# Nyāya Arguments for Nyāya Realism

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The Nyāya Language of Location

"A locatee, a *dharma*, cannot be called a property in the usual sense of the term. It can be any occurrent entity, either an abstract particular (locateehood itself is one such abstract particular) or even a concrete particular (a pot), or an abstract generality (sweetness in sugar). […] This is what is meant by such assertions as *vṛttimān dharmaḥ* ('A locatee is what is occurrent in something else'). (2002, 332).
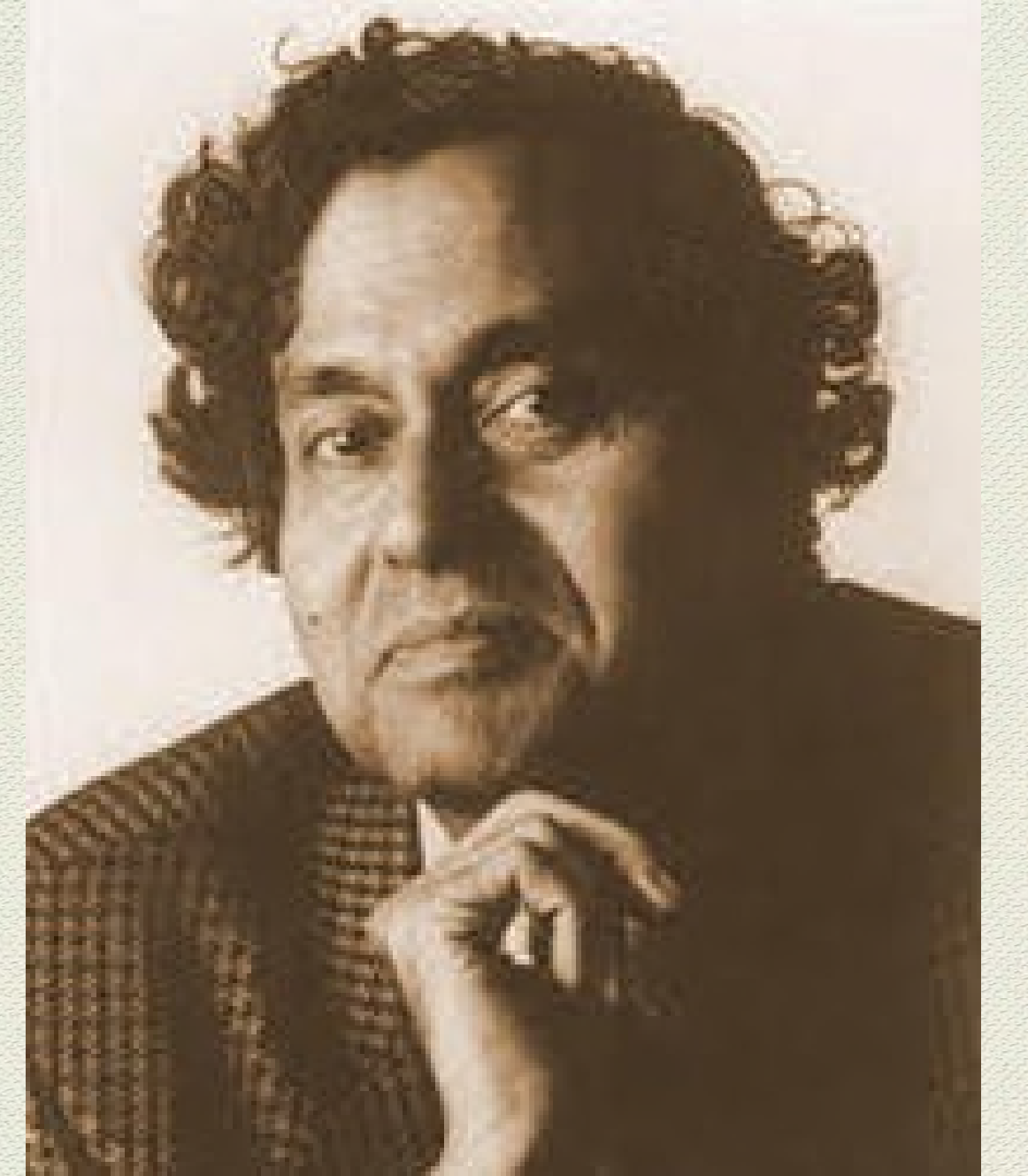
On the notion of the locative in Sanskrit.
Collected Essays, 2002, pp. 326–332.

The Nyāya Language of Location

Sanskrit linguistic intuition allows us to call a pot a *dharma* of its respective locus, but we cannot call it a property, for it is counter-intuitive to call a pot a property of the ground on which it is present. […] We ca say, 'there is a pot on the ground' (*bhūtale ghaṭaḥ*), which is equivalent to 'the ground is pot-possessing' (*ghaṭavad bhūtalam*) [..and..] *ghaṭavad* (= 'pot-possessing') is as common in Sanskrit as 'sweet' or 'blue' or other such adjectival expressions. […] A locatee-word can easily be turned into an adjectival by the use of possessive suffixes, -*vat*, -*mat*, and -*in*. Sanskrit logicians use this double mechanism of substantivizing and possessive suffixes to assimilate the usual subject-predicate sentences into their locus-locatee model. Thus, 'The mango is sweet' becomes 'The mango is sweetness-possessing, [and then] '(There is) sweetness-possessing-ness in the mango' or '(There is) sweetness in the mango'. We are back to the locus-locatee model, where here the locus = the mango, and the locatee = sweetness-possessing-ness = sweetness. […For..] Sanskrit logicians argue that the two operations—use of a possessive suffix and substantivization—are reciprocal. Hence, x+*vat*+*tva* = x. (1998, 26–30).
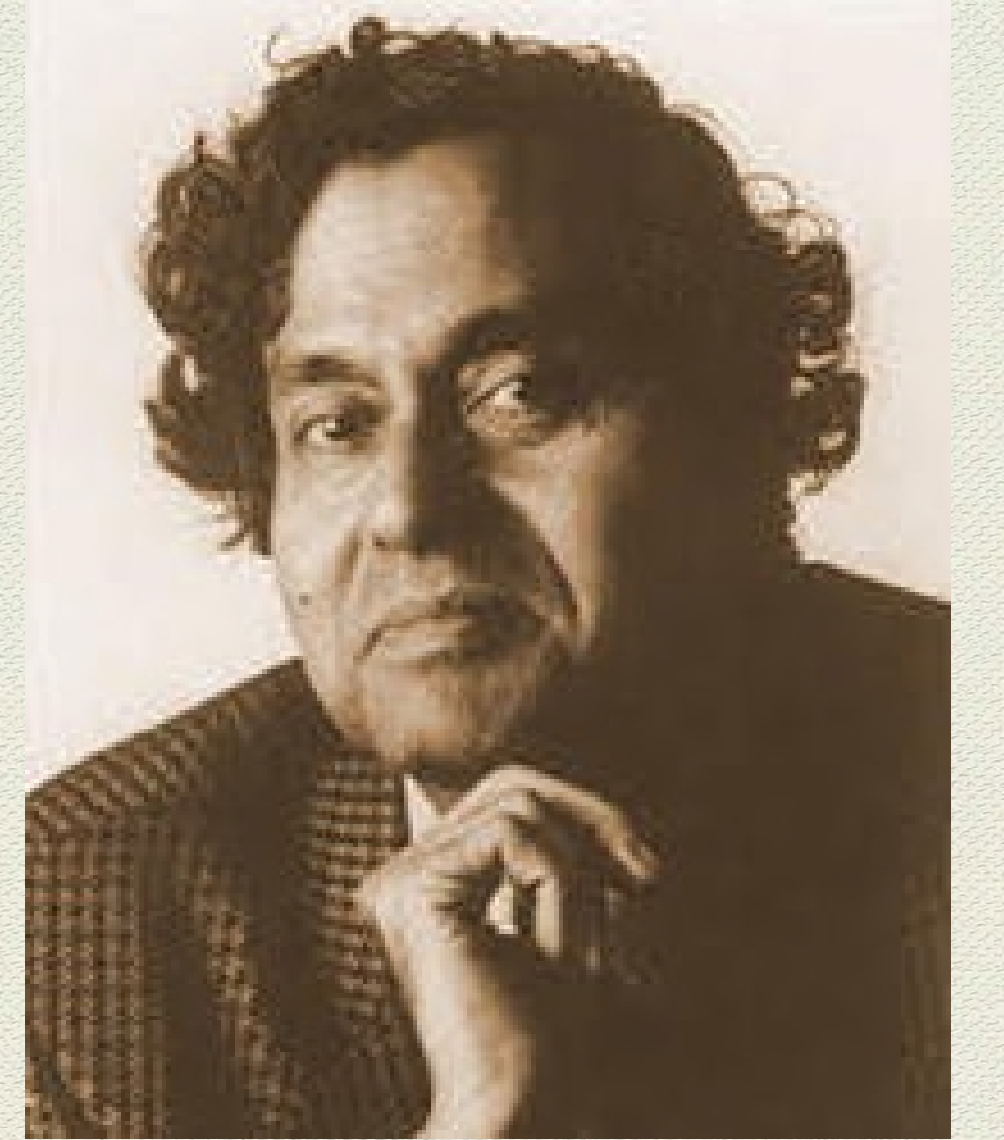
The Character of Logic in India, 1998.
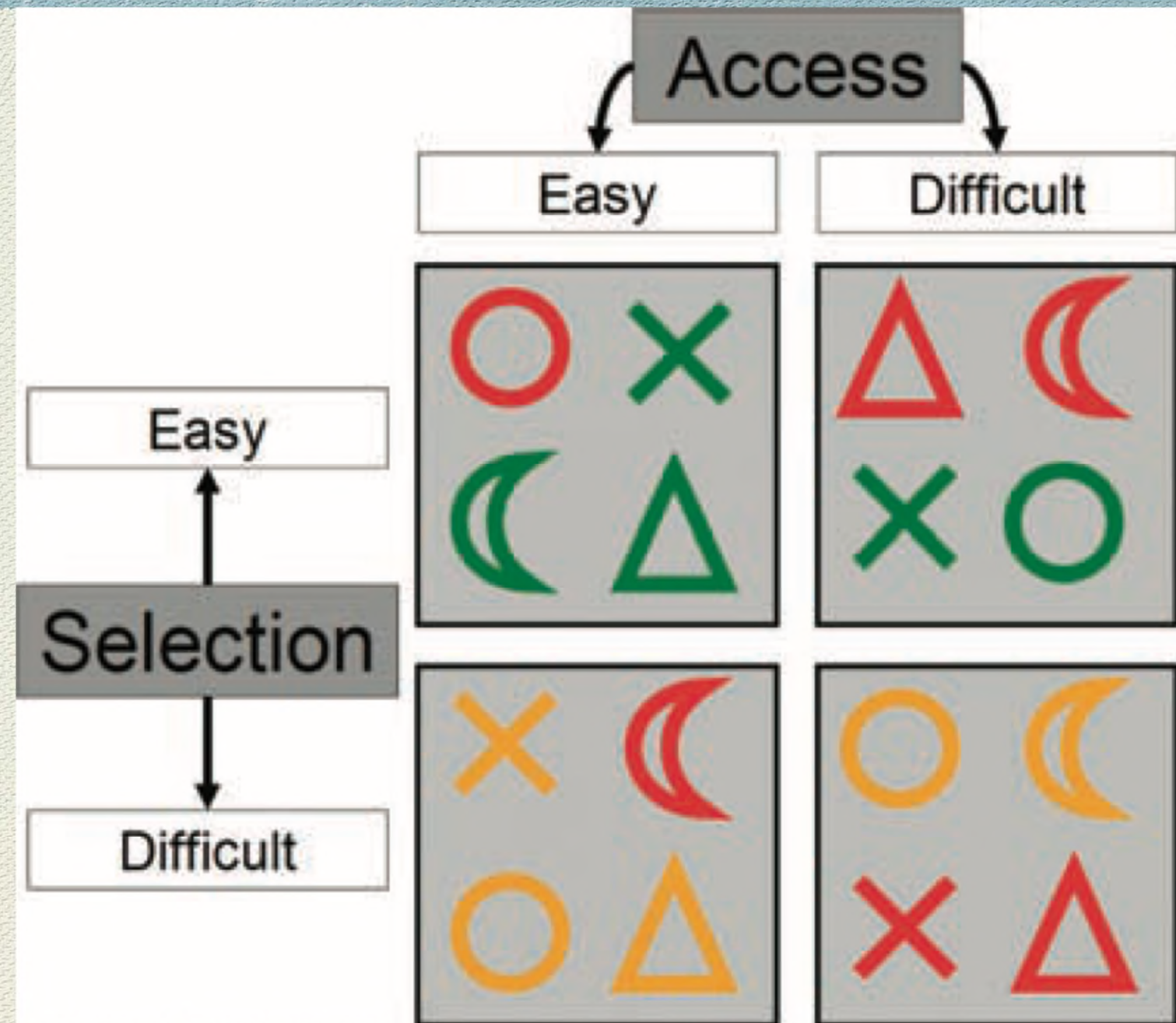
dharma-dharmin and Boolean Attention

