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"THE COW IS TO BE TIED UP": SORT-SHIFTING IN CLASSICAL INDIAN PHILOSOPHY OF LANGUAGE

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INTRODUCTION

In this paper, I undertake textual exegesis and rational reconstruction of Mukula Bhaṭṭa's *Abhidhā-vṛtta-mātṛka*, or "The Fundamentals of the Communicative Function." The treatise was written to refute Ānandavardhana's claim, made in the *Dhvanyāloka*, that there is a third "power" of words, *vyañjanā* (suggestion), beyond the two already accepted by traditional Indian philosophy: *abhidhā* (denotation) and *lakṣaṇā* (indication).[1] I argue that the explanation of *lakṣaṇā* as presented in his text contains internal tensions, although it may still be a compelling response to Ānandavardhana.

Mukula argues that the postulated power of *vyañjanā* can be identified as *lakṣaṇā*, one of the two well-established powers. I claim that Mukula's theory presents two logically distinct notions of *lakṣaṇā* and that he does not carefully distinguish between them. I show this by analysis of a few of the many examples surveyed in the text.[2] I utilize two concepts from modern analytic philosophy in my reconstruction of Mukula's arguments: metonymic sort-shifting and Gricean pragmatic implication. While Mukula's argument that *vyañjanā* is equivalent to *lakṣaṇā* may be successful, I conclude that his claim must be made more precise: *vyañjanā* is equivalent to only a subvariety of *lakṣaṇā*, which I call "pragmatic indication."

MUKULA BHAṬṬA ON *MUKHYA* AND *LAKṢAṆĀ*

Broadly speaking, the Indian philosophical tradition distinguishes between two functions (*vyāpāra*) or powers (*śakti*) of words: denotation (*mukhya* or *abhidhā*) and indication (*lakṣaṇā*).[3] Toward the beginning of his treatise, Mukula Bhaṭṭa defines *mukhya* and *lakṣaṇā* in this way:

It is said that: Denoted meaning is what is comprehended from the word's function,

Indicated meaning is understood additionally from that meaning.[4]

According to Mukula, when the power of words is "expended" by denoting their referent (which can be a universal, a quality, an action, or a named thing), the power of indication (*lakṣaṇā*) comes into operation if there is still work to be done.[5] In other words, powers are demarcated based on their effects. Denotation's effect is the cognition of a referent by a hearer. Indication's effect is some further cognition. As well, denotation and indication are distinguished based on their domains. In the verse above, *mukhya* and *lakṣaṇā* are different not only because they perform different functions but because they operate on different entities. Denotation is *śabda-vyāpara*, or the function of a word; indication functions on the meaning resulting from this first function.[6]

MUKHYA OR WORD DENOTATION

Mukula then describes the function of denotation (*mukhya*):

It is due to the function of words that we have an understanding of the denotative meaning, and this understanding is *avyādhāna*, or without an interruption or an interval.[7]

Literal meaning is obtained simply by considering the word. Mukula uses the term *mukhya* because of a similarity between literal meaning and the face (*mukha* means "face" in Sanskrit). On this analogy, the face is seen first, before the limbs and extremities of a person. Likewise, denoted meaning (*mukhya-artha*) is understood before any other meanings.[8] This is, *prima facie*, a claim about the phenomenology of an individual hearer's cognition. If taken this way, it is easily falsifiable. We are not always consciously aware of the literal meaning of a figuratively intended utterance first. And while the phenomenology of interpretation does often play a role in Indian theorizing about language, Mukula is not taking such an obviously wrong position. Later in the very same text, he argues that the meanings of many metaphors (which are instances of *lakṣaṇā*) are understood without any awareness of their underlying literal meanings.[9] However, the literal meaning is recoverable through reflection because the figurative meaning is dependent on it.[10] The charitable reading is that this analogy is making a logical claim: literal meaning or *mukhya* is required for the existence of indicated meaning, since indicated meaning is dependent on the literal.

Mukula claims that words denote, by *mukhya*, universals, qualities, actions, or objects of proper names. The referent of words was a subject of much debate among, and within, the various Indian philosophical

schools. The Mīmāṃsā, with whom Mukula is aligned in many ways, were divided on the question.[11] The Bhāṭṭa Mīmāṃsā, following Kumārila Bhaṭṭa (660 CE), argue that words refer to universals. They present several arguments for this view, among them that understanding of a universal is necessary before an interpreter could understand a particular. The Prābhākara Mīmāṃsā, following Prabhākara (700 CE), argue that words cannot refer to anything except in connection with other words in a sentence token.[12] They point out that, even if there is some cognition of a universal when someone utters a sentence, if we are to take an action based on the sentence, we must understand a particular thing to be meant. Thus words will not always refer to universals, but sometimes to a particular.[13]

Mukula himself takes up a third position, consonant with the tradition of the Grammarians. In citing Patañjali (ca. 200 CE), author of the *Mahābhāṣya*, he explicitly argues against the Bhāṭṭa view, claiming that four lexical categories (universal-denoting words, quality-denoting words, action-denoting words, and proper names) correspond to four different ontological categories (*upādhi*) that determine the word's denotation. Even though Mukula spends most of his treatise analyzing *lakṣaṇā*, the discussion of the categorical divisions of *mukhya* is not trivial. His proposal for indication must be consistent with his analysis of denotation.

