EXCERPTS FROM GANGESA’S (WISH-FULFILLING) JEWEL OF REFLECTION ON THE TRUTH (ABOUT EPISTEMOLOGY)

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Gaṅgeśa Upādhāya (c. 1325) enjoys an immensely prominent position in classical Indian thought. His long, complex, and tightly argued Tattva-cintā-manī, “Jewel of Reflection (Wish-Fulfilling Jewel) on the Truth (about Epistemology)”—henceforth Jewel—became canonized in Sanskrit literature for good reason. Its cogency of argument and consistency of analysis make the Jewel the outstanding achievement of the long-running Nyāya or “Logic” school of philosophy, indeed a masterpiece of world philosophy. In subsequent centuries in India, not only did Gaṅgeśa’s work become focal in philosophy, becoming the central text of so-called “New Logic,” navya nyāya, it influenced literary criticism, jurisprudence, and medical theory in particular.

Not much is known about the professional teacher (upādhyāya) apart from what we can infer from the Jewel concerning his education and familiarity with Nyāya and its sister school Vaiśeṣika, and the literatures of some of the other classical schools (mainly Mīmāṃs ā but also Vedānta and Buddhist philosophy as well as the standard curricula in the grammarian literature, the epic poems, etc.). Dinesh Bhattacharya (1958: 96–109) provides termini a quo et ad quem definitively and conclusively (1300 and 1350 for his period of flourishing) from the evidence he cites which has not been challenged or corrected to date. According to genealogical records kept in the town in which Gaṅgeśa lived, Mithilā, it seems that he had a wife and three sons and a daughter. One of his sons was the famous Nyāya philosopher, Vardhamāna. Despite the unremarkable birth, Gaṅgeśa achieved quite some fame during his own lifetime, as we can tell from traditional titles he held such as jagad-guru, which would be the equivalent of “Distinguished University Professor” for the institutions of his era. He himself tells us confidently that he was siddhānta-dikṣā-guru, “presiding professor of philosophical conclusions,” to use Bhattacharya’s rendering (p. 96).

About his reputation, let us look at a few more salient judgments of Bhattacharya’s (1958: 109): “The work of Gaṅgeśa became highly popular very soon and was studied and commented upon in various centers of culture of India. It not only cast the works of the old school of logic into oblivion but the neological works of his predecessors also faded into insignificance and gradually were forgotten due to its overwhelming popularity and all-embracing character.” In particular, concerning the part on inference, the learned sanskritist writes (pp. 107, 108): “The second part on Anumāna (Inference) is by far the most popular, though the most intricate of the whole book. . . . The latest phase of Navyanyāya studies in India for about two centuries flowed through a large number of channels cut by single sentences or phrases of this part of Gaṅgeśa’s work . . . .”

Our excerpts are taken from Gaṅgeśa’s chapter on inference. Like all Nyāya philosophers, Gaṅgeśa views perception as our principal cognitive link with external objects. All other knowledge sources are said to depend on perception in one or another manner, including, to be sure, inference. Any general rule, or “pervas ion” (vy āpti), upon which a genuine inference would depend—what is F, that is G—normally would be established cognitively through wide experience forming a memory-impression of the association of F and G. Such a memory-impression, samskāra, would be a causal factor in an inferential process running from a cognition “Fa” to another “Ga.” Perceptual knowledge typically informs inference in another way, too. An inference is paradigmatically launched by a perceptual awareness, sight of smoke rising from a mountain, for instance, sparking an inference to fire. Such an inference-prompting awareness—or premise—could be provided by testimony or by another inference, but at some earlier point in a series of information transfers a bit of perceptual knowledge—the result of the chief or “eldest,” jvēṣtha, knowledge source—would be required.

Gaṅgeśa opens his inference chapter by saying that inference is treated by him after perception because of the dependence of inference on perception to provide the information on which it proceeds. And the relation between perception and inference underlies an important theme, namely, that from a subject’s own point of view inference is, for Gaṅgeśa, defeasible, since premises may be defeated.
Gaṅgeśa characterizes inferential knowledge (anumiti) as arising from a causal process (anumāna) involving knowledge of something as having a pervaded property. He rebuts a skeptic's view that rejects inference as a knowledge source in addition to perception. Gaṅgeśa responds that arguing for such a position is self-defeating, since argument requires inference. Furthermore, the position could not be established by perception. And (as was shown at the beginning of the perception chapter) it takes inference to become aware of the truth of any bit of knowledge, to certify it self-consciously (knowledge sources are identified by inferential signs), and thus to know that one knows that p as opposed to simply knowing that p. This part of his reasoning constitutes our first excerpt: see below.

“But what is this pervasion that figures in the characterization of inference as generating knowledge?” an opponent asks and proceeds to refute a series of definitions that would answer the question ontologically. Gaṅgeśa’s accepted definitions and the bulk of the section also lie within the ontological portion of Nyāya theory, connecting, in particular, with the discussion of absences in the perception chapter. More than twenty definitions are rejected principally because of failure to cover inferences involving absences. One preferred definition is defended at length (there are others Gaṅgeśa accepts), upon which much classical commentary has centered.

Next the topic is how pervasion is grasped. Gaṅgeśa lays out inductive principles that, although falling short of Mill's Methods of Induction, are correct as far as they go. Skepticism about generalization is dispelled by pointing to its necessity to guide action in everyday life: even the skeptic employs it in opening his mouth to voice his skepticism, assuming an invariable connection or pervasion (vyāpti) between (a) opening his mouth and speaking and (b) his listeners understanding his words. The refutation belongs to the section on tarka, “counterfactual reasoning,” which is essential to the craft of the philosopher who has to be good at drawing out untoward ramifications of an opponent's view or attack. Part of this section constitutes our second excerpt: see below.

The remainder of the chapter consists of painstaking analysis of all identifiable factors in both “inference for oneself” and “inference for others,” the latter inspiring reflection on the best form in which to present an argument to help another “see the truth.” Our third excerpt utilizes the inductive method of negative correlation to prove the existence of an enduring self: see below. This is one of a handful of philosophical inferences strewn throughout the chapter—the most important of which are an argument for the existence of God and an argument for the possibility of liberation (mukti) conceived in the traditional Hindu fashion. With these two, Gaṅgeśa closes his chapter. Our argument, for a self, occurs much earlier, in the midst of Gaṅgeśa's explaining the method of negative correlation.

Gaṅgeśa devotes almost a quarter of his chapter to analysis of fallacies. Our final, our fourth excerpt, is taken from a section on counterinference, already discussed by us in an earlier class. The main lesson there is that correct reasoning has a social dimension such that even a good inference normally leading to knowledge would be undercut by opponent's counterinference even if the latter were itself fallacious so long as we are unable to demonstrate its fallaciousness. Philosophers have a duty to respond to objections and opponents' views.

**EXCERPT ONE**

**Inferential Knowledge**

*Text (Tirupati 1, Calcutta 1)*

Gaṅgeśa: Since inference depends on perception, inference is to be defined (by us) following (our examination of) perception. It is taken up before analogy, since it is generally agreed upon (to be a knowledge source, pramāṇa) by many disputants (whereas the pramāṇa status of analogy is not so widely held).
Comments. The schools of Sāṃkhya and Vaiśeṣika reject analogy as a separate and independent source of knowledge, pramāṇa, as does the Naiyāyika Bhāsarvajña (fl. 950). There are also diverse opinions about the epistemic status of testimony. But only Cārvāka, of the major schools of classical philosophy, reject the pramāṇa status of inference.

Text (Tirupati 4, Calcutta 2)

(Gaṅgeśa continues:) In this regard, inferential knowledge (Sa) is cognition generated by knowledge of a prover (H) as a property belonging to an inferential subject (pākṣa, a: thus Ha) as qualified by (memory or knowledge of) pervasion (by a probandum property S: whatever is an H is an S). Inferential knowledge has inference as its instrumental cause. And (specifically) the cause (or trigger) is “reflection” (parāmarśa) on the inferential mark (the prover), not the mark (itself) as being considered, as will be explained.

Comments. The most immediate, that is, the proximate, instrumental cause of inferential knowledge is, Gaṅgeśa holds, consideration, or “reflection,” parāmarśa, on the prover, the inferential mark (hetu), as being pervaded by the probandum, as he will explain in detail later, devoting a long section to parāmarśa.

Text (Tirupati 38, Calcutta 21)

Objection (from the Cārvāka perspective): “Inference” is not a process resulting in knowledge, because, although we could be sure that there was no perceptible condition that would undermine an inferring (no perceptible upādhi, a “defeater,” bandhaka, that entails, or suggests, a counterexample), still, from doubt about imperceptible undercuts, we get the worry that there could be deviation (i.e., no true inclusion—all things H as S—that alone could ground inference as a source of new knowledge about the world). Moreover, such deviation has been seen to occur even after a hundred instances of (experience of) two things occurring together. The practice of speaking about fire or the like subsequent to seeing smoke or the like is due to supposition merely, along with fanciful expediency about knowledge (and its sources) according to (habits of) common discourse. Therefore, anything that is not perception is not a source of knowledge.