Figure 1. The conceptual difference between access and selection. An observer tries to perceive the shape(s) of the red item(s) during brief exposures. Access is easy in the left column (only one shape has to be accessed) but more difficult in the right column (two shapes have to be accessed). Likewise, selection is easy in the top row (very different, therefore easy-to-ignore distractors) but difficult in the bottom row (very similar, therefore difficult-to-ignore distractors). The figure clearly shows that selection and access are two distinct concepts and can be manipulated fairly independently of each other.

"Selection" and "Access" (Huang and Pashler 2007) are "two sides of visual attention", selection being of an object, which is a continuous region, and encodes the notion of a process to reject distractors in the control of attention (Huang 2010, 162–3), while access is defined as "the limit on the content (or quantity in some sense) of visual information that is able to reach the stage of consciousness at any one moment" (ibid. 176)

The Argument from Selection: *Vaiśeṣika-sūtra* 4.1.6–9

The naïve realist argues that we see things and touch them directly, for our pre-philosophical thinking cannot be all wrong. The object of our veridical perceptual awareness, under this view, is the external thing, bodies etc., and not simply their sensible qualities, such as colour or shape. If this is a fair characterization of the position called naïve realism, then it is not very different from what I shall call Nyāya realism in the Indian context. (1986, 224).

The Nyāya position is that we see the opaque physical object, the piece of silver for example, because of the presence of these properties, but not necessarily because we first see these properties […] as a preliminary to the second, mediate perception […] I see it because it has a colour, but not necessarily because I see that colour. (1986, 203-4)
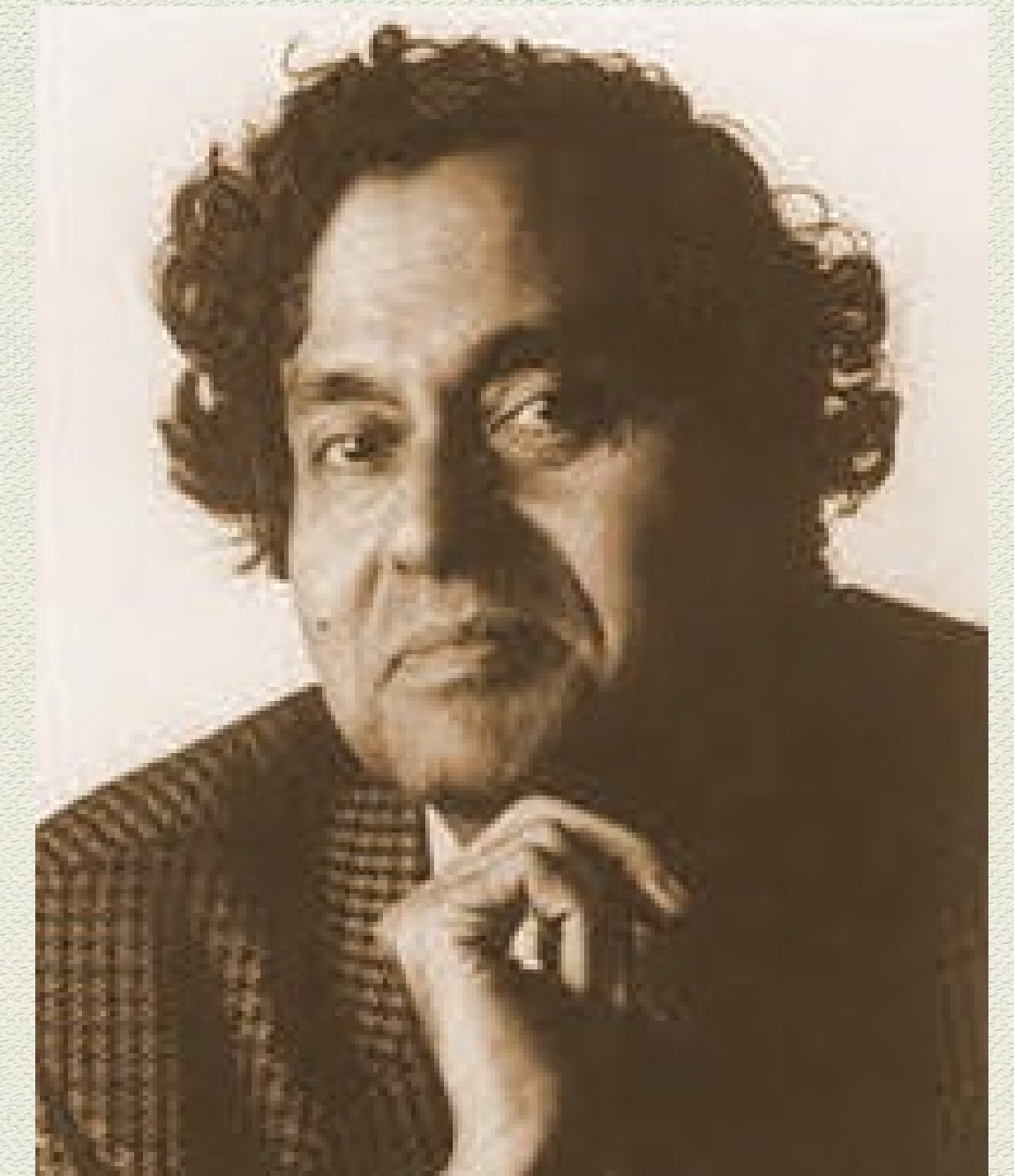
Buddhist Representationalism

"It is wrong for you to claim that an object such as a water-jug is [itself] perceived by means of vision or touch. Rather it is colours which are experienced with a certain shape, and perceptually experiencing a water-jug is a matter of experiencing the shape by way of experiencing the colours" (NyV. 70. 1-4)

[**Determination of Selection by Access**] In visual experience, the subject selects an object in virtue of accessing its properties.