Suggestion and *Dhvani*

While cognitions of words and their literally denoted meanings constitute much of a given speech act's effect on hearers, we frequently—in both poetic and nonpoetic contexts—also uptake tinges of emotional inflections, unstated implications of facts, or metaphors that are implied at the level of an entire text. Ānandavardhana (820–890 CE), author of the *Dhvanyāloka*, thinks that *vyañjanā*, or "suggestion," can explain these things. Further, when we are in a poetic context, unlike many conventional situations, these implicit meanings are the predominant aim of the writer or orator. In conversation, our word choice may sometimes convey certain emotions, but in poetry, the goal is always beautiful aesthetic experience (*rasa*). Ānandavardhana argues that denoted meaning and indicated meaning alone are insufficient as a characterization of the full range of poetic meaning:

> If [suggested] meaning were denotative, one would get to it by a knowledge of literal, denotative meanings, and the words that convey them. But this meaning is beyond the range of those who have taken pains only on the definitions of words and who have paid no attention to the study of poetic meaning.[14]

Below are Ānandavardhana's central arguments for the distinctiveness of suggestion from indications:

Argument from Primariness

[S]econdary usage is a nonprimary (*amukhya*) operation of a word, whereas suggestiveness is a primary (*mukhya*) operation, for not the slightest hint of a non-primary nature can be observed in our apprehension of any of the three types of suggested sense.

Argument from Kind of Operation

[S]econdary usage may be called a denotative operation applied in a non-primary way, whereas suggestiveness is entirely different from denotation.

Argument from Transformation

[I]n secondary usage a meaning that indicates a secondary meaning becomes transformed into that indicated meaning, as in *gaṇgāyāṃ ghoṣaḥ* ("a village on the Ganges"); whereas in the process of suggestion the meaning that suggests a second meaning is apprehended to reveal that second meaning only by revealing itself at the same time.[15]

The "Argument from Primariness" is that indication functions by operating on the results of the operation of denotation and that suggestion operates on the word itself. Thus, they have different domains. For example, according to Ānandavardhana, if I say "A village is on the Ganges" (an example that we will investigate in more detail later), denotation functions on the words "village" and "Ganges." This means the village is directly on the river. By indication operating on the resultant meanings, I come to know that the river is on the bank of the Ganges and not directly upon the river. The suggested meaning is that the village is cool and pure because the Ganges river, the literal denotation of "Ganges," actually has these properties.

The "Argument from Kind of Operation" is that the coolness and purity of the village is *suggested* and not *denoted*. One could say that the indicated statement is true only if the village is on the *bank* of the river. Thus, indication is like a kind of denotation. In contrast, the suggested meaning in this statement aims at a particular aesthetic experience, not communication of a fact. There are suggested facts (termed *vastu-dhvani*) and suggested figures (*alaṃkāra-dhvani*), but Ānandavardhana is primarily concerned with the kind of suggestion that, when predominant in a poem, forms the basis for an experience of beauty. (When suggested meaning or *vyañjanā* is predominant in a statement or discourse, it is called *dhvani*.)

Finally, Ānandavardhana argues in the "Argument from Transformation" that, in the process of indication, the literal meaning is

replaced with the indicated meaning, whereas suggestion allows for the cognition of both a suggested meaning and a literal (or indicated) meaning at the same time. There can be the suggestion of beauty at the same time as the understanding of the truth-conditional content of a statement.

Mukula's goal is to show that purported instances of suggestion can be reduced to *lakṣaṇā*, or indication.[16] Thus, he must be precise about the domain of each power, to argue successfully that *vyañjanā* is simply another term for *lakṣaṇā*. In response to Ānandavardhana's Argument from Primariness, Mukula must show that suggestion shares the same domain as indication. To counteract the Argument from Kind of Operation, he must show that the kind of suggestion whose function is the generation of aesthetic experience can be explained by indication. Finally, Mukula must show that indication does not always replace the literal meaning, as in the Argument from Transformation. The table below illustrates how Mukula conceives his model as supplanting Ānandavardhana's.

In this paper, I focus on Mukula's replies to the Argument from Primariness and the Argument from Transformation. I think that his responses to these first two arguments are stronger than to the last (Argument from Kind of Operation), in large part because I think it is a misstep for Mukula to grant Ānandavardhana's assumption that aesthetic experience should be considered "meaning" in the same way as the other two subvarieties of indication. The problem of whether aesthetic experience can be counted as "meaning" in the same way as indicated and denoted meanings is too complex to investigate in this short space.