Gaṅgeśa: No. (This is wrong for several reasons.) To establish that inference is not a source of knowledge because of its commonality with other things that are not sources of knowledge is to make an inference involving perceived commonality. Further, the statement, “Inference is not a source of knowledge,” is meaningful either as an expression of doubt (“It is doubtful that inference is a knowledge source”) or contradiction (“It is false that inference is a knowledge source”). And both of these possibilities involve cognitive modes or claims that go beyond perception.

The statement, “Inference is not a knowledge source,” is, moreover, contradictory with its being determinable as true or false. And if inference were not a knowledge source, then perception also could not be (determined to be) a knowledge source. This consequence results from the fact that being a knowledge source is something to be inferred. And on the view that being a knowledge source is apprehended of itself, intrinsically, it would be impossible to have any doubt about the matter (whereas this whole discussion presupposes doubt).

Comments. The Cārvāka argument against inference is self-defeating. The problem of the fallibility of inductive generalization, pointed out by the skeptic, is, however, not so easily dismissed. That everything earthen is scratchable by iron seems like a bit of knowledge of a vyāpti until it is realized that diamonds are an exception. Diamonds and the problem of the fallibility of apparent pervasion-knowledge are mentioned explicitly by Gaṅgeśa at the beginning of the upcoming vyāpti-graha-upāya section, on “how a pervasion is known.” Let us reserve discussion until that point.
EXCERPT TWO

Suppositional Reasoning

Text (Tirupati 192, Calcutta 212)

Objection: Since suppositional reasoning (tarka) is itself grounded in the grasping of a pervasion, there would be an infinite regress (on your view).

Gaṅgeśa: No. Suppositional reasoning is appropriately pursued only so long as there is doubt. Where there would be contradiction—and, indeed, no doubt occurs—one can grasp a pervasion without resorting to such reasoning.

As an example, consider the particular doubt (about smoke as pervaded by fire). If smoke is not produced from a set of causes excluding fire, then (in conformity with the doubt about the pervasion) smoke—as not produced from a causal complex including fire—would not be produced (a conclusion in contradiction, presumably, with the doubter's belief that smoke is produced). Now doubt (against this suppositional reasoning): Could the smoke come to be from something that is not fire? Or just in some instances could it come to be without fire? Or could it come to be simply by chance (ahetuka, without a cause)?

Were a subject P who has ascertained thoroughgoing positive correlations (S where H) and negative correlations (where no S, no H), to doubt that an effect might arise without a cause, then—to take up the example of smoke and fire—why should P, as P does in rulewise manners, resort to fire for smoke, to food to allay hunger, and to speech to communicate to another person?

For (there would be a presupposition to S's doubt, namely) that without the one the other is possible. Therefore, just the resorting to this and that (i.e., the causes of the desired effects) blocks (and terminates) such a doubt.

Comments. Belief-warranting tarka, “suppositional reasoning,” solves several problems for Nyāya. Even if our beliefs/cognitions have been generated by processes that would be counted pramāṇa did they not face counterconsiderations, in facing counterconsiderations—in being reasonably challenged—they are not trustworthy and do not guide unhesitating effort and action. There is a social dimension to knowledge where reasoning reigns resolving controversy in ways over and above the sources. These are the ways of tarka, “hypothetical” or “suppositional reasoning.” Paradigmatically, tarka is called for in order to re-establish a presumption of truth in favor of one thesis that has putative source support against a rival thesis that also has putative source support, a thesis and a counterthesis both backed up by, for example, apparently genuine inferences (occurrence, the most common situation) or by competing perceptual or testimonial evidence. By supposing the truth of the rival thesis and (in Socratic style) showing how it leads to unacceptable consequences or breaks another intellectual norm, one repossesses a presumption of truth, provided one’s own thesis does indeed have at least the appearance of a pramāṇa in its corner. Gaṅgeśa joins a consensus across schools that such arguments are not in themselves knowledge-generators although they can swing the balance concerning what it is rational to believe.

Furthermore, “suppositional reasoning,” tarka, is what a philosopher is good at, the drawing out of implications of opposed views and testing them against mutually accepted positions (siddhānta), according to, broadly speaking, criteria of coherence but also of simplicity. Here we come to the vital center of Nyāya, the secret to the life and prosperity of a Nyāya philosopher, which is reflected in honorific appellations and book titles. The standard variety shows that an opponent’s hypothesis (or an opposite thesis, ~p) violates an intellectual norm. There are a few forms of “favorable” tarka, for example, having one’s own thesis presupposed by the opponent’s while the reverse does not hold. Nevertheless, usually tarka is thought of as “unfavorable,” only indirectly supporting a thesis p by
establishing a counterconsideration against a rival, $\sim p$, or, sometimes, against a rival hypothesis, $q$, which would explain a set of commonly recognized truths in different terms.

Gāṅgeśa in this section sees suppositional reasoning as called for primarily in the special circumstance of doubt about a pervasion for which there is other evidence.

In his example, the force of the suppositional reasoning derives initially from the unreasonableness of the supposition that smoke is not produced. Given that it is produced, the alternative that it is produced from a causal complex that includes fire is more reasonable than the contrary alternative that it is produced from a causal complex excluding fire—on the grounds of wide experience. However, Gāṅgeśa also concocts doubt against that bit of suppositional reasoning which (in its role as putatively effecting an ascertainment of a pervasion) is not premised on smoke being produced from any particular causal complex. Thus there remain three possibilities, each of which would mean no pervasion: (a) it could be that smoke is produced from a non-fiery complex, (b) sometimes it could be produced from a non-fiery complex, and (c) it could come to be without a cause.

Gāṅgeśa in the preceding section pointed out that repeated observation ("even hundreds of times") is insufficient to guarantee knowledge of a pervasion: not all things made out of earth are scratchable by iron (diamonds are a counterexample).\(^1\) Gāṅgeśa acknowledges that the possibility of a counterexample cannot be eliminated. Nevertheless, we cognize pervasions, and reliably under certain circumstances, and meaningful doubt can be eliminated—this is the upshot of Gāṅgeśa's view. In other words, absolute freedom from doubt is not required. We may be wrong in any particular case, but we act on the basis of the regularities in nature we take ourselves to be aware of.

The skeptic's behavior would give the lie to his doubt. This is the heart of Gāṅgeśa's rebuttal.

Text (Tirupati 199, Calcutta 230)

(Gaṅgeśa continues:) When there is doubt, there is no regular pattern of behavior. When there is (such) a regular pattern, doubt does not occur. Thus it has been said (by Udayana): “That is doubted concerning which as doubted there occurs no contradiction with the doubter's action.”

For it is not possible at once to resort regularly to fire and the like for smoke and the like and to doubt that fire causes it. This is how we should understand the saying.

Thus we may reject the argument that contradiction—understood as natural opposition (virodha), governing precisely which F cannot occur along with precisely which G—cannot block an infinite regress. It is the doubter's own behavior that proves the lie to the doubt, that blocks it (pratibandhaka).

Therefore, the view that the author of the Khaṇḍana-khaṇḍa-khādyā ("Sweetmeats of Refutation") expresses with the following may be rejected: “If there is contradiction, then there is doubt. If none, there is doubt all the more. Contradiction includes doubt within its borders; how then can suppositional reasoning be the border (or end) of doubt?” For it (cognition of contradiction) does not depend on (the occurrence of) doubt. Rather, behavior blocks doubt with whomever.

There is the further difficulty on this (Śrīharṣa's) view that even with experience of (doubt-resolving) particulars (such as of hands and feet with respect to a doubt whether an object in the distance is a post or a person) there would never be cessation of doubt.

Moreover, the suppositional reasoning (tarka) such as was cited above does not come into play without wide experience of correlation between the terms of the (inference-grounding) pervasion. The suppositional reasoning depends on such wide experience. It does not, however, by itself alone bring about the effect (of new knowledge). Just for this reason, the memory dispositions (samskāra) on which it supervenes, do not constitute another (knowledge) source. For tarka is a matter not of knowledge (but of supposition).

\(^1\)As pointed out, Śrīharṣa uses this example and indeed the same expression (śataśo darśane 'pi), suggesting that Gangēśa is responding to the Advaitin—this is a thesis of my Classical Indian Metaphysics (1995, 1996). Śrīharṣa is indeed mentioned and quoted in the next passage.
And that (wide experience of correlation) is a cause of knowledge of pervasion as a bit of occurrent knowledge. The knowledge could come (too) from either testimony or inference, since in its absence (when wide experience is lacking) it can be grasped by either of these two.

Comments. In acting (in speaking, in eating, in chasing away mosquitoes with smoke), we proceed on certain assumptions, including assumptions concerning natural pervasions. Suppositional reasoning, tarka, is capable of revealing these assumptions. “Why would you speak if you believed that there were no concomitance between speaking and communicating to another?”

Gaṅgeśa says explicitly and repeatedly, as we have seen, that wide experience (bhūyo-darśana) does not guarantee that a pervasion holds in fact. A bit wider experience could show a deviation. Naiyāyikas are fallibilists. Nevertheless, experience of positive correlations and negative correlations without experience of deviation provide sure (though not absolutely certain) grounds for acceptance of a pervasion, an acceptance to guide action.

Thus, pointing out pragmatic contradiction—speech or other behavior operative on a presumption contradicting the negation of a thesis (about a pervasion) that is to be established—is the heart of suppositional reasoning, according to Gaṅgeśa.