The Interdependence Objection

"The distinct phenomenal features instantiated by a given perceptual experience are, to a significant extent, interdependent. For instance, as Fish (2009: 44) and Smith (2010: 389) note, when you see the shape of a coloured object, *you see the object's shape in virtue of seeing its colour*. But visual illusions often occur where the subject accurately perceives an object's shape but misperceives its colour. In such a case, then, the naïve realist can't claim that your experience's shape phenomenology is constituted by your acquaintance with the object's shape, while your experience's colour phenomenology is constituted by something else." (Millar 2015, 612-3).
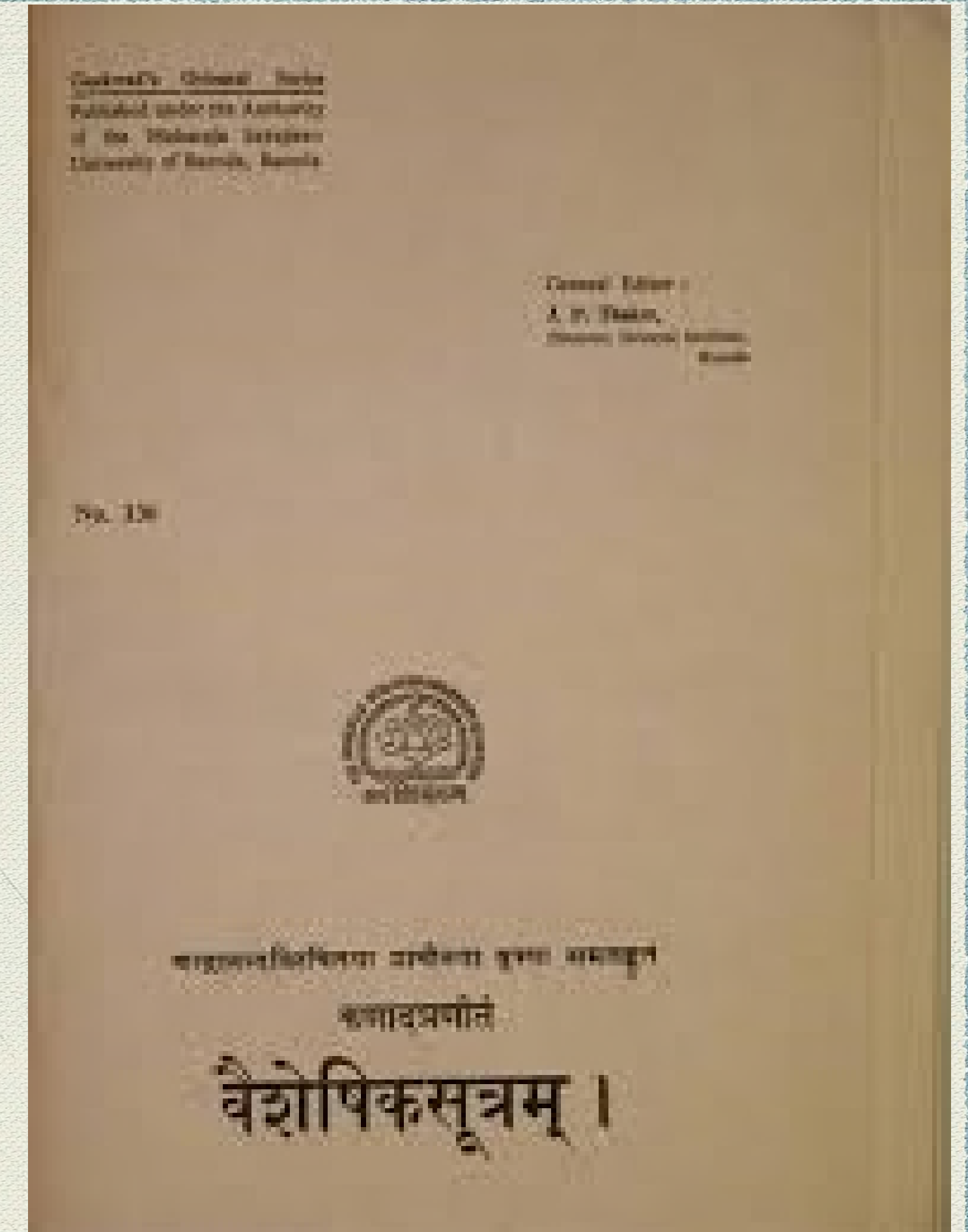
Vaiśeṣika-sūtra 4.1.6-9

4.1.6 "'Middle-sized' objects are perceived by virtue of having colour and being composite"

4.1.7 "Atoms are not perceived because they are non-composite"

4.1.8 "The air is not perceived because it is colourless"

4.1.9 "Colours are perceived by virtue of inhering in a composite object, and as particular colours" (Thakkur 1985, 289)

One sees the tomato, according to Nyāya, because it is coloured (and also because it is gross and a complete body made of parts, cf. *Vaiśeṣika-sūtra* 4.1.6), and one sees the red colour too, because the colour-particular resides (inheres) in a composite substance and it has a specific nature (cf. *Vaiśeṣika-sūtra* 4.1.9). But the sceptical argument would have us believe that one sees the tomato *because one sees* its red colour or a red-like appearance. […] We very often see things directly and not in virtue of seeing other things. I do not see a red-coloured-circular shape first to see, in virtue of it, a tomato that I see. But I see a red-coloured circular-shaped object, a tomato, first and last. Nyāya would say that […] a representationalist puts the *in virtue of* relation in the wrong place. One does not see the tomato in virtue of *seeing* a coloured shape. Rather one sees the tomato in virtue of *its having* a coloured shape (see *Vaiśeṣika-sūtra* 4.1.9 referred to above.)" (1986, 283, 5)
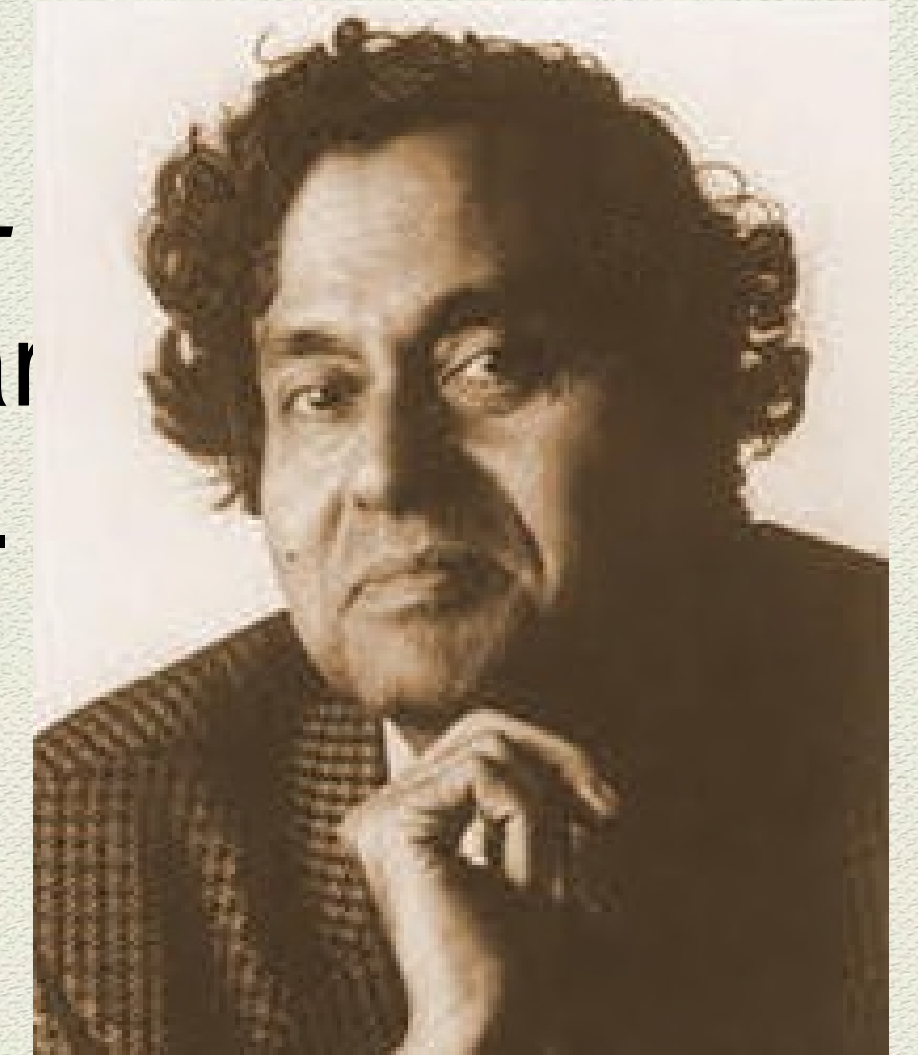
[**Subpersonal Selection**] The properties on the basis of which an object is selected are not themselves experienced by the subject. What a subject experiences are only the properties to which the subject has access.

entails that

[**Determination of Selection by Access**] In visual experience, the subject selects an object in virtue of accessing its properties.

is false.

