employed to address these

[6] Prominent figures within the conservative camp are, among others, Byrne (2009), Dretske (2015), Reiland (2014), Prinz (2013), and Tye (1995, 2000).

[7] The liberal camp is quite wide. A non-representative sample of it includes Bayne (2009), Butterfill (2009), Calzavarini and Voltolini (2022), Di Bona (2017), O'Callaghan (2008), Siegel (2006, 2010), and Toribio (2018).

[8] It is also worth flagging a couple of positions on high-level perception that do not fit neatly into these alignments, at least as typically understood. The first is the view that there is no fact of the matter about whether we perceive high-level features (Logue 2013). The second is the view that, while granting high-level perception, takes issue with the way liberals have typically characterized it (Montague 2023). Both positions are driven by scepticism about the possibility of drawing a distinction between perception and cognition—a possibility on which the dispute between conservatives and liberals rests. More on this below (Section 2.3).

issues has been the phenomenal contrast method, with Siegel being its most prominent developer (Siegel 2005, 2007, 2010).

The method involves comparing two experiences, such as a botanist and a novice looking at the same forest, and arguing that the best explanation of the phenomenal difference is that one subject represents a high-level property while the other does not. However, the phenomenal contrast method faces significant explanatory difficulties. First, the method relies on arguments to the best explanation. It fails to provide a principled reason to rule out alternative explanations, such as explaining the phenomenal difference simply in terms of differences in lower-order properties (Jagnow 2015, Majeed 2018), shifting attention, or non-perceptual phenomenology (Reiland 2015, Voltolini 2020). For example, an opponent of the phenomenal contrast method might claim that the difference between the two experiences is due to a non-sensory conscious state, like a judgment or a "raw feeling of familiarity", rather than a change in perceptual content (Siegel 2010: 209–210). Second, because the phenomenal contrast method focuses on experiences, it excludes the unconscious perception of higher-order properties (Nanay 2011).

To integrate and supplement the phenomenal contrast method, some philosophers appeal to empirical effects such as perceptual adaptation and perceptual learning as tests for the reach of perceptual content. Perceptual adaptation, characterised as the ability to adjust and recalibrate the interpretation of sensory inputs over time, is traditionally associated with low-level features like colour or motion (e.g., the waterfall illusion). But if it is possible to demonstrate that a higher-order property is also susceptible to adaptation, then it is most likely perceivable (Block 2014; Di Bona 2017; Fish 2013). Similarly, perceptual learning is viewed as a process based on training and experience that ends up producing changes in the subject's perceptual abilities (Connolly 2017; Georgakakis & Moretti 2019). According to some, perceptual learning can constitute a form of "diachronic cognitive penetration" that sharpens specific skills, such as a radiologist's ability to see a tumour (Lyons 2023).

These approaches, based on adaptation and learning phenomena, signal an important shift in the debate. While phenomenal contrast approaches stem from first-person comparisons between experiences, adaptation and learning approaches attempt a slightly different route to high-level perception. They suggest that the reach of perception may be investigated by asking whether perceptual systems themselves are plastic and potentially trainable with respect to a specific high-level property. Still, a challenge might persist: even when adaptation and learning effects are present, it may be difficult to judge whether they concern a high-level property or its low-level features.

While they provide rich descriptive detail, the approaches discussed in this section often lack a unified foundation, at times risking the depiction of a landscape of isolated examples without general methodological criteria for determining whether a property (*any* property) is perceivable. Phenomenal contrast-based arguments may be vulnerable to competing explanations of the specific experiential difference under scrutiny, while views based on adaptation and learning phenomena, although they convincingly illustrate that perception changes through exposure or training, may not suffice to determine which property exactly is perceptually represented. Moving beyond this impasse requires the elaboration of a unique criterion (or set of criteria) capable of assessing the perceivability of each kind of higher-order property, as evidenced in Voltolini's contribution to this collection.