Near the end, Gaṅgeśa endorses the traditional view that tarka is not an independent pramāṇa. And the very end shows continuation of the topic of the preceding one. Doubtless at least many of the section divisions (and titles) are the work of editors and copyists and not of Gaṅgeśa himself.

Text (Tirupati 204, Calcutta 234)

Objection: The “knowledge” (or “cognition,” jñāna) informed by experience of correlation and no experience of deviation, whether arising from experience free from doubt about deviation or from favorable suppositional reasoning, is just like (false cognition presuming vyāpti when in reality there is) deviation. Therefore, there is no certainty about vyāpti even in the way you maintain.

Gaṅgeśa: Wrong. For a pervasion can be grasped between two characters just from what those characters are by their essential nature. From correct suppositional reasoning, we get (certified) knowledge; from flawed, pseudo-suppositional-reasoning, we get its lack. This is like the case of knowledge of a person (in the distance previously suspected of being a post) where experience of particulars (such as of hands and feet, as one moves closer) decides whether it is true or not (that the thing is a person).

Comments. Suppositional reasoning has intellectual coherence at its heart. Although there are as many as ten varieties recognized, the most prominent is the teasing out of a contradiction with another, or other, of an opponent's views. There are contradictions with other patches of accepted theory, called apasiddhānta (used against opponents within one's own school), and sentential self-contradiction, e.g. “My mother is barren,” as well as pragmatic contradiction, e.g., a speaker saying, “I am mute,” recognized by, for example, Udayana (ATV, p. 533; see also Bagchi 1953: 178). There is also favorable as opposed to unfavorable tarka, for example, drawing out a consequence of one's own thesis that the opponent knows is a fact. But tarka is thought of as usually negative; it is after all, the knowledge-sources that account for foundational justification. Nevertheless, in the prominence of tarka as used in the Texts as well as in the self-consciousness about it, we see a deep commitment to the epistemic value of coherence. Let me list some other kinds better to make my point.

Udayana appears to inherit a sixfold division of tarka according to the nature of the error in an opponent's position, and expressly lists five types (the sixth, “contradiction” or “opposition,” vyāghātatā, either being assumed as the most common variety, or subsumed under Udayana’s fifth type, “unwanted consequence”). Philosophers from other schools present distinct but overlapping lists. The Nyāya Textbook writer, Viśvanātha, of the early seventeenth century, mentions ten, Udayana’s five plus five more, many of which are used by the Advaitin Śrīharṣa (probably Udayana’s younger contemporary) among other reasoners with whom Gaṅgeśa was familiar (Bagchi 1953: 151): (1) ātma-āśraya, “self-
negative correlations, being practically everywhere, shouldn't count. Of course, Gaṅgeśa terms, a pervasion of being-pervaded is known only by positive correlations, this last), the prover's being known as pervaded (by the probandum) only through negative correlations works without a sapakṣa (known instances of the probandum property other than the inferential subject). The pervasion is grasped by the method of negative correlation (where the probandum S is not, there the prover H is not, too).

**Objection:** The “exclusively negative” pattern (as you have it) is not inference (the “prover” whose relation to a probandum is grasped in such a manner of negative correlation is not a pramāṇa). For, inferential knowledge is caused by “reflection” (parāmarśa) on a prover's being a property of an inferential subject as qualified by knowledge of pervasion (by a probandum). Here (in your pseudo-inferential pattern) where the correlation is with an absence (the probandum's absence), the pervasion is also so (i.e., absential). But the inferential subject's exhibiting a (genuine) prover is an exhibiting (not of an absence but) of a positive presence.

**Comments.** This section has been previously translated by me and edited and published by Piotr Balcerowicz (2010: 435–505).

Negative-only inference is informed exclusively by correlations between absences of the probandum and absences of the prover (~Hb and ~Sb; ~He and ~Sc; ~Hd and ~Sd; and so on). However, correlations of absences are problematic, and the negative-only form seems invalid without restriction, since it would prove too much: given merely that a is H, with no known H outside the pakṣa (a), it would appear from the correlation of −S and −H, then, that we could prove of a any S known not to reside outside the pakṣa. For example, “Martian-made” (S) could be proved of every cow (a) by the prover cowhood (H). Everywhere we find something that is not a cow, there we find something that is not Martian-made, e.g., a rock. Thus, since every cow has cowhood, it is Martian-made. (See below, Tirupati, p. 500, for a similar point concerning the name, “Dittha.”) It is true that Gaṅgeśa would rule this inference out as having an “unfamiliar” probandum (aprasisiddha). And other Nyāya logicians would reject it as falling to the counterinference, satpratipaṭaṅka, “Every cow is non-Martian-made, since it is a cow, unlike a rock.” Nevertheless, if the form is to have validity prima facie—an epistemological interpretation consonant with Gaṅgeśa's overall view—it appears one would have to be especially good at counterin this way pseudo-inferences.

Furthermore, negative correlations would not seem strictly relevant, as is brought out by the “ravens paradox” well-known to students of inductive logic. An evidence basis supporting the generalization, “All ravens are black,” benefits from the sight of an additional black raven. But to flip the pages of a book, noting that one after another is neither a raven nor black, seems irrelevant. In Nyāya terms, a pervasion of being-black (H) by being-a-raven (S) would seem to require positive evidence. Negative correlations, being practically everywhere, shouldn't count. Of course, Gaṅgeśa would view the

**EXCERPT THREE**

NOW EXAMINATION OF “NEGATIVE-ONLY” INSTRUCTION

Text (Tirupati 441, Calcutta 582)

Gaṅgeśa: (Of the three types of inference, (a) that having a prover whose pervasion by the probandum is known by both positive and negative correlations, (b) that where the prover's being pervaded is known only by positive correlations, and (c) that where the pervasion is known only by negative correlations, this last), the prover's being known as pervaded (by the probandum) only through negative correlations works without a sapakṣa (known instances of the probandum property other than the inferential subject). The pervasion is grasped by the method of negative correlation (where the probandum S is not, there the prover H is not, too).

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Furthermore, negative correlations would not seem strictly relevant, as is brought out by the “ravens paradox” well-known to students of inductive logic. An evidence basis supporting the generalization, “All ravens are black,” benefits from the sight of an additional black raven. But to flip the pages of a book, noting that one after another is neither a raven nor black, seems irrelevant. In Nyāya terms, a pervasion of being-black (H) by being-a-raven (S) would seem to require positive evidence. Negative correlations, being practically everywhere, shouldn't count. Of course, Gaṅgeśa would view the
pervasion of being-a-raven by being-black as known by both the positive and negative methods. The problem is nevertheless plain.

On the other hand, if the absence of the probandum (~S) is grasped as having the same or an inclusive extension with the absence of the prover (~H), the presence of the prover (H), which is an absence of the absence of itself (~~H), proves the absence of the absence of the probandum (~~~S), which is the probandum itself (S). This seems to be how Gaṅgeśa understands the logic of the “negative-only” inference, (kevala-)vyatirekin. He will point to the logical rule of transposition as underpinning his position on the negative-only (below, Tirupati 442). A pervasion expressed negatively is equivalent to one expressed positively.

Furthermore, all things H being things S may be evident only from the ramification that everything that is not an S is not an H. Positive correlations may be hidden. A double absence is equivalent to a positive presence, that is, with respect to two “mutual absences” or “distinctnesses” (a’s distinctness from being-distinct-from-a is equivalent to a’s identity), as opposed to “relational absences.” All these points surface in the section.

Finally concerning the content of the knowledge generated. In consideration of the knowledge that would be the result of negative-only inferences, the deepest worry concerns definitions of fundamental categories. The fundamental truths of things (tattva), which are captured by philosophical definitions, seem accessible only through knowledge of fundamental distinctions. For example, a standard inference to self (ātman) as a fundamental category of substance is, as mentioned, negative-only:

\[ a \text{ (pakṣa) every-living-body} \]
\[ S \text{ (sādhyā) has-a-self} \]
\[ H \text{ (sādhana) has-breath} \]

Thus, “Every living body has a self, since every living body has breath, unlike a pot (a pot being qualified by both absence-of-self and absence-of-breath).” The inferential subject includes all living bodies, and so there is no sapakṣa, no examples of the probandum known outside the set of things that are living bodies. Thus, the inference has to be kevala-vyatirekin, based solely on correlations of absences, “unlike a pot,” a pot having neither breath nor a self.

The opening objection—which is not definitively answered until several other arguments are out on the table—targets the negative form of the inference rule, absences of the probandum correlating with absences of the prover. A good inference not only requires knowledge of pervasion (vyāpti) along with knowledge of the prover as qualifying the inferential subject (pakṣa-dharmatā). A good inference also requires, the objector alleges, a match between, so to say, the quality of the variables in the general and singular requirements (where H, there S; a is H). Such a singular qualifying (Ha) is always positive, the objector claims, and thus could not match the negative variable (~H) of the “negative-only.” Furthermore, the conclusion is positive (Sa).

We skip now a few pages

**Gaṅgeśa**: We answer. By means of the method of negative correlation (no S and no H) insofar as there is no upādhi (inferential undercutting condition), a pervasion between positives (H and S) is grasped. For, there is an invariable rule regulating the relation between the two terms, as in the case of an inference based on both positive and negative correlations.