INDICATION OR SECONDARY MEANING

To explain the function of *lakṣaṇā*, Mukula distinguishes between a speaker (*vaktṛ*), a sentence meaning (*vākya*), and the utterance meaning (*vācya*). A speaker is simply someone who speaks a sentence (*vākya*) in

Table 1. Mukula and Ānanda's conceptions of linguistic powers

Mukula Bhaṭṭa	Ānandavardhana
mukhya Denotation	*mukhya* Denotation
lakṣaṇā Indication	*lakṣaṇā* Indication
	vyañjanā Suggestion

order for hearer to understand something. The term *vākya* refers to a syntactically unified expression constituting a meaning (*eka-arthaḥ*). In contrast, the gerundive *vācya*, literally, "that which is to be said," refers to what is conveyed by either *mukya* or *lakṣaṇā* by means of what the words denote.[17] Mukula also distinguishes between contextual factors: place (*deśa*), time (*kāla*), and circumstance (*avasthā*).

With these distinctions in hand, Mukula argues that *lakṣaṇā* is a matter of relating the utterance meaning to the sentence meaning, by making use of these contextual factors. In terms contemporary philosophers would recognize, utterance meaning is determined by the context, which consists of a speaker, place, time, and world (what Mukula calls "circumstance"). While he is not working with any explicitly modal framework like David Lewis's possible worlds, Mukula's notion of circumstance evidently goes beyond simply the place at which an utterance is taking place, since it is mentioned as being separate.[18] It might refer to facts about the way the world is when a speaker utters a sentence (the term means something like "condition," "state," or "situation" and is used in Sanskrit dramaturgy to describe stages of development in a plot), but he says nothing more about this contextual factor.

The general way in which indication is employed is a form of inference called *arthāpatti* or presumption. Mīmāṃsā philosopher Śabara (ca. 100 BCE) defines presumption as "the presuming of something not seen, on the ground that a fact already seen or heard of cannot be explained without that presumption."[19] The traditional example is that, if we are given the facts that (1) Devadatta is alive and (2) Devadatta is not in his house, we must presume that Devadatta is alive outside of his house.

We can generalize about the form of presumption as follows:

Presumption q is presumed from *p* and *m* if:

1. *p* and *m* are two already-established facts and
2. The presumption of *q* is required to make *p* consistent with *m*.

What *lakṣaṇā* does, by means of *arthāpatti*, is to remove the apparent inconsistency between, for example, the sentence meaning and facts about the speaker or the sentence meaning and facts about the circumstance.

A similar strategy is employed a little over a thousand years later by H. P. Grice, in "Logic and Conversation." He proposes a principle that he takes to guide the rationality of contributions to a conversation, at least when that conversation can be understood as being a cooperative effort:

> *Cooperative Principle*. Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged.[20]

This principle is then divided into Grice's familiar four categories of maxims (some of which are divisible into submaxims) including the Maxim of Quantity, the Maxim of Quality, the Maxim of Relation, and the Maxim of Manner. With these maxims, Grice formulates the idea of conversational implicature, which he uses to explain how it is that we can utter a sentence like "He is in the grip of a vice" and mean by it that someone is caught in a bad character trait, not that someone is physically trapped by an instrument.

Conversational Implicature S conversationally implicates that q in saying that p if S implicates q when:

1. S is presumed to be observing the conversational maxims (or the Cooperative Principle).

2. The supposition that S thinks that q is required to make saying "that p" consistent with this presumption.

3. S thinks, and expects H to think that S thinks, the hearer can work out, or grasp intuitively, that the supposition that q is required.

The structure of Gricean conversational implicature and Mīmāṃsaka *arthāpatti* are closely analogous. In a case of *lakṣaṇā*, we are presented with a sentence meaning p and we must presume that S is implicating q by saying "that p." The inconsistency arises between the sentence meaning p and some facts about the speaker, place, time, or circumstance, which I above represented with m. On this reconstruction, m stands in for the conversational maxim(s) that have to do with these contextual facts. Thus, *lakṣaṇā* is essentially a form of implicature that functions by reconciling the sentence meaning with contextual factors. If this were indeed the case, we could neatly distinguish between *mukhya* as being the literal meaning of the constituent words in a sentence (meanings such as universals, qualities, actions, and objects of proper names) and *lakṣaṇā* as being what is implicated by the utterance of such a sentence in a given context. Unfortunately, things are not so simple.

In what follows, I survey several examples of *lakṣaṇā* given by Mukula. I will demonstrate that this distinction cannot be maintained, at a detriment to Mukula's claim that he has given a consistent account of the proper domains of *mukhya* and *lakṣaṇā*. However, I argue that he has still given a cogent reply to Ānandavardhana's argument that a new linguistic power must be assumed.

The first example of *lakṣaṇā* that Mukula analyzes is

(1) *gaur anubandhyaḥ* (The cow is to be tied up)

Based on what Mukula has said earlier about the referents of words, this sentence, which in Sanskrit consists of a noun and a gerundive, contains a universal-denoting term and an action-denoting term. Its denoted meaning, as understood from the powers of the words in composition, is that *cowhood* is the object of the action of tying. However, Mukula points out that it would not make sense to instruct someone to fasten the universal of cowhood to a stake in order to make a sacrifice, the context for this sentence. And further, he adds that the referential function of "*gaur*" has been exhausted by denoting *cowhood* because the denotative task of a word is simply to give its referent. This means that we have what is essentially a list: *cowhood*, *to be brought*. On the Bhāṭṭa Mīmāṃsā view, in order for "*gaur*" to have a syntactic relationship with "*anubandhyaḥ*," we must understand it as indicating a particular (though perhaps not a definite) cow, by *lakṣaṇā*. Kumārila makes a similar observation about the sentence:

(2) *gam ānaya* (Bring a cow)

Regarding this sentence, he says that "bring" simply gives us the general act of bringing, not the tense or injunctive mood. He reiterates Mukula's analysis of "cow" as referring to a universal. In this context, it is evident that a single cow is required, though maybe not Bessie as opposed to another cow, and so "a cow." He concludes that indication is responsible for the words having meanings (like particulars or temporally defined actions) that can be related to the other words in the sentence.[21] Mukula only asserts that there is indication of the particular cow, not the particular action. The text is characteristically terse in its analysis, so it is unclear if this is due to Mukula's Grammarian notion of word reference or if he thinks that the process of *lakṣaṇā* is clear enough that he need not deal with the gerundive. One thing is clear: where a Bhāṭṭa Mīmāṃsaka would appeal to *lakṣaṇā* to explain a universal-denoting word being used as a quality, Mukula would not need to make such a move. In either case, *lakṣaṇā* here follows the typical structure of a presumptive inference. The inference is based on conflict between the known fact that "*gaur*" refers to *cowhood* (this is taken to as given by Mukula) and the fact that the referent of "*gaur*" must be the object of being tied up. Below, I reconstruct the presumption explicitly:

Presumption of a Particular Cow. A particular cow is presumed from *the fact that "cow" refers to cowhood* and *the fact that the referent of "cow" must be the object of being tied up* if

1. *The fact that "cow" refers to cowhood* and *the fact that the referent of "cow" must be the object of being tied up* are two already established facts.

2. The presumption of "cow" as including the referent *a particular cow* is required to make the two consistent.

While the solution—"cow" indicates a particular cow—initially seems to give up *cowhood* as the referent of "cow," Mukula explains that this is a kind of *lakṣaṇā* known as *upādana*, or "inclusion." That is to say, the particular cow that is indicated does not replace the universal *cowhood*, but the initial, literal referent is now included within the meaning of the indicated referent. We have indicated a particular cow, but all cows possess in the universal of *cowhood*, so the universal is still included in the referent of "cow."[22]

However, because here, *lakṣaṇā* functions in order to obtain the appropriate syntactic relations between words, it is not pragmatic. In fact, on Kumārila's view, sentence meaning is invariably attained in this manner, or else we are left with a string of disconnected words, referring to universals but not doing much else.[23] There is no sentence meaning or *vākya* for us to use as a basis for our presumption. The speaker has not said that *p* because, until we construe the words by *lakṣaṇā* as being in relationship, there is no *p*. I suggest that a better model for this kind of *lakṣaṇā* is found in the theory of sort-shifting.

TYPE- AND SORT-SHIFTING

In the Western tradition of linguistics and philosophy of language, models of sort- and type-shifting are used to represent the relationship between the semantics of expressions and assumptions about the world's ontology. "Type" refers to a coarse-grained distinction between such categories as entities, truth-values, and relationships. "Sort" is a further, fine-grained distinction between such categories as universals, particulars, groups, collections, masses, persons, and things. Type-shifting is an approach intended to explain the flexibility of semantic expressions. Expressions change their meanings as contexts change, but the proposal that there is a large number of lexical entries for every single word is implausible: How would speakers learn all these definitions? How would they know what to do with a novel instance? Further, contexts seem to underdetermine the meaning for many ambiguous expressions. We need an explanation of how hearers "narrow down" the range of possibilities.

Rather than postulate multiple lexical entries, type-shifting suggests a mechanism that can take contextual values, ontological commitments, and principles of compositional semantics to generate the appropriate

type for an expression in the given context. Sort-shifting operates with the same principles, but at more fine-grained level. Type-shifting might function to resolve the conflict between the types in the conjunct below:

John and every woman arrived.[24]

In this sentence, "John" is an individual entity. The idea is that, when someone utters the sentence (3), there is no inferential process that a speaker must go through to resolve the ambiguity between John as an entity or John as a quantifier (intuitively, most speakers are not even aware that such ambiguity exists). Type-shifting functions automatically to resolve the ambiguity for the speaker. The benefit of the theory is its flexibility—the same expression can refer to various types without sacrificing compositional semantics. Being an entity is a primitive in type-shifting terms and is represented by "e." "Every woman" is a quantifier expression that ranges over entities that are women. One way of representing "every woman" is by using brackets, $<>$, to indicate its status as function. The quantifier expression is a function of type $<<e,t>,t>$ where "t" represents the primitive notion of a truth-value. Thus, "every woman" is a function that takes as input a function from entities to truth-values, $<e,t>$, and returns a truth-value, t. We are unable to conjoin two nonlike types, but this is necessitated by the verb, so we shift "John" to the type $<<e,t>,t>$. [25]

These types are taken from Richard Montague's generative semantics, which allows for individuals in the discourse, possible worlds, and moments of time.[26] A noun such as "cow" might be understood as type $<e,t>$ or a function from an individual (the cow) to a truth-value (which is true when the individual is a cow). Such a function might itself be the input for another function, such as an adjective, of type $<<e,t>,<e,t>>$. For example, "white" would take "cow" (a function from an individual to a truth-value) and yield a function from an individual to a truth-value. The function would map to "true" where there is a white cow and "false" where there is not.