"Nyāya scores here an important point in favour of direct realism. In hitting the car I necessarily hit its part but in seeing the tree I need not *see* its surface although the surface may *stimulate* my visual organ." (1986, 269).

Subpersonal Selection Rejected

  The sense in which colours are 'given' to us in sensory experience, on this approach, needs careful glossing. It is natural to equate being 'given' the colours of things in experience as a matter of accessing those colours for potential further use; but that is not what I am suggesting. I am proposing that we are given 'colours' in experience in the sense that the various colours we encounter are available for use in the selection of objects as figure from ground; having selected those objects, we may then go on to access their various properties. On this approach, the correct way to formulate a relational account of perceptual experience is to think of the relation as holding between a thinker and an array of visible properties at various locations, available for use in the selection of objects as figure from ground. Objects figure in sensory experience only when selected as figure from ground, ready to have their further characteristics accessed. (Campbell 2014b, 64-5)

Ishihara Colour Test
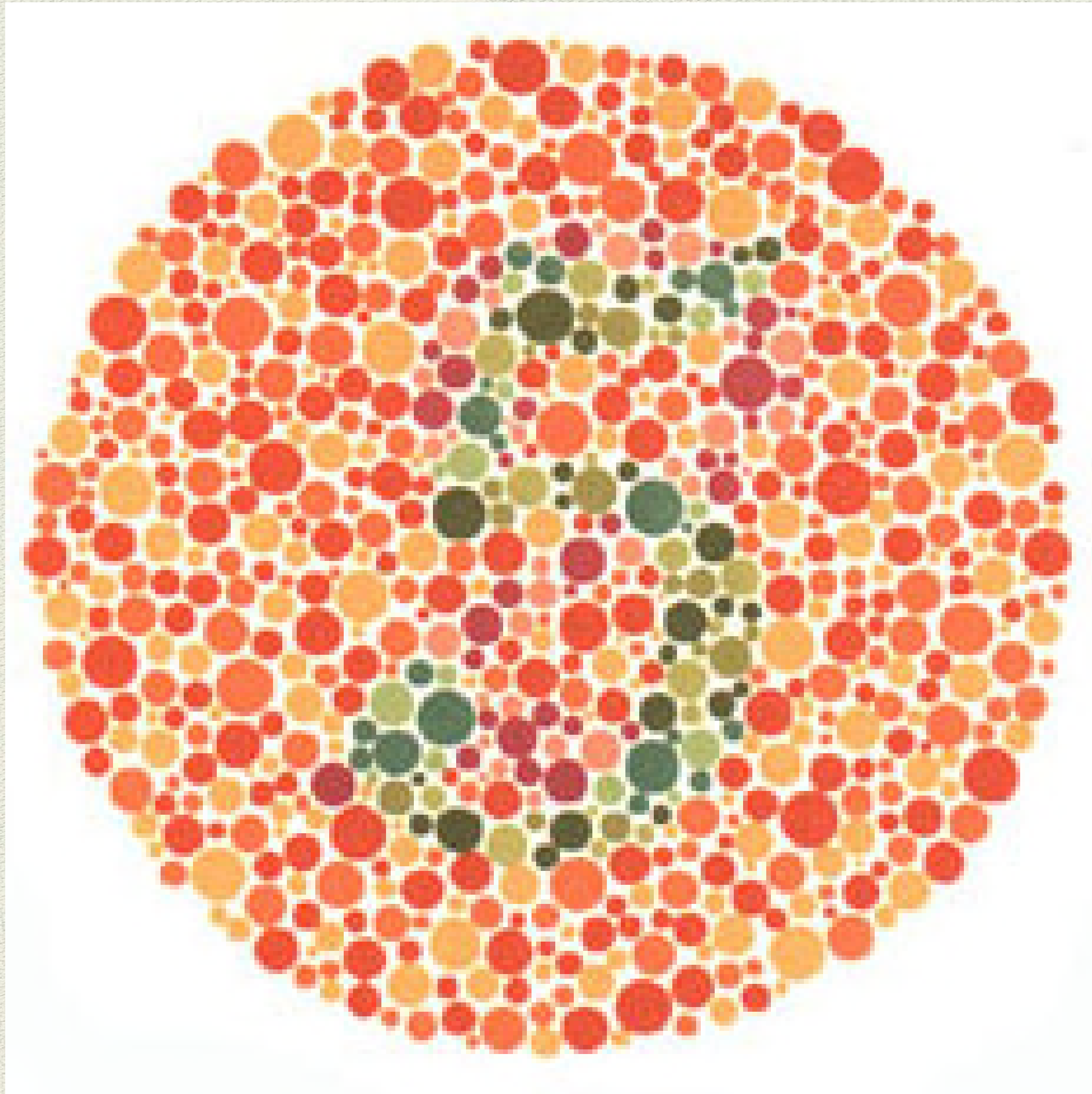
"In such a case, it is hard to imagine how you could see the 5 without having conscious experience of the various colours involved. If you did not have conscious experience of the various colours, you might perhaps have a hunch that there is a 5 there in the scene. You might, if forced to guess which figure is present, actually guess that the number in the scene is a 5. But if the 5 is visibly there, as a 5 can be present in ordinary vision, then we cannot imagine how that could be unless you had phenomenal awareness of colour. It is not exactly that there is a contradiction in the idea of seeing the 5, in this kind of case, without experiencing its colour. The problem is rather that the experience seems entirely unimaginable; we can make nothing of the idea of such an experience." (Campbell 2014b, 57)

[**Independence of Selection and Access**] The properties on the basis of which an object is selected do not determine what properties a subject accesses in perceiving the object.

Śrīdhara: "Colour subsists in earth, water and fire. It makes perceptible the object wherein it is located, as well as that object's qualities, movements, and generic properties. The given colour assists the eye in the perception of an object." *(yasminnāśraye vartate tasya dravyasya tadgatānāṃ ca guṇakarmasāmānyānām upalambhakam l nayasahakāri l svagataṃ rūpaṃ cakṣuṣā viṣayagrahaṇe sahakāri l Dvivedhi 1895, 104. 12-13).*

"Although you have used your conscious experience of the colour to select the 5, and can then go on to access various properties of the 5, such as its size, shape, and orientation, it seems entirely possible that you could select the 5 on the basis of colour without yet having any capacity to access colour properties" (Campbell 2014b, 58).

The Argument from Completion: *Nyāya-sūtra* 2.1.32

Visual perception is inherently perspectival. One consequence is that from any given position in relation to an opaque, solid object, we only see part of the object's surface: the side of the object that faces us hides its back-side from sight. Another consequence is that objects that are closer in depth often partially occlude those that are further away. Despite these limitations, when observers see an object, they usually have a sense of its presence as a complete, three-dimensional whole (n. including young human infants and, perhaps, some non-human animals). [...] When we see a cat standing behind a picket fence, for example, we see what appears to be a single, intact animal partially hidden by a series of vertical slats. The visible parts of the cat are not experienced as spatially disconnected, but as continuing behind the pickets and as belonging to the same object. (Briscoe 2018, 169).
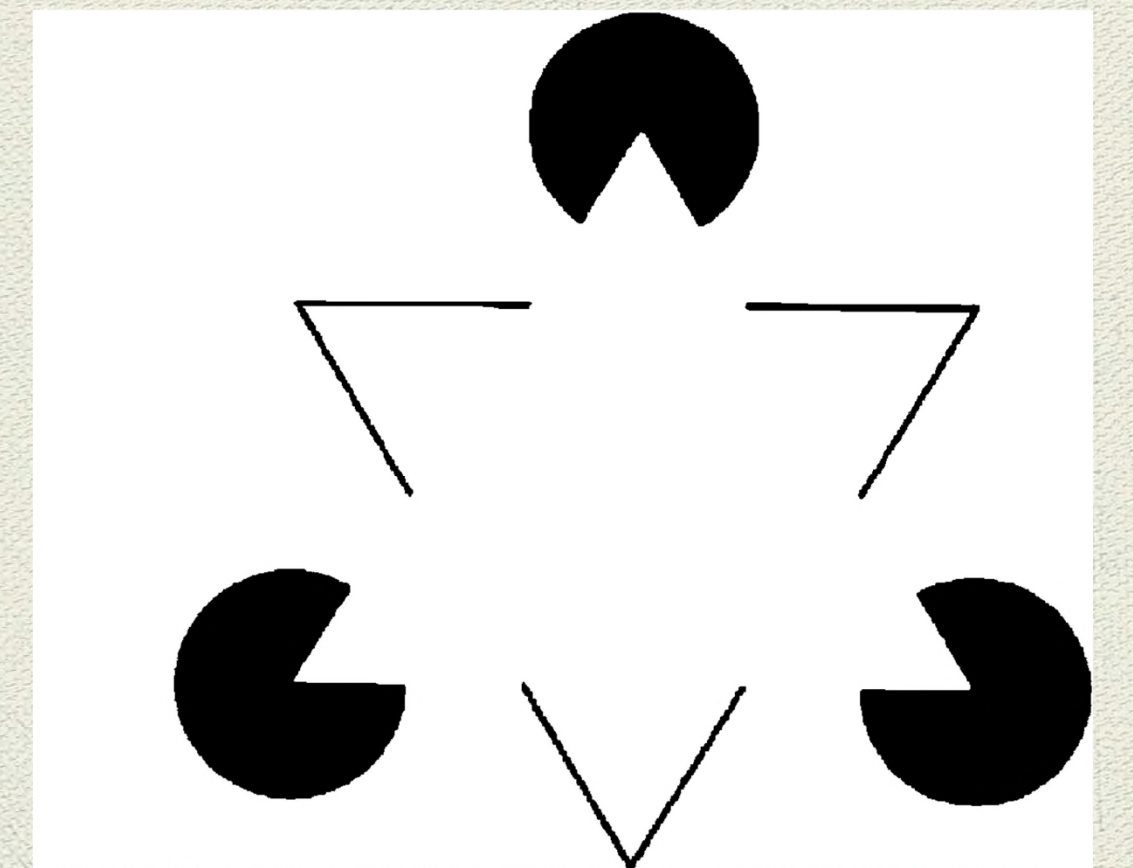
The Relational View of Completion