**Comments.** Let us put in mind again, here at the beginning of a siddhānta statement, the standard inference to self (ātman). This comes to be centerstage only much later in the section, after a long discussion of an inference to earth as a fundamental substance. But we can appreciate Gaṅgeśa’s present points in its terms.
a (pakṣa) every-living-body
S (sādhyā) has-a-self
H (sādhana) has-breath
b (drśtānta) a pot (~Sb and ~Hb)

Thus, “Every living body has a self (Sa), since a living body has breath (Ha), unlike a pot ((x)(~Sx → ~Hx)).”

Gaṅgeśa endorses a version of the law of contraposition (or transposition):

(x)(~Sx → ~Hx) ≡ (x)(Hx → Sx)

Therefore, Sa, since Ha and (x)(Hx → Sx).

The inferential subject includes all living bodies, and so there is no sapakṣa, no examples of the probandum known outside the set of things that are living bodies. It is based solely on negative correlations, “unlike a pot,” a pot having neither breath nor a self. Of course, it is also true that a pot is not clever. Does this mean that every living body is? The inference form seems by itself too powerful, generating false inferential bits, i.e., pseudo-knowledge-by-inference.

Thus one is tempted to interpret the qualification included here, “so long as there is no inferential undercutting condition,” nirupādhi, as terrifically significant, in restricting appropriately (it might be hoped) the negative-only method. An upādhi is, as we have seen, an “inferential undercutter” because it entails a counterexample, to wit, that there is something or other that is both an H and a ~S. Again, the standard definition: An upādhi is a property U such that

(1) U pervades the probandum, the sādhyā, S (i.e., anything that is an S is a U, sādhyā-vyāpaka), (x) (Sx → Ux), and

(2) U does not pervade the prover, the sādhana or hetu, H (i.e., there is something that is an H but not a U, sādhana-avyāpaka) (∃x) (Hx · ~Ux).

It follows then that

(3) (∃x) (Hx · ~Sx). (There is something that has the prover without having the probandum.)

Thus, there is “deviation” and no relation of pervasion:

(4) ~(x) (Hx → Sx)

Thus in the present passage, Gaṅgeśa would seem to state a relevance condition, a requirement that we consider the possibility of a counterexample in extrapolating from correlations of absences in particular, that we be duly diligent in checking for an undercutter—the ramifications of something’s being an S—to make sure that any such thing would also pervade the H, the prover. If we would prove that every living body is clever from the prover, having-breath, the undercutter (upādhi), being-human, would show the error of our ways. Being-human pervades cleverness, but some things that have breath are not clever.

However, undercutting is not Gaṅgeśa’s focus in this section, which is, rather, the epistemic requirement that the probandum property be understood or “familiar,” prasiddha, in some way. There
may seem, then, to be an interpretative issue in the question of how much work is supposed to be done by the nirupādhi requirement over and above the requirement of familiarity, but my view is that it does none in particular. One may ask whether Gaṅgeśa needs the nirupādhi requirement given his restrictions on term introduction that he will emphasize until the very end. Note that this is the only place where he mentions upādhis in the entire section. How diligently would we have to search to make sure that an inference is upādhi-frei?

The upādhi makes a distinction, showing that while there may be some Hs that are Ss not all of them are. Unfortunately, there is no prophylactic to protect us from actual upādhi-infection of what we quite rightly take to be good inferences. But though imitated by cognitive patterns that turn out to be wrong, some negative-only inferences remain bona fide. Indeed, we have every right to assert the conclusion of such an inference so long as we are unaware of upādhis. In other words, I take sensitivity to upādhis to be a general epistemic requirement. I may well infer the cleverness of living beings from their having-breath—until you remind me that non-human animals have breath but are not commonly clever. To think of living beings as clever may be absent-minded but nevertheless not simply wrong. Inference is prolific, and looking for upādhis is a general epistemic duty that is more or less pressing depending on circumstances.

Note finally that the special domains of philosophy, the general topics of metaphysics and epistemology, all involve controversy and thus call for argument and due consideration of opposing views. Thus the epistemological requirements are much higher than those of everyday life, laukika knowledge being automatically acquired without special preparations. With philosophy, in contrast, we bring to the table mastery of fallacies and other common flaws of reasoning, and would have the responsibility to prove, for instance, that an alleged undercutter (upādhi) is only pseudo (ābhāsa). This is the reason that we study, Gaṅgeśa says, upādhy-ābhāsa and hetv-ābhāsa, in advance of philosophical engagement (kathā): below (Tirupati II, p. 1).

We skip now to near the end of the section (the entirety of which runs fifty pages).

Text (Tirupati 488, Calcutta 626)

Objection (by a new pūrvapakṣin): Consider another so-called negative-only inference: “A living body has a self, since it has breath and the like, or since it has as effects (inhering in itself) desire and the like.” Given that the probandum is not known, how can there be such an inference as that which you understand to be “negative-only?” (How is it that having-a-self is something known and thus available for inference, given that it is the predicate in question in this inference?)

And not-having-a-self is not to be known perceptually for (e.g.) a pot, because perception is not capable there of making that known. Nor is it arrived at through inference (because the required pervasion cannot be established). Given that there is no cognition of not-having-a-self, there can be no positive correlations; without cognition of having-a-self, negative correlations are impossible.

Comments. Like his Nyāya predecessors, Gaṅgeśa views a self as knowable both by perception and by inference. But for present purposes, we must bracket the perceptual position in order to explore the method of negative-only inference.

This stretch of Text seems practically a subcommentary on the bhāṣya of Vātsyāyana (c. 400) on Nyāyasūtra (NyŚ) 1.1.5, where he proves the existence of the self as the locus of psychological properties by way of an inference type called sāmānyata drṣṭa. He says: “The self is known inferentially by means of (the marks of) desire and the like. Desire and the like are qualities, and qualities have as their foundations substances. That which is the foundation of desires and the like is the self.” Note that the NyŚ has a long stretch of sūtras at the beginning of chapter three (NyŚ has five chapters) on the self, its character, and how it is known: NyŚ: 3.1.1-25. Of course, the richness within the commentarial tradition

notwithstanding, the outstanding Nyāya treatise on the self and self-knowledge is Udayana's Ātma-tattva-viveka, "Discrimination of Truth (from Falsehood) concerning the Self," which is an independent treatise with a mind-boggling array of arguments. Nevertheless, Gaṅgeśa most directly follows Vātsyāyana and the Nyāya commentators here, not his "teacher's" masterpiece (somewhat surprisingly).

Despite the elucidations of the subcommentaries (and of Udayana's Ātma-tattva-viveka), one might wonder how precisely to reconstruct Vātsyāyana's reasoning. For instance, if an inference is proffered, what is the pakṣa? More than one argument, moreover, seems to be implicit. A primary issue for Gaṅgeśa is the nature of our knowledge of the inferential subject prior to the inferential process or act. In the current passage, the pakṣa is the collection of living bodies (śarīra—a word used primarily for the human body but which here includes animals and presumably plants, which have there own type of prāṇa or breath).

Now although liberated selves are not embodied, clearly a dead body does not exhibit the prover here, breath, as also do not all other non-living things. Then presupposing that having-a-self is not revealed to the senses (otherwise inference would not be required), how could the absence of having-a-self, to wit, not-having-a-self, be known? Is it known perceptually? No. We do not directly observe that a pot, for instance, has no self. Nor is the probandum known by inference. If not-having-a-self is not made available by perception, it could not be grasped by an inference based on positive correlations, since perceptual evidence would be required. And with "not-having-a-self" as probandum, the vipakṣa would be things that "have a self." Of course, that predicate is unavailable.

Text (Tirupati 488, Calcutta 626)

**Objection** (to the pūrvapakṣin, by a Naiyāyika defender of the separate utility of kevala-vyatirekin inference): (First there is established an inherent cause of psychological qualities:) Desire has origins in an inherent cause, since it is an effect (like a pot). And (then it is established that) the inherent cause is distinct from the eight substances (on the traditional list) beginning with earth, because there are defeaters that rule out earth and the rest. Given that self has been established as distinct from earth and the rest, the having of that (a self) is proved (by negative correlations) for a living body.

Pūrvapakṣin: If "having a self" amounts to "being conjoined with a self," then that occurs in the case of a pot and so on (too, since, according to Nyāya, a self is ubiquitous in size, i.e., all-pervasive, such that everything would be in a sense "conjoined" with it). Therefore, the prover being excluded (from the sapakṣa), the fallacy of "uniqueness" is committed.

**Objection**: (The probandum predicate) "having a self" amounts to something's (a living body's) "being an effect and a location (or substratum) that supports the conjunction (i.e., body-self conjunction or connection) that is a cause of knowledge and that has the same location (namely, a self) as knowledge." For, body-self conjunction is a cause of knowledge. Although self-manas conjunction is such a cause, too, manas ("mind" or the "internal organ") is not an effect (and so the predicate does not overapply to manas).

Pūrvapakṣin: Wrong. For it is unknown elsewhere than with respect to the body (i.e., the pakṣa). (And) if it is known there, then you've got a case of "trying to prove what is already known" (siddha-sādhana).