## 2.3 High-Level Perception and Cognition

In addition to methodological questions, the dispute between liberals and conservatives cuts across two broader and much-discussed issues about how perception relates to cognition, namely, roughly, the domain of the mental, paradigmatically exemplified by states such as thoughts, judgments, desires, and so on. The first is the so-called *perception/cognition divide*: what, if any, does distinguish perception from cognition? The second is the so-called *cognitive penetrability of perception*: can our cognitive states shape what we perceive? Although these issues are conceptually distinct from high-level perception, they are typically taken to be closely connected to it. We address each in turn, though we do not claim to be exhaustive. Our aim here is simply to give the reader a sense of these issues and how they intersect with high-level perception.

Consider first the perception/cognition divide, that is, where and how the boundary between the two mental domains is to be drawn. The quest for whether high-level properties are represented in perceptual experience cannot be completely separated from this issue. As Nes, Sundberg, and Watzl (2023) note:

> In debates on high-level perception, it is agreed that suitably skilled perceivers quickly and effortlessly can spot the natural kinds […], meanings […], emotions or intentions […], or even moral properties […] of perceived objects or events. Yet do these subjects *genuinely perceive*, or *merely swiftly cognize*, these properties? To get a handle on this, we need a grasp on what marks the perceptual as opposed to the cognitive, and vice versa (Nes, Sundberg, and Watzl 2023: 166, my emphasis).

Thus, both liberals and conservatives *presuppose* some way of distinguishing perceptual experience from cognitive states, using it to classify the alleged mental grasp of a certain high-level property as perceptual or post-perceptual. In what does such a divide consist, however?

As it often happens in philosophy, it is easier to raise the question than to address it. It seems plain that perception differs from cognition. At least normally, we do not get confused whether we are perceiving a dog or merely thinking about it; seeing a dog is one thing, desiring a dog is another. And yet, providing an account of their difference has proven surprisingly difficult, prompting several proposals. There are various ways to carve them up. Drawing on Raleigh's (2026) contribution to this collection, we can identify the following four main dimensions along which this distinction has been drawn: phenomenal character, representational format, cognitive architecture, and world-relation.[9]

On a phenomenological account, perception is distinguished from cognition by its distinctive phenomenal character. Perceptual experiences are often described as vivid, immediate, presentational, or as putting the world before the subject in a way that cognitive states do not, maybe because there is nothing it is like to be in these states. On a representational account, the distinction is instead drawn in terms of the kind of representational content or vehicle involved, contrasting the iconic or analogue format often ascribed to perception with the discursive or propositional format characteristic of thought. On an architectural account, perception and cognition are distinguished by their place in the mind's information-processing structure, for instance by appeal to modularity, information

[9] Nes, Sundberg, and Watzl (2023) provide a similar classification. For a slightly different way of carving up the territory, see Clark and Beck 2023.

encapsulation, or characteristic forms of information flow. Finally, on a world-relational account, perception is distinguished by its special dependence on currently presented objects or stimuli, whereas cognition can represent objects and properties in their absence.

Notably, these accounts can come apart. A mental state classified as perceptual according to one account may count as cognitive on another. This raises the question of how these proposed accounts relate. Here, again, views diverge. Some hold that one account takes priority over the others (e.g., Block 2023; Dretske 2015). Some maintain that multiple accounts must be combined to capture the true perception/cognitive divide (e.g., Taylor 2020). Others are pluralist, accepting that there are multiple independent ways to characterise the borders between perception and cognition, all equally legitimate (e.g., Burge 2014; Phillips 2019). Still others are eliminativists, contending that the distinction between perception and cognition does not carve a genuine joint of the mental domain (e.g., Logue 2013, Montague 2023). Given such a wide range of viewpoints, it is important to bear in mind that part of the disagreement between conservatives and liberals—as well as among liberals themselves—stems directly from differing stances on the perception/cognition divide.