The motivation for this model aligns closely with the Mīmāṃsā claim that words have an eternal, unchanging, and single referent, which is a universal. Instead of multiple lexical entries for a verb that can take multiple kinds of complements, there is a single entry that shifts under contextual constraints. Importantly, the shift is coerced by the presence or absence of various compositional factors.

However attractive such a sparse ontology of types may be for set-theoretic modeling, some recent approaches have been in favor of expanding the kind and number of inhabitants in the discourse model. Sorts, as described above, are included and axiomatic relations are

drawn between the entities in the discourse. (It is possible that the commitments upon which speakers rely for meaning construction admit entities that we would not want in our final ontology.) Shifting models are employed to explain phenomena such as metonymy, ambiguity in genitive constructions, and so forth. The aim of sort- and type-shifting models is to represent the various interpretive possibilities available to a hearer for a given expression in a context. These possibilities are understood as models that are consistent with the context and syntax.

Below, I develop an example of sort-shifting before returning to Mukula. One area in which a sort-shifting model has been applied is genitive modifier phrases. Genitive modifier phrases have a head noun (N) in the nominative case and a noun phrase (NP) in the genitive case. Take, for example,

stakan moloka (glass of milk)

The N is "glass" (*stakan*), in the nominative case, and the NP is "of milk" (*moloka*), in the genitive case. The problem with a genitive construction is how to construe the "of" relationship between the N and NP. The glass is not constituted by milk as its material but is filled by the milk. Borschev and Partee (2001) understand the genitive case in Russian as being a type that seeks out a relationship with the head N. Which relationship is appropriate is given through the sortal information in the lexical entry of the head N. When this fails, that same lexical information, plus ontological commitments and context, allows us to shift sorts.[27]

The relationship between *x* and *y* depends on the semantic sort of the head noun, N. The meaning of "leg" as "part of the table" is made straightforwardly available by the context, where the reference to a piece of furniture makes the part-whole relationship salient.

The problem is explaining for cases like *stakan moloka* how we move from one meaning for *stakan*—a physical entity that is a container—to another meaning for *stakan*—a quantity of something contained by such a container. These are two different types: the first is <e,t> and the second <e,<*e*,t> >, where the entity underlined, <*e*>, is what Borschev and Partee (2001) call a "relational entity." Since noun phrases in genitive constructions are always "looking for" a noun to relate with, their referent is an entity having some kind of relationship to another entity.[28] One solution would be to propose multiple lexical entries for *stakan*. The word is simply polysemous. In addition to this simply pushing the problem back another level (how do we select which lexical entry is appropriate?), this puts a cognitive load on the interpreter. Further, as Borschev and Partee (2001, 148) point out with their imaginative example "full hat of mushrooms" (meaning a hat made out of mushrooms), we need

an explanation of novel uses. Proposing that there is a lexical entry for "hat" which has it as a container burdens our lexicon unduly.

What Borschev and Partee (2001) suggest is that sorts such as container or quantity function as their own quasi-lexical entries, or what they call "theories." A theory for the sort container might be as shown below:

> *Container* (y)(x)
>
> *sort*: physical object x
>
> *usage*: x can be used to hold/keep substances of the sort y
>
> *form*: x has an inner part and, when it is used to keep a substance y, y is inside x
>
> *volume of x*: the volume of x's inner part, so the volume of substance x can contain.

Given such a theory, a shift-operater, which Borschev and Partee (2001, 149) call "Quant," can be invoked to shift the meaning of words that typically are of the sort container to be of the sort quantity.

In the proper context, the shift-operator will take a semantic value that is of the sort *container* and output the sort *quantity*. A sort-shifting approach to metonymic and other phenomena identifies distinctions within a given type, rather than trying to multiply types. It is ontologically sparse, since sorts are reducible to the standard types in Montague semantics. Thus we might distinguish between plural individuals and groups, institutions and things, aggregates and stuff—even though each of these pairs could together belong to the same type. The result is that, for each sort, we have a theory, like the theory of container above. There are relationships between the sorts and internal relationships within the sorts (allowing for part-whole metonymic shifting).

Shifting between sorts is governed by these axioms, which give us not only the possible available moves but which are most likely for a given sort (for example, there is a close relationship between individual persons and institutions). The trigger for such a shift could be explained by the lexical value of a word itself. Certain verbs may take only specific sorts as their direct object, or certain adjectives may modify only specific sorts, and so on. When there is a mismatch, what Borschev and Partee (2001, 153) call "sortal incorrectness," the result is a presupposition failure or, where possible, a coerced meaning shift.

It is important to reiterate that Mukula is not working with this kind of framework, and we should be wary of attempts to shoehorn his four categories of *upādhi*, or ontological kinds, too tightly into a type- or

sort-shifting theory. It may be possible to reconstruct a formal semantics from the texts of the Grammarians (after all, Pāṇini developed the world's first generative grammar), but this particular text is sparing with the details that would be required. My claim is simply this: that in sentences like (1) *gaur anubandhyaḥ* above, the way that Mukula describes *lakṣaṇā* as functioning is much more like sort-shifting than Gricean pragmatic implication.