On J. J. Gibson's version of the view, "the perception of occlusion […] entails the perception of *something* which is *occluded*" (Gibson 1972, 229).

Nanay rejects this out of hand: "a widely accepted necessary condition for perception is the presence of sensory stimulation" (Nanay 2010, 242).

The Belief-Based View of Completion

"According to the belief-based account a perceived object's hidden features are represented by means of beliefs inferred from the object's visible features as well as relevant background knowledge" (Briscow 2011, 165).

"We see those bits of that cat that are visible-that are not occluded-and we infer, on the basis of perceiving the visible parts of the animal (as well as on the basis of our familiarity with cat tails) that the occluded parts have certain properties. In other words, we do not see the cat's tail at all, we just come to have a (non-perceptual) belief about it." (Nanay 2010, 243).

A Buddhist Belief-Based View of Completion

"An awareness of a tree arising from a sensory connection is a perception; but it is nothing but inference. Why? Because the apprehension of the tree is due to the perception of a part. One apprehends the tree having perceived the part in front of one; but this part is not the tree. So this is just like the case where one infers a fire having perceived smoke." (NyBh. 72,18-73,3; *Nyāya-sūtra* 2.1.31)

Objections to The Belief-Based View

Shape-completion is often insensitive to belief, as illustrated by "the horse illusion" (Nanay 2010, 243-4).
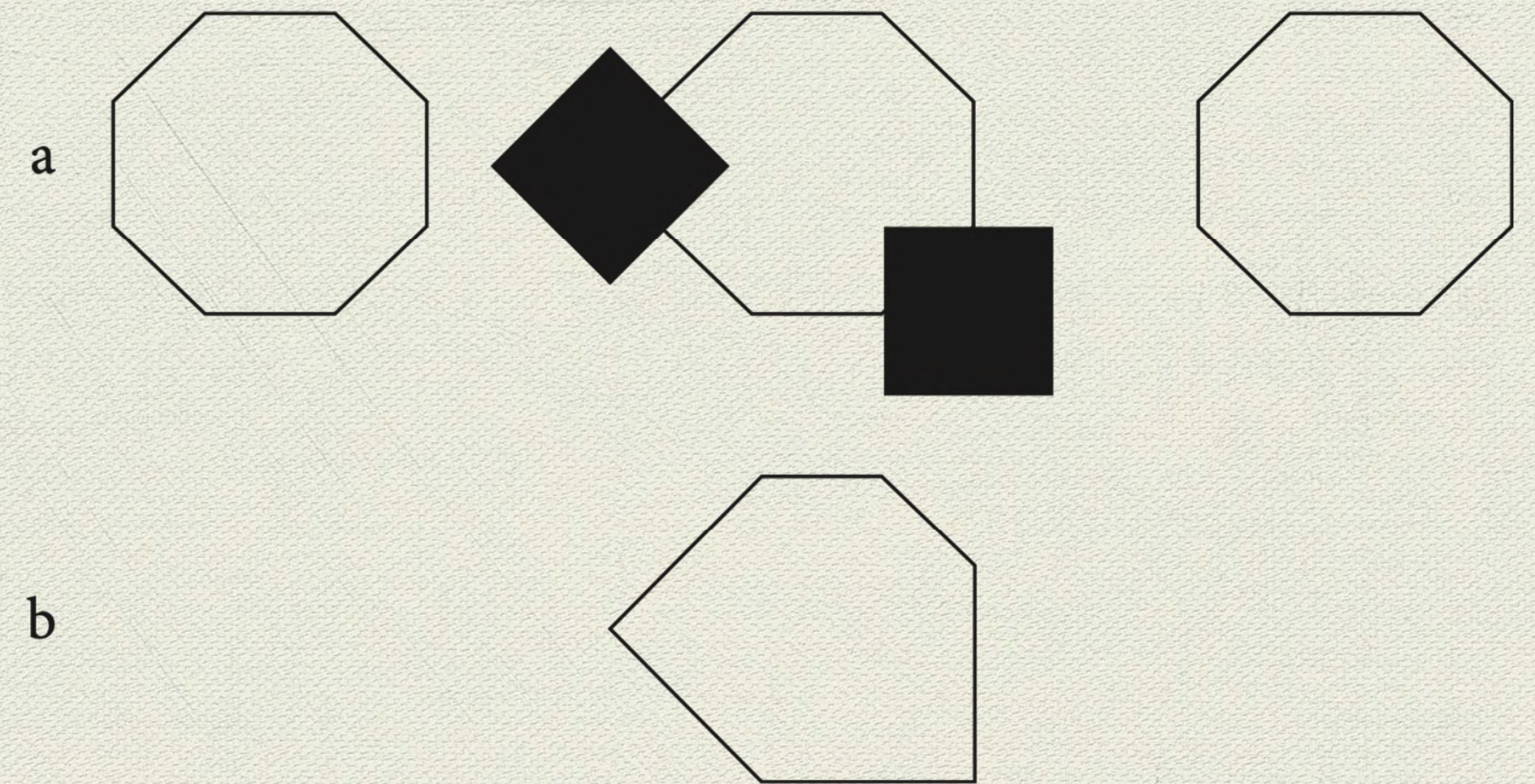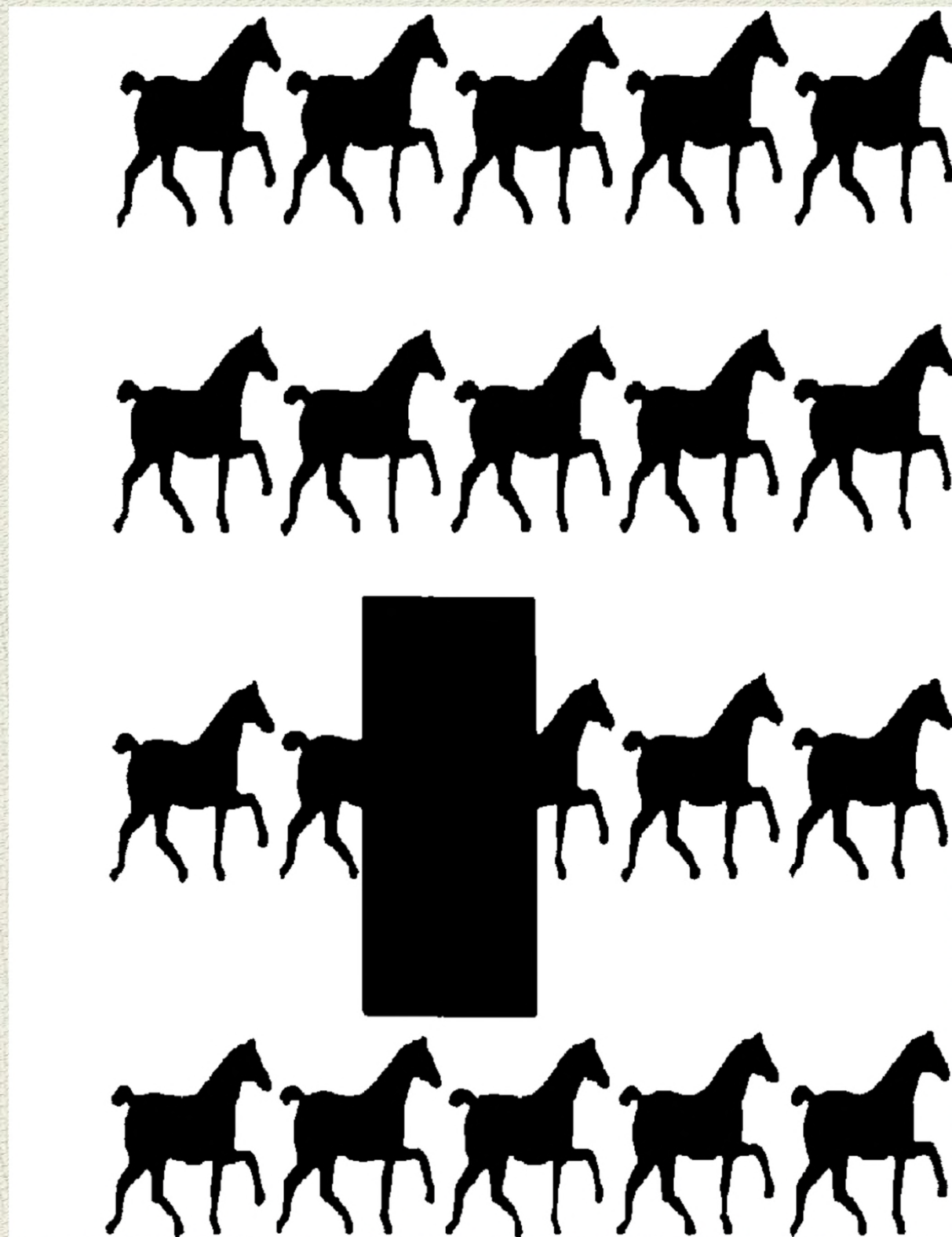
The fundamental problem is that "the interpolation process in amodal completion 'follows complex principles of its own' (Pylyshyn 1999, 345) and is not rationally sensitive to the observer's beliefs and other high-level cognitive states (Kanizsa 1985) [and is] subserved by relatively low-level, vision-specific, neural machinery" (Briscoe 2011, 156,7).