Consider now the cognitive penetrability of perception, that is, the alleged capacity of some cognitive state to directly influence perceptual experience. The qualification of the influence a cognitive state exerted on perceptual experience as direct is important. The claim that perception is cognitively penetrated is not merely the claim that our cognitive states causally influence what we perceive. It is, for instance, pacific that beliefs can direct where one attends, thereby causally influencing what one perceives. However, this mediated influence of cognition on perception is not considered a case of cognitive penetration. The latter concerns a more substantive form of causal influence, one in which cognitive states directly affect the way we perceive, such that two perceivers, holding fixed all non-cognitive variables (stimulus, lighting, sensory organ condition, attention), can have different perceptual experiences solely in virtue of their different cognitive states such as beliefs, desires, expectations, or knowledge.[10] To borrow an example from Stokes (2013), cognitive penetration implies that an expert *chocolatier* and a novice tasting at the same piece of chocolate will have different tasting experiences of the chocolate—it will taste different to them. So understood, cognitive penetration is a controversial phenomenon in which a perceptual experience causally depends on cognitive states, where this causal dependence is internal and mental (Stokes 2013: 650).

The debate about cognitive penetration divides roughly into two positions. On one side stand those who, following the tradition, deny cognitive penetration, holding that perceptual experience is entirely shielded from direct influence by the perceiver's cognitive states—call them impenetrability theorists. On the other side stand those who accept cognitive penetration, maintaining that perception is, at least sometimes, penetrated by cognition—call them penetrability theorists.

The dispute between impenetrability and penetrability theorists turns mainly on the status and interpretation of the alleged empirical evidence for cognitive penetration, which includes studies on ambiguous figures (Leeper 1935), memory colour effects (Hansen et al. 2006), racial category effects (Levin and Banaji 2006), and desire-influenced spatial perception (Balcetis and Dunning 2006, 2010). Pen-

[10] This characterization of cognitive penetration is due to Macpherson (2012).

etrability theorists interpret (at least some of) these studies as evidence of cognitive penetration. By contrast, impenetrability theorists claim that the relevant phenomena can be explained by appealing to alternative and less controversial psychological mechanisms.[11]

Regardless of the correct stance on cognitive penetrability, this phenomenon bears on the dispute over high-level perception. As the reader may have noticed (or will notice), many alleged cases of high-level perception appear to involve recognitional capacities, and, more generally, some degree of expertise. The experienced reader of a language may seem to see written marks differently from the novice; the expert birdwatcher may seem to see a bird as a goldfinch; the trained radiologist may seem to see a lesion in an image that the layperson experiences as an undifferentiated pattern. Such cases naturally invite to conclude that high-level properties enter perceptual experience because perception itself has become sensitive to cognitive background. Cognitive penetration is thus sometimes invoked by liberals as a candidate mechanism by which high-level contents come to figure in experience.

It is important to stress, however, that the two issues are logically independent. As Brogaard and Chomanski (2015) point out, high-level perception need not involve any cognitive penetration, and cognitive penetration need not yield high-level content.[12] Thus, while the issue of high-level perception is constitutively intertwined with the perception/cognition divide, it is only contingently related to the cognitive penetrability of perception.

## 3. Introducing the Contributions

The contributions address several interconnected issues. The main ones are three: the kinds of properties that may qualify as perceivable, the nature of high-level properties' perceptual content, and the criteria by which such perceptual content can be established.

The Topical Collection opens with Elisabetta Sacchi's contribution "Against the Conceptualist Argument against Sensory Liberalism". The author defends sensory liberalism against the challenges posed by cognitive liberalism. Specifically, she addresses the "conceptualist argument", according to which perceiving high-level properties requires the deployment of concepts. Against cognitive liberalism, Sacchi argues that perception of high-level properties involves perceptual categories rather than concepts. The author explores the mechanisms of property recognition, ultimately maintaining that high-level content reflects a "higher degree of structuration/organisation than the content of perceptual experiences of low-level properties (even though both contents are nonconceptual)" (324). By arguing for a non-conceptualist framework, Sacchi defends the purely sensory nature of high-level phenomenology.