To illustrate this, I suggest a folk ontological theory of what a particular is:

Particular (*y*)(*x*)

sort: particular object *x*

usage: *x* is the locus of *y*'s inherence, where *y* is a universal

form: *x* has a spatio-temporal location

There could be a sort-shifting mechanism, *Particular*, which, when sentence (1) is uttered in a context suitable for a particular cow, shifts a semantic value of the sort *universal* to the sort *particular*.

Because Mukula postulates that at least one category of words refers to universals, many sentences we utter will involve a shift from universals to particulars.

MUKULA ON METAPHORIC TRANSFER

These conceptual tools in hand, I now return to Mukula's analysis of instances of *lakṣaṇā*. After introducing the distinction between *mukhya* (denoted meaning) and *lakṣaṇā* (indication) with (1), he goes on to introduce what is also a well-known example in Indian philosophy, analyzed in terms of suggestion by Ānandavardhana:

(5) *gaṅgāyāṃ ghoṣaḥ* (The village is on [the bank of] the Ganges.)

Mukula categorizes this case as *lakṣaṇa-lakṣaṇā*, or indirect indication, in contrast to (1), which he describes as *upādana-lakṣaṇā*, or inclusive indication. In *upādana-lakṣaṇā*, the universal of *cowhood* is included as part of the new meaning of "cow," which is a particular cow. Cases of *lakṣaṇa-lakṣaṇā*, however, do not have such an inclusive nature, but rather are instances of *replacement*.

In (5), the word "*gaṅgāyāṃ*" or "Ganges" is in the locative case. Therefore, since the sentence would literally mean that the village is directly on top of the Ganges, we must understand, by indication, that "Ganges" means "bank of the Ganges." As Mukula puts it, a particular stream cannot be the substratum (*adhikaraṇa*) of a village. We must understand something different: "bank." In contrast to (1), where *cowhood* is

included as part of the meaning of a particular cow, a riverbank is not part of the meaning of "Ganges." Therefore, this is indirect indication. On Ānandavardhana's view, in the Argument from Transformation, this demonstrates that indication requires replacement of meaning, and suggestion cannot be cognized. Mukula goes on to argue against this, in an illustration of what I am calling "pragmatic indication":

> *Presumption of the Bank. The bank* is presumed from *the fact that the speaker must be saying something true* and *the word "Ganges" refers to a particular river* if
>
> 1. *The fact that the speaker must be saying something true* and *the word "Ganges" refers to a particular river* are two already established facts
> 2. The presumption of "Ganges" as instead referring to *the bank of the Ganges* is required to make the two consistent.

In this case, the fact that the speaker is taken to be saying something true is a case of Grice's Maxim of Quality, and it is implicitly appealed to by Mukula. Later, Mukula explicitly appeals to something like the Maxim of Manner to explain why a speaker might not simply say "on the bank of the Ganges." The reason is that the Ganges is associated with sanctity and beauty, and the speaker wants to convey that the village, by proximity, shares in these properties. The indication of bank as the referent of "Ganges" is made salient because of the bank's close proximity to the river. On Ānandavardhana's account, in his Argument from Primariness, we cannot derive the suggestion of holiness from the meaning of "bank of the Ganges" because it is the river, not the bank, that is holy. Mukula argues that, because there is a relationship of nearness between the bank and the river, our understanding of the bank is influenced by our cognition of the river. Note, however, that the properties of purity and beauty—which are what Ānandavardhana argues are given by suggestion—are a consequence of the cognition of the referent of "Ganges," not its indicated meaning "bank." Thus, there is, as Mukula presents things, not a perfect match between indication and suggestion. However, Mukula concludes that the property of holiness, shared between the bank and the river, can, contra the Argument from Kind of Operation, be understood through indication. Further, this means that, even when indication replaces the literal meaning, there can be what is putatively "suggested," contra the argument from transformation.

However, there is a further complication. Before we can employ *arthāpatti* to recover the indicated meaning, we need to have a sentence meaning. This, as we have seen already, must also be generated by *lakṣaṇā*. Even if Mukula does not think that all words refer to universals

(like the Bhāṭṭa Mīmāṃsā), "village" will not refer to a particular village until there has been a metonymic or similar shift. The Ganges is the object of a proper name, but, without understanding an implicit action ("is"), there is no way for the words to have syntactic unity.