Objections to The Belief-Based View

(3) a belief-based inconsistent with the neuroscience. Studies of the Kanizsa triangle reveal that "It follows from the belief view that there is no activation in the primary visual cortex that would correspond to the invisible shapes. But, as it turns out, there is significant cell-activation in the primary visual cortex when we are looking at the Kanizsa triangle." (Nanay 2010, 245-6).
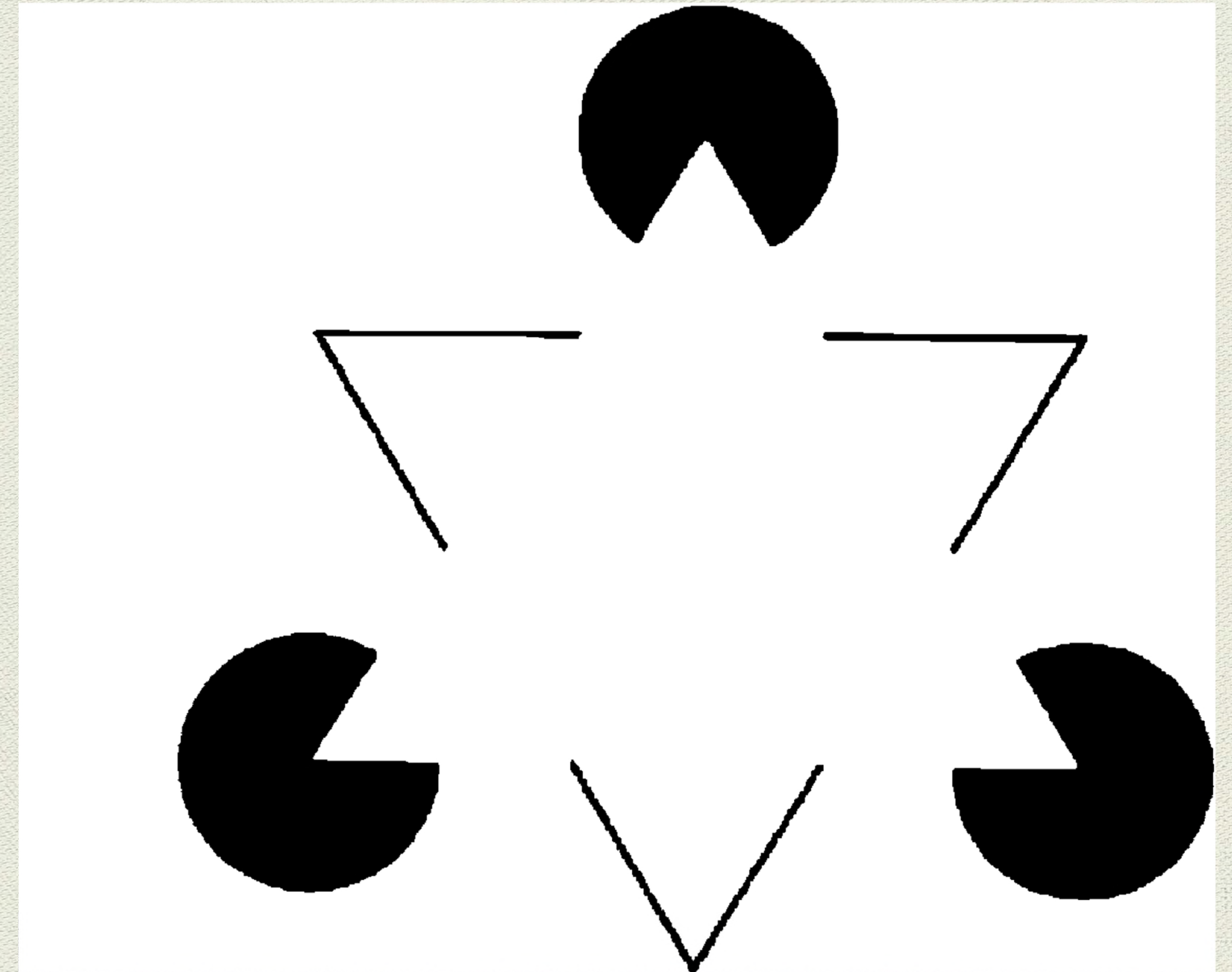
Dharmakīrti's Transformation of the Buddhist View from Belief-Based to Imagery-Based

Dharmakīrti: illusion must also be error-free (*abhrānta*), so as to exclude cases such as:

• seeing ocular floaters produced by the defect in the visual apparatus known as *timira*;
• the relative motion illusion produced when one looks at a stationary object on the shore while seated on a moving boat (*nauyāna*);
• the illusion of a continuous circle of fire produced by the rapid movement of a fire on a rope (*āśu-bhrama*);
• and cases due to physical disorder (*saṃkṣobha*) such as exhaustion (*Nyāyabindu* 5; cf. *Pramāṇavārttika* 2.288-93).

"The key to nonconceptual errors is that they are given in the cognitive image itself: they appear as such before the combination of the image and an exclusion formed through *apoha* creates a concept based on supposed similarity with previous experiences" (Prueitt 2017, 31).

The Imagery-Based View of Completion

Mental imagery refers to all those quasi-sensory or quasi-perceptual experiences of which we are [...] consciously aware, and which exist for us in the absence of those stimulus conditions that are known to produce their genuine sensory or perceptual counterparts, and which may be expected to have different consequences from their sensory or perceptual counterparts. (Richardson 1969, 2–3)

"We do not see of the apple its opposite side, or its inside, or its internal whiteness … But while these features are not *seen*, they are not *merely* believed in. These features are present in the object of perception as actualities. They are present in virtue of being imagined." (Sellars [1978] 2007, 458).

So "the occluded parts of a perceived object are phenomenally present in our experience of the object because they are represented using conscious mental imagery" (Briscoe 2018, 175).

Uddyotakara's Objection to Belief-/Imagery-based Views

Uddyotakara against Buddhist representationalism (under *Nyāya-sūtra* 2.1.31): "it is impossible to determine an invariable relation (*vyāpti*) between the observed and the unobserved parts" (Phaṇibhūṣaṇa 1967, 53).