**Comments.** Following Vātsyāyana under Nyāyasūtra 1.1.5 (the so-called inference sūtra), Gaṅgeśa puts forth a two-step argument. First, desires are proved to have a locus, a substance in which to inhere, like all qualities. In step two, self is proved to be that locus, a distinct substance, different from earth, water, tejas, and so on down the traditional list, by eliminative argument. Note that all that we know about the self hereby is that it is the locus or substratum of certain properties, on analogy to the way, say, a lotus is a locus of blue.

The defeaters for the proposition that desire and the like belong to earth or the rest consists of suppositional reasoning such as the following. If desire were a property of earth (or water and so on down the list), then like the color that exists in earthen things, it too would be perceived. Surveying pots and so
on, we find that nothing material has desire, cognition, etc., outside of living bodies, bodies conjoined, on the Nyāya theory, with selves.

Next, instead of advancing inquiry about the main concern of how the probandum is available, the new pūrvapāksin tries to exploit bits of incoherence within the overall Nyāya picture of mind-body relation. By a separate eliminative argument concerning substances and size, a self is proved to be ubiquitous: all substances are supposed to be of ubiquitous, intermediate, or atomic size (with examples in ether, a pot, and an earthen atom, respectively). Thus, the pūrvapāksin points out, a pot is conjoined with a self as ubiquitous on the Nyāya view, and so such a non-living thing too would be qualified by the probandum. But the prover, having-breath, does not qualify a pot. So there is no evidence for the required pervasion, and the “uniqueness” fallacy is committed. There should be evidence, but there isn't any.

Two conjunctions, or connections, are viewed in Nyāya as necessary for cognitive occurrences: body-self conjunction and manas-self conjunction. The manas, or “internal organ,” is of course itself a controversial posit—both within Nyāya, we should note, as well as outside. (There is a section on manas in Gangeśa's perception chapter: EP, pp. 537–74) By separate arguments, manas (along with the self) is properly excluded as qualified by the property, having-a-self, by its “being an effect” (neither self nor manas are effects). So Gangeśa qualifies the probandum term of his inference, specifying that conjunction of self and body is an avacchedaka or condition for the self's being the locus of desires, cognitions, and so on, as effects.

Thus the objection is met (our having been reminded of the many problems attaching to the conception of manas notwithstanding). Unfortunately, there remains the main problem, the pūrvapāksin points out: where have we encountered this now, on the objector's analysis, highly complex property, having-a-self? The probandum cannot be both unknown and available for inference, nor both known and needing to be proved.

Text (Tirupati 490, Calcutta 627)

Objection: In a pot and so forth there is experienced no specifier of the emergent cause, which is conjunction (of self and body), with respect to desire (as effect, i.e., it is only living bodies that have desires, not things like pots). Its absence (the absence of the absence) is (thereby) proved with respect to the living body. (That is to say, the property, living-body-as-specifying-the-conjunction/etc., which is what having-a-self amounts to, is proved to belong to a living body.)

Pūrvapāksin: No. (Your absence's countercorrelate, namely) the specifier of the emergent cause, which is conjunction (of self and body), with respect to desire, is well-known just with the living body, and so this is a case of “trying to prove what is already known.” Otherwise, the problem is that its not being present could not be determined by a negative method or the like (i.e., by another method of knowledge: it would be unavailable to all knowledge-generative processes).

Objection: The way that the probandum that the negative inference proves is unknown is like the relation to the probandum that is unknown (with respect to the pāksa, prior to inference).

Pūrvapāksin: No. For, it could not be determined by a negative method or the like (as has been said).

If inference could prove an unrecognized something by way of the thing's uncommon property (as “having-breath” is a property possessed only by living bodies), then a pot too could be inferred to have, by its (uncommon property) pothood or the like, such arbitrarily imagined properties as “dittha” (a name normally used only for persons)—this is the difficulty.

Comments. “This distinctive-in-this-way creature is from Mars, since it is distinctive-in-this-way.” Imagining invariable concomitance between (a) whatever marks something as of a certain type and (b) any far-flung predicate we like, we can prove the far-flung predicate to occur in that sort of thing. Thus, “Pots have ghosts, since they have pothood,” and “Earthen things are from Mars, since they have smell.” Such “negative-only” inference would be way too powerful an engine. The problem is supposed
to be solved by limitations on probandum availability. But of course that is another issue, not so far
resolved.

Text (Tirupati 490, Calcutta 629)

Gaṅgeśa: We answer. Given that desire has been proved to have an inherent cause (by the
inference previously stated, “Desire has origins in an inherent cause, since it is an effect,” we formulate a
second inference), being-a-desire occurs in that (namely, desire) which has as emergent cause a
conjunction, since being-a-desire is a universal directly pervaded by (i.e., whose instances are all
instances of the wider universal) being-a-quality-occurring-in-specific-qualities-grasped-by-an-eternal-
organ (i.e., manas or the organ of hearing), like being-a-sound (i.e., soundhood, the universal of sound).
And this emergent cause, which is a conjunction, is specified by something, since it is a conjunction.
(That “something,” of course, is the living body.) If merely conjunction with a self were the origins of
desire (without requiring something else, something delimiting it), then ramifications would overextend.
Therefore, having-a-self, which is the specifier of the conjunction that gives rise to desire, is proved with
respect to the living body. (That is, every living body is “enselved,” sātmaka.)

Comments. Conjunction is a two-term relation. It does not occur on its own but simultaneously in
two loci or locations. The point here, however, is that as a property of each of its terms it is not a locus-
pervading property, like, say, cowhood, which pervades every part of the cow. Thus it has to be specified
or delimited in order to make inference predicating it possible. That is, since a conjunction between, for
instance, a monkey and a tree occurs in the tree’s branches but not at its roots, the tree both has and does
not have monkey-conjunction. That a single thing is qualified by both a property and its absence presents
an obvious problem for logic, to be resolved by specification of precisely where in the tree the property
occurs. Similarly, the conjunction necessary for desire makes us ask, “Where, precisely, does it occur?”
The answer is not everywhere in the self but only where there is conjunction with the living body. A self,
we must keep in mind, is ubiquitous in size, and so a “conjunction” (of sorts) of self with a pot does
occur. But a pot does not have desire. Desire occurs only in a self as connected to a living body. Indeed,
desire is itself a non-locus-pervading property—given that the self is ubiquitous. So, the specifier—or
delimiter, avacchedaka—of the conjunction that makes desire possible is the living body.

The conjunction is proved by Gaṅgeśa at the beginning of the passage by some complicated
reasoning centering on second-order properties, or symmetries, within the system of Nyāya-Vaiśeṣika
categories, specifically, a desire's being an effect like a color. Thus desire and the like not only demand
posits of an inherent cause whereof they would be “specific properties” (exhibited only by that type of
thing), but also posits of a conjunction as their “emergent cause,” as conjunctions among threads are
emergent causes of the color of a piece of cloth.

Again skipping a few pages.

Objection: The inference, “Having-a-self has its occurrence in the body, since with respect to its
occurring there that there is no defeater (or counterconsideration), like being-a-body,” establishes the
probandum simply by positive correlations. Hence, what's the use of your negative-only inference?

Gaṅgeśa: And that should not be asked. For, “A (living) body has a self”—a bit of knowledge
whose (objecthood's) qualificandum is the body—would not be possible without the negative method.
Furthermore, one means (of knowledge) does not vitiate another.

Alternatively, voluntary bodily movement has an emergent cause in a conjunction (of something
with the body), since it is action not generated by a disposition (samskāra). Given that this conjunction is
established—the conjunction, that is, that is an emergent cause of voluntary bodily movement—it is
concluded that it is a conjunction (of the body) with a self, i.e., something capable of effort, by positive
and negative correlations with effort.

And in this way, given that there is a (dual) substratum of the conjunction that is an emergent
cause of voluntary bodily movement (which amounts to a general understanding of “having a self”), that
to be a (living) body is to be “enselved” (sātmaka) is to be proved (i.e., it is the probandum in an inference) targeting living bodies, and it is proved, since a living body exhibits voluntary bodily movement—the prover.

Moreover, absence of voluntary bodily movement is known in a pot and the like by perception. From this absence of voluntary bodily movement, it is easy to grasp that there is also an absence of the conjunction (we have been talking about) that is an emergent cause of it. (Thus, we prove that living bodies are enselved by a negative-only inference.)

**Comments.** In the objector's inference, having-a-self is the inferential subject, whereas in Gaṅgeṣa's it is the living body. Gaṅgeṣa apparently accepts the objector's inference and accepts that it is based on positive correlations. But one valid means of knowing does not cancel out another, he says. What's the loss in accepting both as reliable sources? “Those delighting in reasoning” (below, e.g., Calcutta, p. 977, tarka-rasika) sometimes prove things even though they are already known by perception. And if one takes the living body as inferential subject, one has no sapakṣa for one's inference (no instance of “having-a-self” outside the set of living bodies) and thus no possibility to prove “A living body has a self” except by a negative-only inference.

Here “disposition,” samskāra, includes the impetus of a moving object and the like.

A standard example of action born of a conjunction is striking a tree branch with a stick such that a piece of fruit falls. The conjunction of stick with branch is an emergent cause of the falling of the fruit. This example contrasts with disposition-impelled action that does not require conjunction or disjunction.

The main idea behind the argument is that action that is not samskāra-impelled, not something dropping because of weight or inherently active such as wind or air (according to the traditional physics), is generated by conjunction or disjunction, which are themselves qualities with substrata, two substrata, to be precise. One substratum of the conjunction that is an emergent cause of voluntary bodily movement is the body; the other has to be capable of initiating effort and action, to wit, a self “capable of effort.”