One obvious approach would be to argue that *lakṣaṇā* does all of this: it functions to unify the words in a sentence and recover something truth-evaluable, and then it functions to recover something that is not only truth-evaluable but the likeliest candidate for what the speaker meant by the sentence in that context. There has been scant discussion, either in the original Mīmāṃsā textual tradition or in modern commentaries, about this problem. An exception is a short series of paragraphs in a brief essay written by K. K. Raja, primarily to compare Buddhist *apoha* theory and Mīmāṃsā *lakṣaṇā*. Raja observes,

> If an operation can effect only one result, we may have to accept two *lakṣaṇā*-s. But nobody has spoken about two *lakṣaṇā*-s while explaining verbal comprehension of the sentence-meaning, and the law of parsimony (*lāghava*) requires the simpler approach in solving the problem. Hence it seems preferable to assume that only one *lakṣaṇā* is needed to explain the two effects.[29]

In support of this view, Raja cites the mid-seventeenth-century Mīmāṃsaka, Nārāyaṇa Bhaṭṭa, who says that the shift from universals to particulars is required for there to be a unified sentence meaning and that the resultant syntactic relations are also the result of *lakṣaṇā*. However, what Raja omits is that *lakṣaṇā* is also appealed to in cases where we have syntactic unity, but there is some other inconsistency between the sentence and context. If the principle, which Mukula has appealed to in the case of *mukhya*, is that a power is exhausted when it has attained its aim, then we do have a principle pairing an operation to a single effect. While perhaps we could plausibly understand a single operation that aims at an intelligible syntactic whole as consisting in several shifts in word-meaning, the aim of intelligibility in a context is of a different sort. And, in fact, Mukula himself, in his appeal to the difference between sentence meaning (*vākya*) and speaker meaning (*vācya*) has admitted as much.

FAT DEVADATTA AND *ARTHĀPATTI*

Complicating the situation for Mukula is the example of Fat Devadatta who does not eat during the day. This sentence is a traditional illustration of *arthāpatti* found in the *Śloka-vārttika* of the Mīmāṃsā philosopher Kumārila. The sentence is as follows:

(6) *pīno devadatto divā na bhuṅkte* (Fat Devadatta does not eat during the day)

Mukula identifies this as another case of *upādana-lakṣaṇā* or inclusive indication, just like (1) above. He says that the denotion of "fat" is fatness as qualified by not eating during the day. In this context, fatness as qualified by eating at night is indicated by *arthāpatti*. The fatness as an effect includes eating at night in itself as a cause. For this reason, we have a case of inclusive indication because we are not understanding a new meaning for "fat" other than fatness. Instead, we simply include within fatness the appropriate cause. Further, Mukula suggests that we understand eating at night rather than drinking during the day because the speaker has said "does not eat during the day."

As with (5), Mukula has ignored the necessity of generating a syntactic unity from a list of unconnected words. He does not have the same problem as the Bhāṭṭa Mīmāṃsā, since "fat" can refer to a quality, "Devadatta" to the object of a proper name, and "eat" to an action (with the caveat that it is unclear whether the action is general or particular). However, "day" is plausibly a universal-denoting term, and *lakṣaṇā* may be required to quantify over a particular range of days.

The larger problem here is in Mukula's analysis of the case as analogous to (1) "The cow is to be tied up." It is simply a stretch to maintain that either "does not eat during the day" or "eats at night" is part of the *meaning* of "fat." What he is trying to do with this category of *upādana-lakṣaṇā* is show that *lakṣaṇā* does not always require replacing the literal meaning with a new, indicated meaning. This is his response to the Argument from Transformation in which Ānandavardhana claims that *lakṣaṇā* always replaces the literal meaning with a new one.

The idea is that the *vākya* (sentence meaning) is incompatible with the facts we know about fatness, like that it is typically a result of eating food, since to not eat food would result in starvation. Mukula appeals to something like Grice's Maxim of Manner in his observation that we get "eats at night" instead of "drinks a tonic" because the speaker has mentioned the time during which Devadatta does not eat. Therefore, we presume that she is implicating that Devadatta eats at night and expects us to recognize that this is the reason for her speaking in such a way.

However, as we have seen, (1) is a case of what I am calling "semantic indication," which functions to unify the words in an uttered sentence in such a way as to recover a truth-evaluable sentence meaning. It is likely, though not necessary, that, in Mukula's theory, semantic *lakṣaṇā* functions for all sentence types (as it does for the Bhāṭṭa Mīmāṃsā). Now, sentence (6) is a case of "pragmatic indication," which functions to remove incompatibility between a sentence meaning (*vākya*) and contextual elements, relying on conversational norms akin to Gricean

maxims to do so. The result is that there is an implication that Fat Devadatta eats at night, in order to resolve what might, *prima facie*, be an incoherent, though syntactically unified, utterance. Part of the motivation for Mukula's strained interpretation may be his commitment to the principle of *eka-vākyatā* or the requirement that there must be a unified meaning for every sentence. Without inserting, so to speak, the eating at night somewhere into the *vākya*, there is a problem: the speaker seems to mean two things. Further, Mukula does not want the result that the speaker is *only* saying that Fat Devadatta eats at night, since the literal meaning of the sentence must be preserved.