That is to say, completion to a whole is underdetermined by the perception of a part. (Nanay 2022, 2545).
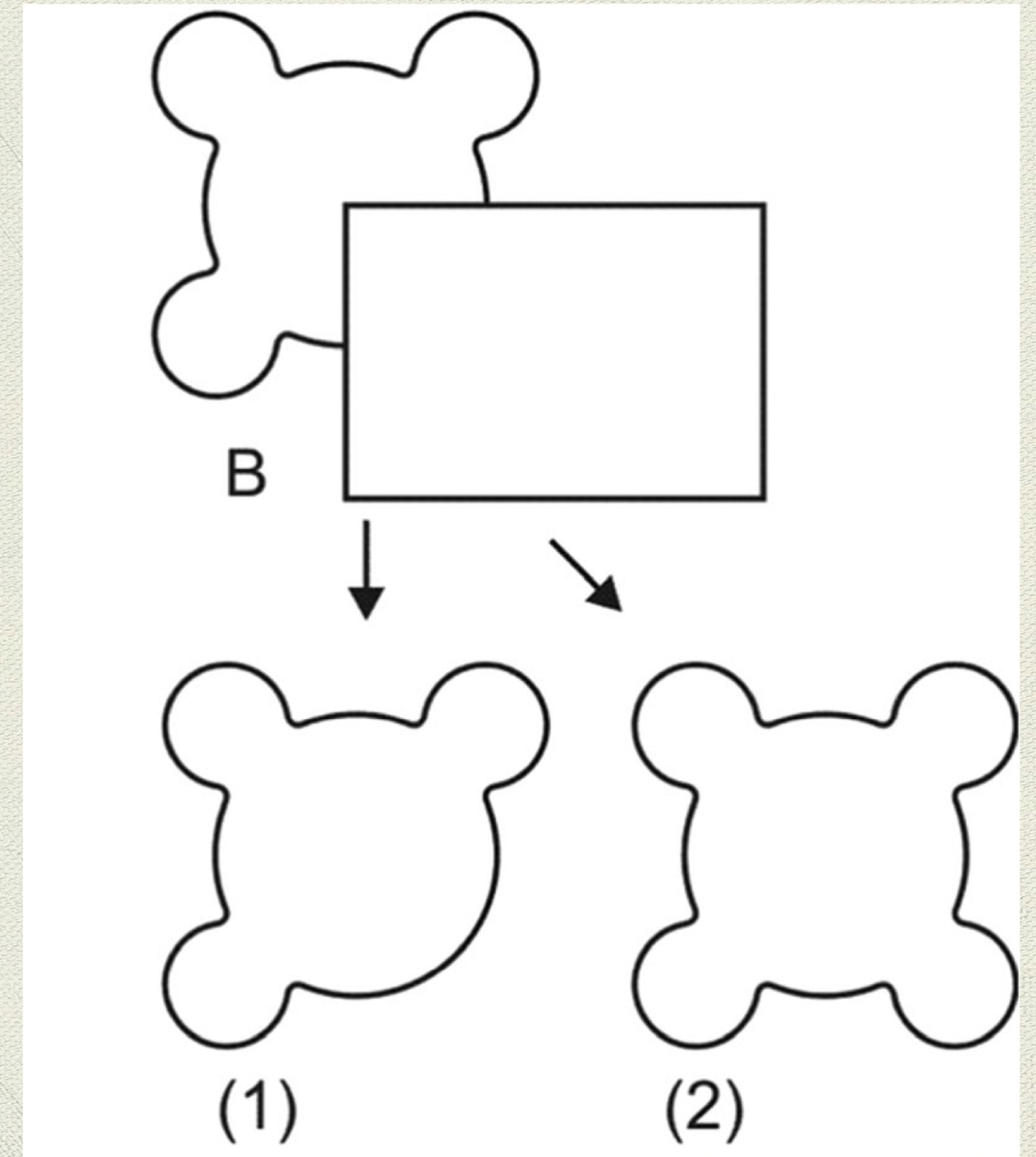
Nanay's New Argument against Relationalism

The main dilemma the relationist faces is this. Given that they take perceptual states to be partly constituted by the perceived object, they would need to specify what this perceived object would be in the case of amodal completion. It could be the entire object (some parts of which are occluded). Or it could be the unoccluded part of the object. I will argue that neither horn of this dilemma is viable (2022, 2541-2).

Nyāya: A Return to Relationalism

I see the tree not in virtue of my *seeing* the front part but in virtue of my sensory apparatus being connected with, or 'stimulated by', the front part. The sensory stimulation is a physical event which leads to, i.e. causes, my perception. But my *seeing* the front part is a cognitive event […], which may, only contingently, arise before my perception of the tree. Therefore the analogy between the car hitting the truck in virtue of its hitting the rear part and my seeing the tree (the whole) in virtue of my seeing the front part breaks down. I think Nyāya scores here an important point in favour of direct realism. In hitting the car I necessarily hit its part but in seeing the tree I need not *see* its surface although the surface may *stimulate* my visual organ. (1986, 269)
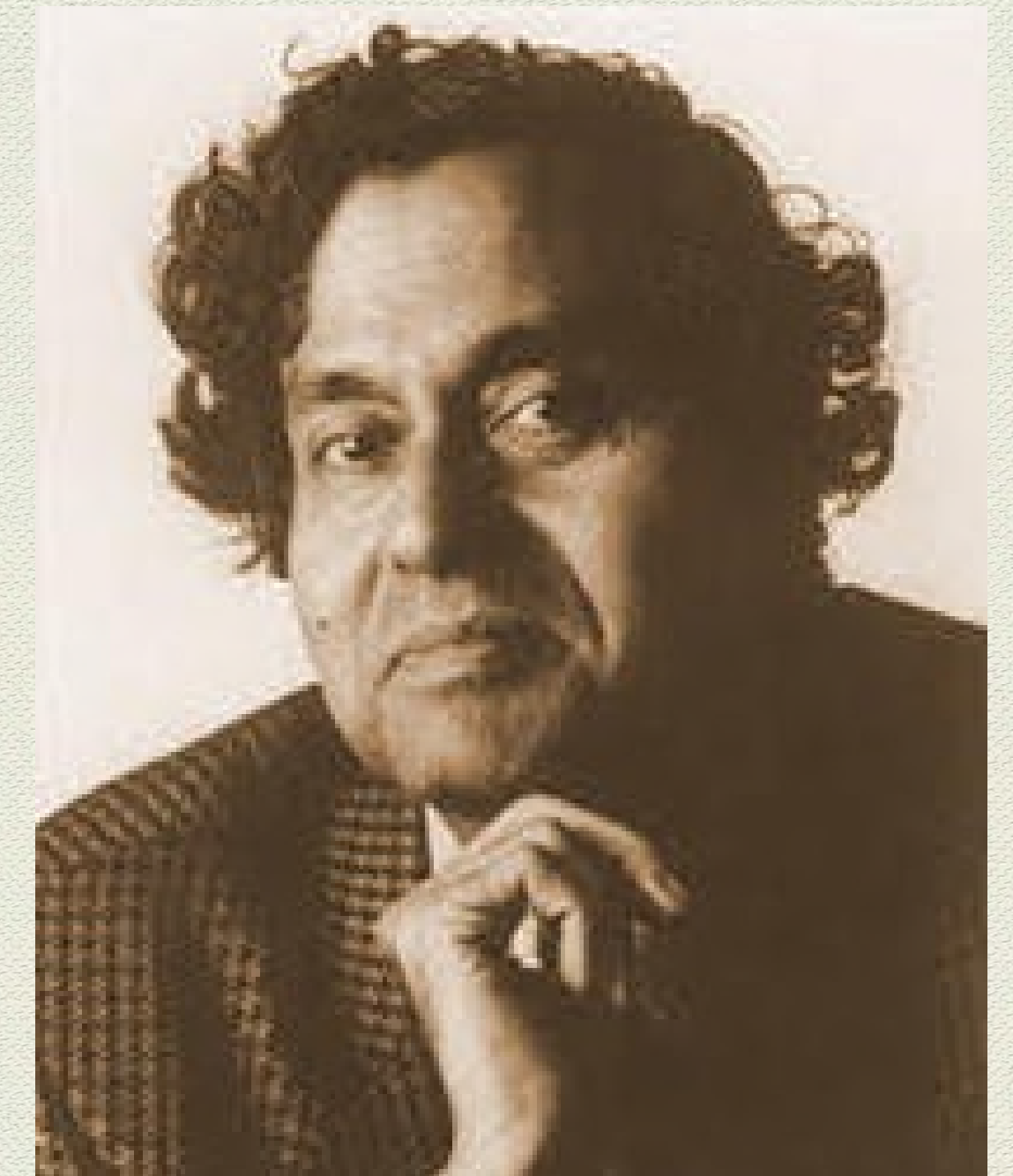
Vātsyāyana on *Nyāya-sūtra* 2.1.32

"No, because as much as is experienced is experienced perceptually" (NyS 2.1.32)

Vātsyāyana sets down the following principle governing amodally completed experience:

"When certain of its parts are in contact with a sense faculty, the whole is perceived along with (*saha*) them; when certain parts are occluded, the whole is not perceived along with (*saha*) them" (*yeṣām indriyasannikarṣād grahaṇam avayavānāṃ taiḥ saha gṛhyate, yeṣām avayavānāṃ vyavadhānād agrahaṇaṃ taiḥ saha na gṛhyate;* Ny.Bh. 74.16-7; Dasti 2023, 80)

[Seeing Wholes in Parts]: An entire object is perceived in the parts which are perceived, and is not perceived in the parts which are not perceived.

Śrīdhara on [Seeing Wholes in Parts]

Suppose someone argues as follows: "If in touching the parts that are exposed but not the parts that are covered up, we can claim to hold the entire object, we would be holding and not holding it at the same time." There is nothing to this objection: whole reside in their parts, in such a way that even if some parts are covered up one holds the entire object in the parts one does touch (*Nyāyakaṇḍalī*; Dvivedhi 1896, 46).

Nyāya: Return to Perceptualism

Vātsyāyana says that if we can be said to be perceptually aware of the front part on the ground that we have sensory connection with the front part, then by the same token we must say that we are perceptually aware of the whole tree also … (1986, 265).