Alberto Voltolini's contribution, "The Necessary and Jointly Sufficient Conditions for a Higher-level Property to Be Perceivable", aims to define the conditions under which a property is perceivable. He identifies two criteria that are both necessary and jointly sufficient conditions for a property to be perceivable. According to the first criterion, the high-level property is given immediately. According to the second, a high-level property is given via a "grouping operation that

[11] For an overview of this dispute, see Stokes 2013 and Raftopoulos and Zeimbekis 2015.
[12] See also Helton 2016: 852–853.

involves a *perceptual* form of *attention*; as one may also say, an attentive property selection" (331). The author then proceeds to show that while some candidate high-level properties fulfil these conditions, notably Gestalten and expressive properties, other candidates, such as natural kinds and meaning properties, do not. Unlike the case-by-case approaches discussed earlier in this article, Voltolini provides a more general theoretical structure to distinguish, among all possible candidates, between high-level properties that are perceivable and those that are not.

Joulia Smortchkova's contribution, "Can Empirical Effects Extend the Reach of Perceptual Content?" critically evaluates whether empirical effects, specifically perceptual adaptation and perceptual learning, can play a significant role as tests for high-level perception. She discusses two sceptical challenges to relying on these effects as tests for high-level perception: the first is whether these effects are genuinely perceptual, and the second is whether they can successfully be used as a guide for discovering the contents of perception. This second worry "stems from a form of underdetermination with respect to the target property of adaptation" (352). Several high-level properties are good candidates for adaptation. However, its presence alone is not sufficient for choosing which high-level properties are perceivable. The author's aim is to raise concerns about perceptual adaptation and perceptual learning as methods appealing to empirical effects to extend the reach of perceptual content. Although the concerns are not, in theory, insurmountable, they nonetheless show that the two methods are not straightforwardly applicable as tests for high-level property perception.

In Thomas Raleigh's contribution, "Visual Experience, Iconicity & Dretske's 'Goldilocks Test'", the author argues against Dretske's "Goldilocks Test" (2015), which assumes that a difference genuinely belonging to the visual experience should be reproducible in pictorial form. The author challenges this by demonstrating that various visual phenomena, such as Gestalt switches (discussed also by Dretske himself), the Müller-Lyer illusion, and super-saturated colours, raise problems for Dretske's Goldilocks test, as they involve phenomenal features that cannot be depicted. Similar to Smortchkova's critique of empirical tests, Raleigh also questions the methodological assumptions used to draw the boundary between perception and cognition. Ultimately, the author maintains that visual experience possesses a unique iconic nature that goes beyond simple pictorial representation, as Dretske suggests.

By focusing on invariant aspects of the visual field, such as its boundedness, oriented character, and feature-filled nature, in his contribution, "Structural Phenomenal Properties", Błażej Skrzypulec introduces a new category of perceptual properties—structural phenomenal properties—as a distinct category alongside traditional experiential contents. Through the application of a dependency-based hierarchy of properties, the author demonstrates that structural phenomenal properties function like typical high-level properties, as they supervene on lower-level features without being identical to them. The contribution expands the scope of the high-level properties perception debate by illustrating that structural phenomenal properties form a hierarchy analogous to that of low- and high-level content properties.

Francesca Forlè's contribution, "How Can a Landscape Be Melancholic? A Phenomenological Account of Objectual Expressivity", proposes a phenomenological account of expressive qualities in inanimate objects, such as the cheerfulness of a piece of music or the serenity of a countryside landscape. She argues that

these expressive qualities (tertiary qualities) are irreducible to other kinds (i.e., the ones that the philosophical tradition has called primary and secondary qualities) and should be viewed as global qualities of gestalts. By framing expressive qualities as higher-order properties, Forlè's contribution addresses the striking affinity between diverse objects, such as music and human behaviour, that share the same expressive character without possessing the same low-level properties.