**Text (Tirupati 495, Calcutta 633)**

(Gaṅgeṣa continues:) Alternatively, the living body or one of its parts possesses a conjunction that is a cause of the “specific qualities” (desire, cognition, pleasure, and so on) of a self, given that the living body and its parts are distinct from selves. They possess a conjunction (furthermore) that does not occur in what is not the support (ādhāra) of pleasure, since the living body or the part possesses a conjunction with breath that is a cause of cognition, given that it is other than breath. What is not so, is not so, like a pot.

The conjunction between self and breath, and the conjunction between breath and manas (the “internal organ”), are not such causes in that they are rendered irrelevant (anyathā-siddha) just by (the emergent cause we have targeted as the prover, namely) conjunction between body and breath.

To be a pleasure's support (ādhāra) is to be something over and above (the other term of self-body conjunction, i.e.) an inherent cause of a pleasure, since it is to be a support of every pleasure (but not the only one), like such pervasive properties as being-knowable—to use the logical style (of those who like formally formulated inferences).

**Comments.** This new inference contains an expression that qualifies the probandum, “given that a living body and its parts are distinct from selves,” which is required because otherwise a self would be proved to “have a self,” too, since both self and body possess the conjunction—i.e., the connection between these two—that is a cause of desire and the like. A second qualifier, “a conjunction (furthermore) that does not occur in what is not a support of pleasure,” eliminates manas as a candidate for being “enselved,” since the internal organ is not a locus of pleasure, although its connection with a self is a causal factor in the appearance of psychological qualities. Thus, of the two emergent causes, body-self conjunction and manas-self conjunction, only the former is key to the inference (and indeed to the meaning of “being enselved”).
The qualification to the prover, “given . . . ,” is added because the second term of the conjunction of body and breath is of course breath. The inference proceeds based on negative correlations only: “What is not so, is not so, like a pot.” The example, which is negative, exhibits both the absence of the probandum, in effect, “not having a self,” and the absence of the prover, “not having breath.”

In the second paragraph, Gaṅgeśa addresses the worry that there might be deviation in the case of breath inasmuch as the first two conjunctions with breath mentioned would also be emergent causes of psychological qualities. However, they are not to be regarded as such, because they are “rendered irrelevant” by the connection between breath and the body. In brief, without the body-breath connection that marks a living body, there would not be the connections with the other two substances.

According to both Mathurānātha and Rucidatta, the final paragraph concerns the question of how the probandum is known. The living body is known to be both a locus of psychological qualities and something distinct from the other term of the required “mind-body” connection. Psychological qualities occur in a self only as conjoined with a body, and in a body only through causal processes involving manas and self. A body as so known allows us to avoid the dilemma of (a) an unavailable probandum or (b) an unnecessary inference. We know what a support, i.e., substratum, of a pleasure is in knowing the living body as such a support, and we know it as something over and above a second inherent cause. We know that it is not the only causal factor. But prior to the inference we do not know the self as either such a support or as something over and above the body. Unfortunately, just how we know the body is not the only causal factor is not explained here. The inference is framed formally, presupposing knowledge of the entire Nyāya-Vaiśeṣika system.

Now to the section’s end.

Text (Tirupati 505, Calcutta 641)

(Gaṅgeśa continues:) But others hold the following.

Naiyāyika faction: In the case of a negative-only inference, the probandum is nothing but an absence, and this, which is indeed not known (prior to the inference), is what is proved (on the following principle). The prover's absence (~H) is grasped as pervading the absence of just that x (~S) whose absence is to be proved to qualify the inferential subject by that prover (H), which (as itself qualifying the inferential subject) is (H ≡ ~H) an absence (~H) of the pervading absence (~H)—if something is known as having an absence of a pervader (e.g., an absence of a pervading absence), necessarily is it known as lacking the pervaded (too).

For example, there are “Earth is distinct from the other things (on the traditional list), since it has earthhood” and other such inferences. Here an absence of earthhood (~H) is grasped as pervading the absence of the others (~S) beginning with water (and so on down the list). By that earthhood (H), which is (H ≡ ~H) an absence (~H) of the absence of earthhood, a mutual absence of the others is proved to qualify (the inferential subject, namely) earth. That is to say, a mutual absence (anyonya-abhāva, “mutual distinctness,” here, a mutual absence from the others beginning with water) that is itself unknown (aprasyātta, i.e., prior to the inference) is proved. This is like an absence of a pot on the floor known by perception because a cognition of the absentee (the pot) has previously occurred (forming a memory-impression that in turn supplies the absentee in the absential perception).

Comments. This principle about the pervasion of absences explains why even though a probandum has not been known before, so long as its absentee, or counterpositive, pratiyogin, has been known before, it can be proved by a negative-only inference. This means the probandum would have to be an absence. And presumably insofar as ~H's pervading ~S is grasped, S's pervading H would be grasped.

Do not be misled by the example of the absential perception involving an absolute absence, not a mutual absence. (“The pot is not on the floor” would express a locative or “absolute” absence, whereas “The pot is not the floor” would express a “mutual” absence.) The point is that the cognition of the
absentee would be a causal factor responsible, along with other factors, for generating the absential cognition.

_text (Tirupati 507, Calcutta 642)_

(The Naiyāyika faction continues:) Elsewhere, too, it is this way. Given the proof that desire has a substratum (i.e., that it is located in a substance, “since it is a quality”)—desire, that is, that as a property does not pervade its locus (a self being omnipresent, a desire occurs in a self only as delimited by the living body)—the absolute absence (of desire) has as its specifier a pot and so on, everything namely (except the living body which specifies instead desire's occurrence in a self). For, there is no experience of desire by means of specification by any of those things (a pot and so on). But the living body is not like that. For, there is experience of desire by means of that specification of its locus (i.e., a delimitation of a self's being a locus by the the specifier, being-a-living-body).

And so, not-being-a-self (or “not-enselved” nairātmya contrasting with “enselved,” sātmya), which is to be (−S) a specifier of the locus of an absolute absence of desire, is grasped as absent in things where having-breath and the like are absent (−H), namely, in a pot and the like. That is to say, it is grasped as having that absence as its pervader (−S → −H: the probandum's absence is pervaded by theprover's absence). Therefore, with respect to the living body (as inferential subject), an absence of (what we just said, i.e., not being) a specifier of the substratum of an absolute absence of desire (−−S)—which is what it is to be “enselved” (or, having-a-self, sātmya or sātmakatva)—is proved by (the negative-only prover) having-breath or the like.

In this way, there is also the negative-only inference that establishes veridicality (to wit, the veridicality of a bit of knowledge arising in unfamiliar circumstances). (An absence of H, i.e., −H) an absence of a generating of successful effort, which is an absence that pervades (−S, non-veridicality, i.e.) that which is specified by predication content whose locus or substratum is not the thing cognized—such an absence having been grasped in the case of a non-veridical cognition—there is, then, proved with respect to an awareness whose veridicality has been drawn into question (which is the inferential subject) an absence of the cognition's being specified by predication content whose locus is not the thing cognized, by (the prover in the form of an absence of an absence of itself, −−H, to wit) being a generator of successful effort. (And so it is an absence that is proved. This is the same as veridicality, the positive property, in that) veridicality is just an awareness's not being specified by predication content that belongs to a different locus than the thing cognized (−−S).

Comments. The inference is: “This bit of knowledge is veridical, since it is a generator of successful effort; what is not so, is not so (−S → −H), like a non-veridical cognition (of silver, say, as mother-of-pearl).” See EP, pp. 99–105, where the inference is first put forth in Gaṅgeśa's Jewel, in the section on “knowing veridicality,” jñāpti-vāda. It figures crucially in Gaṅgeśa's account of knowledge and is discussed there at length.

_text (Tirupati 514, Calcutta 643)_

Objection: Given that the probandum is not known (aprasiddhi, unknown, that is, prior to the inference, as you apparently hold), how can a cognition of an entity as qualified by the probandum come to be, since (there is the rule that) a cognition of an entity as qualified is generated (in part) by a (prior) cognition of the qualifier.

Gaṅgeśa: No. Because of the collection of causal conditions coming together that are sufficient to produce a bit of inferential knowledge with respect to the inferential subject, a cognition arises that has the (eventual) inferential subject as the qualifier (i.e., predication content) and the (eventual) probandum just as its qualificandum (there being no rule that a cognition of an entity as qualified is generated even in part by a prior cognition of the qualificandum). This is like the (absential) cognition, “On the floor the pot is not,” which has the absence as the qualificandum.
Comments. For example, “Fire is on the mountain” is a cognition with the probandum fire as qualificandum and “on the mountain” as qualifier. Similarly, since a given absence of a pot on the floor would not have been experienced before, properly speaking an absential cognition has, first of all, the absence itself as qualificandum and “on the floor” as qualifier. The qualifier-qualificandum relation can be converted by inference (EP, p. 113).

Thus does Gaṅgeśa appear to hold that with the negative-only inference about earth being other than those other things (on the traditional list) the probandum is first cognized as the qualificandum of an awareness and “from earth” or “in earth” as first the qualifier. “Difference from those other things is in earth” converts to “Earth is different from those other things.”