For one can very well see the tree, the whole, without paying any attention to its front part, and in that case it would be wrong to say that he sees the tree in virtue of his seeing its front part, for he does not *see* the front part (or portions of it) at all. (1986, 267).
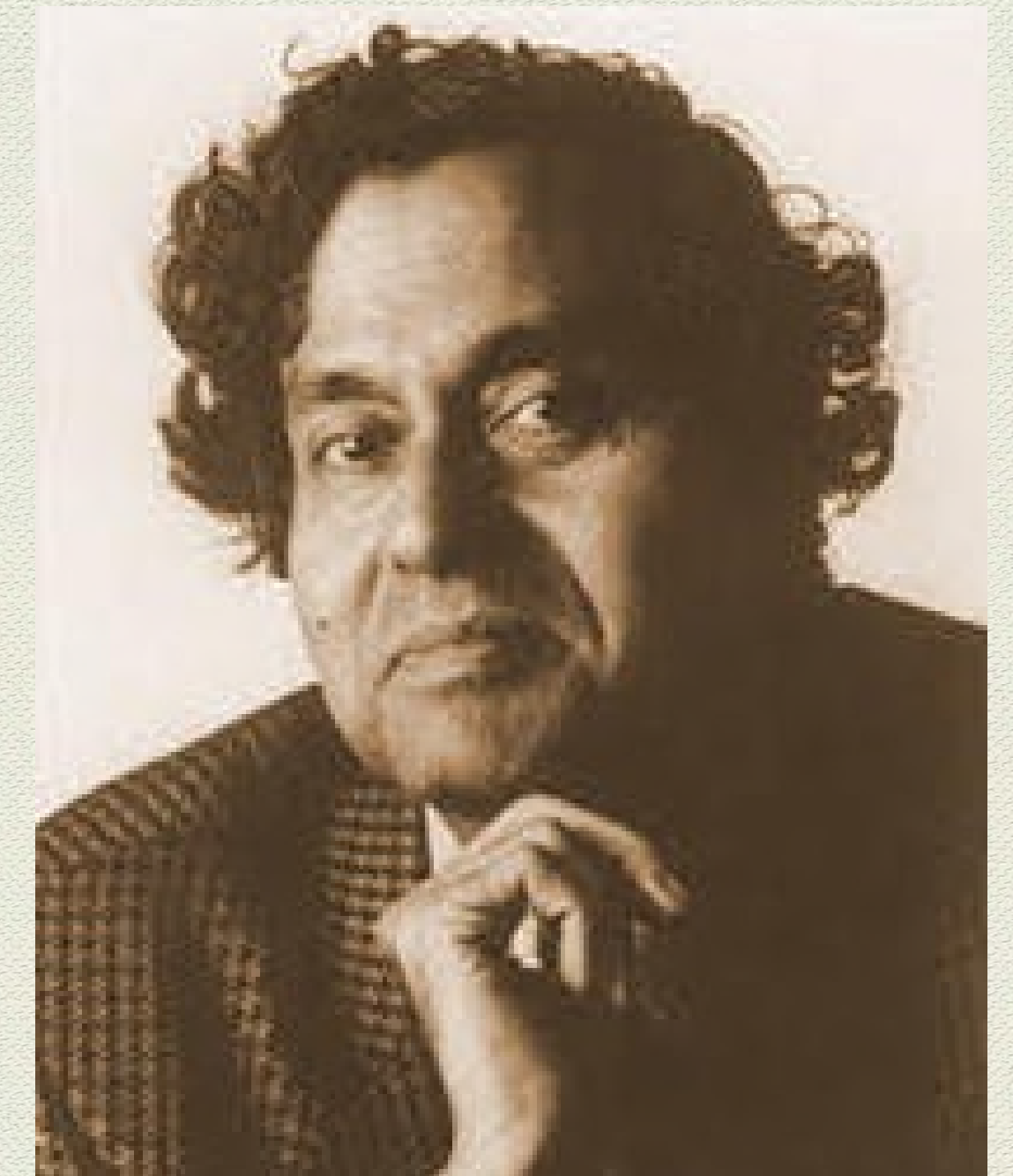
Phenomenal Unity: Nyāya-sūtra 4.2.28

"An object is not experienced as disjointed, because it is located in its parts" (*tadāśayatvād apṛthag-grahaṇam; Nyāya-sūtra* 4.2.28)

"Amodal completion occurs when one object is (or appears to be) partially occluded by another and does not typically result in a quasi-visual impression of the object's hidden features. […] Rather, the phenomenally most salient characteristic of amodal completion is the perceived unity of the partially occluded object." (Briscoe 2018, 171).

"The informational basis for the perception of a surface is not limited to the surface's optical projection in the retinal image (and the sensory stimulation caused thereby). […] The information available to the visual system for the existence of an object-feature is not limited to the feature's projection in the retinal image. (Briscoe 2011, 159-60)

Nanay's New Argument against Relationalism

The experience of occluded parts of the perceived object is underspecified. […] In Fig 2, the rectangle may occlude Shape 1 or Shape 2. Nothing in Fig. 2 tells us which of these shapes is occluded behind the rectangle… If the perceptual relation is a relation to the entire occluded object, then the question is: which of the occluded objects is it? … When seeing Shape 1 occluded in Fig 2, we have perceptual experience P1. When seeing Shape 2 occluded in Fig 2, we have perceptual experience P2. …(2022, 2544-5).
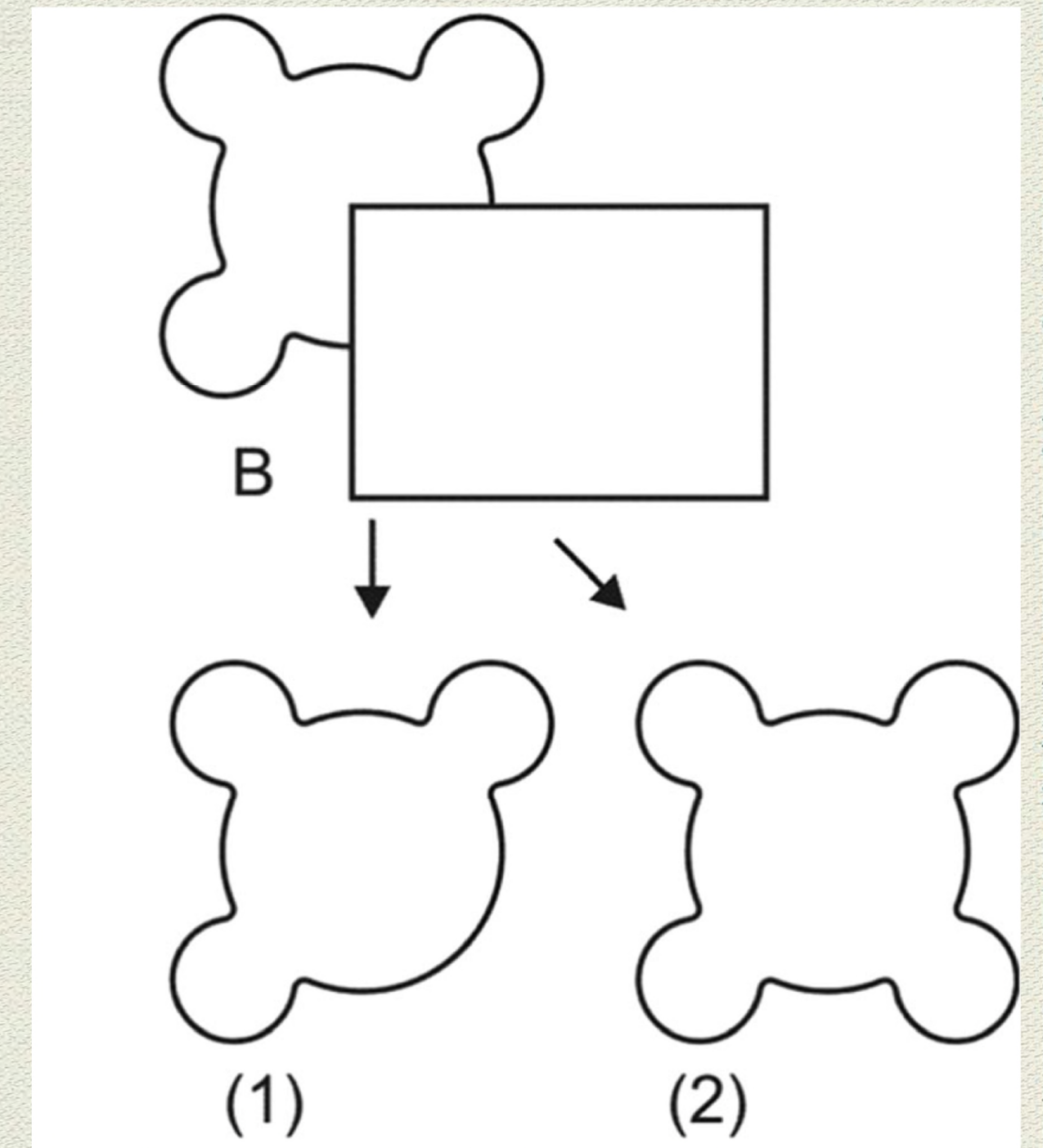
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Thank You!