Finally, Marta Benenti's contribution, "The Perceptual Learning of Affective Properties", explores the perceptual nature of affective properties, such as sadness, excitement, boredom, or comfort, through a taxonomy that distinguishes three classes of affective properties: arousal properties, expressive properties, and affective affordances. The author argues that affective properties are at least partly perceptual, as they contribute to the phenomenal character of experience, and are amenable to perceptual expertise. Specifically, Benenti illustrates how attentional weighting and repeated exposure can refine the subject's sensitivity to affective properties. Affective properties are therefore conceived as genuine, though complex, objects of perceptual learning solidly grounded in perception.

Taken together, the contributions broaden both metaphysical and methodological aspects of the debate. They examine not only familiar objects and kind properties, but also structural, expressive, and affective properties, while questioning whether any single phenomenological, pictorial, or empirical test can determine the limits of perceptual content.

## 4. Conclusion

This introduction has pursued three main objectives. First, it gave an account of the main questions structuring the debate over the perception of high-level properties, from what is the admissible content of experience to the boundaries between cognition and perception. Second, it surveyed the main methods researchers employ to establish whether high-level properties are perceptually represented, highlighting their explanatory power as well as their limitations. Finally, it situated the Topical Collection contributions within the broader theoretical and methodological landscape. The collected contributions are not limited to defending particular positions. They also indicate several directions in which the debate may be profitably developed. In this spirit, we conclude this introduction with a brief account of possible further research developments.

A first direction concerns sensory scope. The discussion of high-level perception has been focusing primarily on vision. Most typical examples involve seeing an object as a pine tree, a dog, or a face. Also, several influential methods and frameworks, such as phenomenal contrast and Dretske's Goldilocks Test, have clearly been formulated in reference to visual experience. Yet perception is not limited to vision, nor is it divided into separate and isolated sensory channels.

Broadening the spectrum to include other sensorial experiences may include new candidate high-level properties. Perception of speech, for example, may raise questions regarding whether linguistic meanings can be heard "directly", instead of merely inferred from perceived sounds. Similarly, music and environmental sounds could generate similar questions about whether affective qualities, such as cheerfulness or sadness, can be perceived rather than inferred. Importantly, these cases may not simply reproduce the same disputes in the visual modality discussion. Since different sensory modalities have distinct temporal structures and relationships with the surrounding environment, extending the debate beyond vi-

sion may reveal that the low- and high-level perception distinction can be articulated in modality-sensitive terms—or perhaps reconsidered using a more general account of perceptual experience. Many of the high-level properties considered in the debate can indeed be plausibly investigated in multi-sensory terms. Affordances, expressive and affective properties, and social properties are often perceived via a combination of visual, auditory, and even tactile information. Perceiving them may depend on features such as bodily orientation, practical possibilities, movements, and the integration of information over time. Recognising, for instance, that a slanted surface is climbable, or that a person is threatening, or that a classroom is tense may depend on information that does not result from one perceptual modality alone. For this reason, an ecological, holistic approach may clarify some features of high-level property perception that remain unseen when we apply methods based on isolated stimuli.

A further direction of research concerns the need for theoretical integration. As several contributions have shown, the debate on high-level perception has often been pursued along relatively independent lines of inquiry: metaphysical discussions that ask what kinds of properties high-level properties are and if and how they depend on lower-level properties; phenomenological approaches examining whether high-level properties are reflected in the phenomenology of experience; and empirically informed approaches appealing to phenomena such as perceptual adaptation, learning and expertise. Every approach captures an important part of the issue, but no single one appears to be decisive on its own. Further progress may require a framework capable of connecting all these levels of analysis. More specifically, the debate could greatly benefit from widely applicable criteria for demarcating perceptual and cognitive features. Such criteria may (or may not) be necessary and sufficient conditions. Even a pluralistic framework that combines phenomenological and representational considerations with functional and causal ones may constitute a promising line of research. The contributions to this Topic Collection illustrate both the difficulty and the importance of this task. [13, 14]

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