Text (Tirupati 515, Calcutta 643)

Objection (by objector.1): So, too, in the case of the negative-only inference there has to be (as you have urged, parāmarśa, “consideration” or “(correct) reflection,” which is) cognition of the inferential subject as possessing the prover in the form of an absence of the pervading absence (~H along with the rule ~S → ~H), the absence that pervades the absence of the probandum: such is the method of inference. (So you must still tell us how the probandum is available to such parāmarśa, as you say.) And it is false that somehow without knowledge of the probandum (prior to the inference), such correct reflection or putting it all together is possible.

Objection (by objector.2 against objector.1): (But) in reality, the cognition (we have been talking about) is not only looked for but found: a having of the countercorrelate (or absentee, i.e., the prover) to an absence (i.e., ~H) that pervades (~S) that which will be (with every negative-only inference) an absence of the probandum (as we have explained).

Objector.1 (responding to objector.2): That should not be said. For, it would not be possible in that case that an inference look like a negative-only inference but be an error (vyatirekābhāsa). (And so the problem of the unknown probandum has not been solved.)

Gaṅgeśa: No. That absence (~H) grasped as pervasive of its presences (i.e., as uniform throughout a set, as earthhood is absent in water in so on) is such that by its absence (~H) the absence (~S) of that which it (~H) pervades (~S → ~H) is proved (by modus tollens) for the inferential subject. For, (in this way) the negative inference as uniform (all such inferences that are correct take this form) and as free of untoward consequences is a method of inference (anf generates inferential knowledge).

And this way (of correct reflection in a negative inference making a probandum well-known for the first-time) works only in “inference for oneself.” For, in inference presented for another, since the probandum would not be known (aprasiddhi, “not accepted”), presenting the “proposition to be proved” (as the first member of a formal five-membered demonstration) would not be possible.

Comments. The outstanding problem is to account for the cognition of pervasion without which no inferential knowledge could occur. Objector.2 used the expression, “an absence of the probandum” in explaining how there is knowledge of pervasion in the case of a negative inference. Gaṅgeśa's formulation, in contrast, does not mention the probandum, and would thereby avoid the problem of an unavailable term. The probandum is a generalization made in the very process of making the inference. For example, prior to inference, the probandum, “distinct from the others,” is not known in its full generality, but its countercorrelate—the distinctness is an absence—namely, the others (water and so on) are known prior to the inference. Indeed, they form the stock of negative examples that the prover draws upon. In other words, water and so on are not specified through the property having-an-absence-of-the-probandum but rather as presences specified by waterhood and so on. The negative inference requires a correct “reflection” that generalizes for the first time, i.e., introduces, a new property made apparent by the prover, both of which are absences.

What a concession to the Buddhists to admit that in “inference for others” the negative-only fails because the probandum is not understood! It's a concession because this is the nature of several key
“religious” inferences, concerning a self and God. In other words, by pointing out that his discussion has been restricted to sva-artha-anumāna, “inference for oneself,” Gaṅgeśa signals a sense of need for some kind of perceptual knowledge of self in the way that a pot known as earthen is crucial to the inference that renders definitional knowledge of earth. Otherwise, we might as well call the ninth substance proved as the locus of psychological properties something else, not “self,” ātman.

Gaṅgeśa does not say this explicitly, but he uses the sva-artha/para-artha distinction to differentiate his position from that of his teachers, especially Udayana, who does of course try to prove the existence of the self against opposition. Indeed, Udayana takes as his principal interlocutor the Buddhist stream-theorist who denies Nyāya's whole approach to ontology as a matter of properties, some of which are short-lived, and property-bearers enduring through some types of change. For the Buddhist opponent, “self” is a “convenient fiction,” bundling momentary dharma or properties that have no property-bearers but are causally ordered in sequences. Gaṅgeśa holds that the inferences we have been discussing are bona fide only as sva-artha-anumāna, “inference for oneself,” not para-artha-anumāna, “inference for others,” and thus would have no force against the Buddhist for whom the probandum would make no sense. This is a sharp departure from tradition. The engine of the negative-only seems quite severely restricted by Gaṅgeśa if it is to be applied only to non-controversial predicates.

EXCERPT FOUR

On Counterinference

_Text and Translation (Tirupati p. 83, Calcutta p. 865)_

Gaṅgeśa: Counterinference is not (D1) there being an inferential mark that makes known with equal force absence of the probandum. For, because of mutual blocking, neither would make anything known. Furthermore, (evidential) strength would not consist in presence in positive instances, etc., for that does not hold of an “only universally negative inference” (where there are no positive instances).

Nor is it (D2) there being an equal (i.e. equally warranted) pervasion (of an inferential mark by absence of the probandum) and (an equal or equally warranted) presence of the inferential mark in the inferential subject. For because of (impossible) opposition about one and the same thing, that (an inference like that) would invariably (niyamā) implode (bhaṅga).

Comments. This section of Gaṅgeśa's inference chapter and the “fallacy” analyzed, sat-pratipakṣa, hold special interest because Gaṅgeśa makes plain its polemical and indeed epistemic nature. This then indicates, by generalization, the epistemic nature of all the fallacies he discusses. Indeed, Gaṅgeśa's theory of inference as a knowledge source, anumāna as a pramāṇa, is an epistemological theory.

Epistemology has a social dimension that Gaṅgeśa recognizes, following his Nyāya predecessors, by focusing on “inference for others,” para-artha-anumāna, which he frames as a part of debate, kathā. Even if M's inference is perfectly good, based on wide experience of positive and negative correlations with an inferential mark known to be a property of the inferential subject and a conclusion that is in fact true, still M does not know that conclusion if he or she is presented with a counterinference that contradicts it. In this section, Gaṅgeśa claims expressly that sat-pratipakṣa can occur when an original inference is correct (below, Tirupati p. 94, Calcutta p. 878). And the section includes general remarks about what the several fallacies show and motivate.

Counterinference, which is the same as the Nyāya-sūtra's prakaraṇa-sama, “counterbalanced on the issue,”3 also brings out, in Gaṅgeśa's hands, the difference between first-level, uncertified knowledge, pramāṇa, and second-level, self-consciousness certified knowledge, nirṇaya, according to his elucidation at

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the end. What seems to be a perfectly good inference from our own first-person point of view is challenged not just with respect to its conclusion but rather the whole process, including its evidence base. We cannot certify it because of a block, but our concern is not just with the truth of the conclusion but equally with our apparent knowledge's underpinnings: (1) vyāpti, a pervasion of things H (hetu, sādhana), our original prover, by things S (sādhyā), and (2) pakṣa-dharmatā, our prover's (H's) really qualifying the inferential subject a (pakṣa). If we know both (1) and (2), then, given that we put the information together (parāmarśa), we know that Sa.

1. K[(x)(Hx → Sx)]
2. K[Ha]

Therefore, K[Sa]

Despite wide acceptance of the schema, Gaṅgeśa shows that we have to add a defeasibility clause to the conclusion: so long as there are no true defeaters. With counterinference, something has to be wrong in the one or the other premise of an original target inference; alternatively, something in the one or the other on the side of the counterbalancing inference; or in both inferences. The situation is itself a defeater of putative inferential knowledge.

A quick note now about some crucial renderings. Throughout the words 'know', 'knowledge', etc., are used where earlier Nyāya translators (ourselves included) of 'jñāna' and company have used 'cognize', 'cognition', etc. Use of the former word-group is only usually and not invariably more appropriate since there are no false bits of knowledge as we say in English or at least in philosophical English: there are only bits of "apparent knowledge," pramāṇābhāsa, or "false cognitions," mithyā-jñāna, as the words are employed in Sanskrit. Nevertheless, unchallenged, unjustified (i.e., unselfconsciously justified) cognition, jñāna, counts, if true, as knowledge, pramāṇa, according to Nyāya and most of the other classical schools. Furthermore, in the context of "inference for others"—which provides the frame for this section and most of the latter half of Gaṅgeśa's inference chapter—all claims may be taken as challenged, such that the goal is to have not just unreflective knowledge but certified, reflective knowledge, nirnaya. Certified knowledge has the same content as the unreflective variety, the difference being self-conscious justification. For elaboration, see the on-line entry, “Epistemology in Classical Indian Philosophy,” in the Stanford Encyclopedia of Philosophy.  

Gaṅgeśa's point about the failure of the first definition D1 is as follows. According to this definition, first inference would make known Sa on the basis of Ha and the pervasion, whatever is an H is an S: (x)(Hx → Sx). And a second inference would make known ~Sa on the basis of Ga and the pervasion, whatever is a G is not an S: (x)(Gx → ~Sx). But the two (apparently) equally warranted inferences are mutually contradictory and must, in Gangesa's view, cancel each other and then there can be no inference and also, accordingly, no actual flawed inference. D2 fails for similar reasons. That (apparently) equally warranted contradictory inferences cancel each other so that there is no inference is a significant thesis in cognitive science (Western philosophers have taken up this subject earnestly only in recent times): Gangesa has more to say on related issues in this chapter and elsewhere in the Jewel. We shall collect these views and discuss their relevance for contemporary philosophy in the fallacy section of the Introduction.

The opposition (virodha) here is de re: the probandum and its negation are mutually opposed and could not be understood in attribution together to one and the same thing. However, English usage often demands the word 'contradiction' instead of 'opposition' and readability trumps literalness. So below "contradictions" are to be understood as impossibilities, vastu-gatyā, to use the Navya-Nyāya expression, "in the way of things."

The section occurs in the second half of Gaṅgeśa's inference chapter, in the midst of a long discussion of fallacies in general and particular fallacies identified in the Nyāya-sūtra and other literature.

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5Nandita Bandopadhyyay discusses the fallacy throughout Nyāya in The Concept of Logical Fallacies (1977), pp. 123–136. Her rendering of technical terms is often different from ours, but she translates many felicitously including 'virodha' etc. as "contradiction."
(Gaṅgeśa continues:) Nor is it (D\(^3\)) to be cognized (in the two instances) by way of (knowledge of) pervasion and (knowledge of) the inferential mark as qualifying the inferential subject. For, the two cognitions, which contradict one another but also are qualified by (knowledge of) pervasion and (knowledge of) the inferential mark as belonging to the inferential subject, by rule would involve error on one or the other's part. (And we would know this if we put them together.) We could not project the one on the other (i.e., consider both true) because we would not know, for example, whether or not (verbal) audibility is pervaded by eternality (i.e., whether words are eternal, in a standard example of counterinference).

**Objection:** Being an inferential mark qualifying an inferential subject as something pervaded by a probandum, or being something pervaded by a probandum as a property of the inferential subject, either of these (works, i.e.) is projectable (the one conclusion on the other).

Gaṅgeśa: That should not be alleged. For, the pair is not present with respect to one and the same object. Since nothing so qualified is familiar (apperceptively), (we say) it is impossible to entertain anything as qualified by them.

Nor is it (D\(^4\)) to have, without the particular (inferential subject) being determined (to be the one way or the other), an opposite to (an inference to) a probandum made known (by a first inference), because neither (inference) would make anything known. Furthermore, the particular could not take the form of (sustaining) an imploled and a non-imploded pervasion, because, by rule, there would be implosion of (both) those (pervasions) applied to one and the same thing.

**Comments.** An example that goes back a thousand years to the Nyāya-sūtra (5.1.16) and Vātsyāyana's commentary has two counterbalanced inferences about words and their eternal or non-eternity: “A word is non-eternal, since it is a product, like a pot,” and “A word is eternal, since it is audible, like the universal, being-a-word.”\(^6\) Gaṅgeśa denies that we can have knowledge of something as S and ~S at the same time. We have no idea what that would be like.

Here ends the portion designated in the Calcutta edition as the pūrva-pakṣa, text devoted to airing views that are only *prima facie* and belong to an opponent, now followed by Gaṅgeśa's siddhānta, text devoted to the right view as established by argument. In the following text, expressions such as *ucyate* (“we answer; this is to be said”) and *tattvam* (“the truth is”) suggest the division, although the Tirupati edition does not mark it.

Text and Translation (Tirupati p. 84, Calcutta p. 871)

Gaṅgeśa: We answer. The truth here is (D\(^5\)) to have an inferential mark whose result is contradicted by that which, having been brought to consciousness, has equal power (force, *bala*, evidential power), capable, that is to say, of bringing to consciousness the contradictory to the probandum. And “power” here is constituted by (the evidence for) pervasion and the inferential mark being a property of the inferential subject.

Alternatively, the truth here is (D\(^6\)) to have a result that is contradicted by there being cognized what would be a successful means to make one infer a conclusion except that it is a means that is actually other to an inference making one know the contradictory (to the first inference's probandum, since it too is counterbalanced).

**Nyāya faction:** The fact that there are both pervasion and an inferential mark's being a property of an inferential subject, etc., is known to hold true for that which for M would establish (a probandum). For, as the (first) reasoner M would not make mention of (a counterprobandum, i.e.) the absence of that (which M's first inference would establish). The truth of the second is that it is not known which of the two is correct. Inasmuch as the second would be blocked, defeated by the first, the (epistemic) flaw (*doṣa*) here is limited to “inference for oneself” (not including “inference for others”).

\(^6\)Nyāya-sūtra 5.1.16, op. cit., p. 1027.
Gaṅgeśa: So say some. They're wrong. For, on one and the same occasion the two conclusions that would be known through (knowledge of) pervasion and an inferential mark's being a property of an inferential subject—either the two together or the one immediately following the other—would be contradictory (pratipakṣa). And inference for oneself and inference for another have in common (the principles governing) simultaneous bringing to consciousness by force of a cause.

Comments. Gaṅgeśa pretty much ignores the problem of how a subject can entertain the two inferences at the same time—a prime topic for his commentators. However he does have a little to say, near the end of the section. His main point is that surely sometimes we are mindful of two putative inferences' contradictoriness. He will contend that this is not the same as doubt.

Text and Translation (Tirupati p. 93, Calcutta p. 876)

Objection (to Gaṅgeśa by objector.1): The (epistemic) flaw occurs just when for something single there would be necessary implosion of (knowledge of) pervasion and an inferential mark's being a property of an inferential subject in that the thing does not have a dual character (while the two are) being applied to one (both S and ~S to a).

Objection (by objector.2 to objector.1): There is no rule that there would be implosion of the (knowledge of) pervasion, etc., because of the possibility that the implosion could be instead of the contradictoriness (or opposition) of the two.

Reply (by objector.1): That should not be alleged. For even if there is no opposition (in contradictory predications of a single thing), there would be opposition to inferential knowledge. But if there is (such) opposition, there is, by rule, implosion of (knowledge of) pervasion, etc.

Gaṅgeśa: No. Immediately after knowledge of contradictoriness, there would be knowledge of implosion (of knowledge) of pervasion, etc. (in the particular case), such that an (epistemic) flaw (doṣa) would supervene here too, as it does with (knowledge of) deviation (of the prover from the probandum).

Comments. Epistemic merits and flaws (guna and doṣa) are free lunches ontologically, ways of characterizing natural objects and processes without introducing additional entities. They are properties that are tied to an epistemically evaluative perspective and supervene on natural things in causal relationships. Gaṅgeśa devotes a long section to them near the beginning of his perception chapter. The upshot is that by their identification we certify (by finding guna) the knowledge that we have acquired or learn that what we considered knowledge is not knowledge after all (by finding doṣa). A prime concern in the theory of fallacies is to say why our putative knowledge is defeated by a particular fallacy as an epistemic flaw (doṣa).

Text and Translation (Tirupati p. 94, Calcutta p. 878)

Objection: Because of the contradictoriness of the two (inferential marks) as pervaded by one or the other of the probandum and the absence of the probandum, as it were, there would be no certainty but rather doubt. Or, if there were certainty, it would be about pervasion holding in one or the other case. Thus the fact that the inferential mark stands as pervaded (by the probandum) would not be known.

Gaṅgeśa: No. Right after a bit of certainty about one and the same thing through both inferences (carried out by M, or the first by M, a first speaker, and the second by N, a second speaker), there would be doubt about the pervasion alleged on the other score: its (the inference's or its mark's) being split apart would supervene. The heart of the vitiation is, however, that no certification could be accomplished because the causal complex sufficient for it would be counteracted by the contradictories having equal

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strength. It would not be simply a lack of (genuine knowledge of) pervasion and the inferential mark's being a property of the inferential subject, because counterinference (sat-pratipakṣa) can occur even in the case of a genuine prover (one that does indeed qualify the inferential subject and is indeed pervaded by the probandum).

Alternatively, the vitiation would occur by means of knowledge of implosion of pervasion with respect to one and the same thing.

And organs such as sight (and the information they provide) do not stand in contradiction to inference (in this fashion of two mutually opposed inferences), because once something has come to light as a matter of experience it would have superior force or weight (bala).

Comments. Here we are treated to an important statement on Gaṅgeśa's part for our overall interpretation of his treatment of fallacies, since it shows that he considers them epistemic as opposed to merely logical. M's inference to a conclusion Sa may be perfectly sound and indeed epistemically justified, were we to consider only inference for oneself, sva-artha-anumāna, outside of all context of controversy and debate. However, when M learns from N of another inference to the conclusion ~Sa, M no longer knows that Sa. The proposition that Sa cannot be certified. M would no longer be justified in her belief, that is, so long as M is not aware of a flaw in the second inference's alleged meeting of the standards of pervasion and of qualification of the subject on the part of the inferential mark (vyāpti-pakṣa-dharmatā).9

The point has enormous significance for philosophy as a discipline according to Nyāya. For we have a duty in philosophy to try to answer our opponents' objections and counterinferences, and indeed we have no right to our own positions unless we can dismantle objections we become aware of along with putative counterinferences.

The section continues by Gaṅgeśa's taking up the views on counterinference of his near contemporary Tārīṇi Miśra, whose Ratna-koṣa, now lost, was well-known not only to Gaṅgeśa himself but also to his son Vardhamāna and to his commentators.

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9 About this fallacy Bandopadhyay says (1977: 127), “The very possibility of this check implies that the premises of the countersyllogism cannot be proved as false by the first disputant who is too confused to question them.” The point, however, is not that the proponent of an original inference is confused about the evidence for an opposed conclusion but rather that unless that evidence can be shown to be flawed the first disputant loses his or her warrant for Sa even if the proposition is true and there is nothing wrong with the evidence or correlations between things H and S.