CONCLUSION

As presented, Mukula's analysis of the overlap between suggestion and indication is compelling. Using the examples that I have surveyed, Mukula targets Ānandavardhana's arguments from Primariness, Kind of Operation, and Transformation. He has shown that the underlying mechanism of presumption can ground both a semantic and pragmatic kind of indication. I have argued that, if he is to be successful in bringing suggestion completely into the sphere of indication, he must show that suggestion shares precisely the same function and domain as indication. By Mukula's own criteria for the demarcation of linguistic "powers," he has more than one kind of *lakṣaṇā*: a semantic indication that functions like a sort-shifting operator and a pragmatic indication that functions like Gricean implication. In his paradigmatic examples of *lakṣaṇā*, he appeals to both powers, but apparently without sensitivity to these distinctions, classifying a pragmatic case of *lakṣaṇā* with a semantic case. In effect, the proponents of *vyañjanā* could agree with Mukula that their power is pragmatic *lakṣaṇā* by another name, since the reductive strategy only succeeds if Mukula can show that he is not adding a new power to the two already accepted powers. Thus, the question remains: Is pragmatic *lakṣaṇā* a new power, or is it identical to one of the standard powers given by earlier philosophers?

The response depends on which philosophical viewpoint one takes up. Further complicating the response for Mukula is that his text incorporates as many competing philosophical viewpoints as possible and attempts to formulate a hybrid account. While the Bhāṭṭa Mīmāṃsā are explicitly committed to *lakṣaṇā* as the power that achieves syntactic unity in a sentence, the Prābhākara Mīmāṃsā are not. In fact, the Prābhākara think that words have referents only in the context of a sentence token. For them, there is no such thing as the referent of a word in isolation from other words, outside of an utterance context. Mukula discusses this view in a short section devoted to the competing

theories of sentence meaning. He points out that whether one accepts the Bhāṭṭa or the Prābhākara view of sentence meaning will impact at what stage (logically speaking) *lakṣaṇā* occurs.

For the Prābhākara, *lakṣaṇā* will only have what I have been calling a pragmatic role, because the *vākya* is always determined in a context of utterance by the power of *mukhya*. Thus, if one is committed to the Prābhākara analysis of sentence meaning, *vyañjanā* seems to be within the scope of *lakṣaṇā*, as Mukula argues. While Mukula is trying to incorporate the Prābhākara views into his theory, in his explanation of (1) "The cow is to be tied up," he has sided against the Prābhākara in rejecting semantic *lakṣaṇā*.

As Mukula puts things, for the Bhāṭṭa, *lakṣaṇā* seems *only* to be semantic, since he says it comes before the sentence meaning or *vākya*. On the Bhāṭṭa view, we do need an additional power to explain pragmatic implication. But Mukula does not want to accept that *mukhya*, or denotation, yields the particular cow as meant by *gaur*, since he is committed to the referent of "cow" being a universal, so he must accept semantic *lakṣaṇā*. This is why Mukula argues for what he calls a "combined theory," or "*samuccaya*," in which *lakṣaṇā* would occur in both stages.

Mukula does not give the details of this combined theory in his text—how it is that we understand the referent of words, how the four lexical categories earlier given relate to this theory, etc. He simply states that, on a combined view, we have *lakṣaṇā* in both stages. Mukula's strategy is to expand *lakṣaṇā* to have both a semantic and pragmatic role, thus edging out the requirement for *vyañjanā*. It may be the case that Mukula's hybrid account of *lakṣaṇā* is ultimately a compelling explanation of the relationship between the referents of words, the meanings of sentences, the meanings of utterances, and contextual factors. However, we are lacking the details of such an account, and the account we have contains some internal inconsistencies. Perhaps these inconsistencies might be rectified (though this is not my task here).

As presented, Mukula's analysis of the overlap between suggestion and indication is compelling. He has shown that *lakṣaṇā* can function in a pragmatic manner, based on the inferential process of *arthāpatti*. However, if he is to be successful in bringing suggestion completely into the sphere of indication, he must show that they share the same function and domain. And as I have shown, the classic example of "the village on the Ganges" proves problematic in this regard.[30]

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NOTES

1.   Abhinavagupta, writing his commentary on the *Dhvanyāloka*, argues for an additional power, *tātparya-vṛtti*, which is the capacity of a speaker, through her intention, to constitute a syntactic unity from a collection of words. Adding *tātparya* to the list yields four linguistic powers. Ānandavardhana, in contrast, identifies only three powers. I will not take up the question of *tātparya* in relationship to *lakṣaṇā*. This topic has been addressed by Raja 2000 and Gerow 1984, as well as others.

2.   While this paper uses Sanskrit terminology and example sentences in the Sanskrit language, they are accompanied by English translations to assist the nonspecialist. Only a few, central Sanskrit terms remain untranslated, primarily because there is no theoretically neutral English translation readily available.

3.   I say "broadly speaking" because the Indian Buddhist tradition had a very different view of meaning and understood the referents of words to be conceptual constructions or *vikalpa*.

4.   *śabda-vyāpārato yasya pratītis yasya mukyatā artha-avaseyasya punar lakṣyamāṇatvam ucyate*. Bhaṭṭa 1977, 203.

5.   *viśeṣyaṃ na abhidhā gacchet kṣīṇa-śaktir viśeṣaṇe iti nyāyāc chabdasya jāti-mātra-pari-avasāyitvāt*. Bhaṭṭa 1977, 201.

6.   As Jonarden Ganeri has aptly shown in his exposition of Naiyāyika theories of meaning, Indian philosophy of language was interested in what contemporary philosophers working in model theoretic semantics call "assignment functions." Thus, they were trying to ascertain what relationship held between the words in a language and their meanings, where meanings are entities external to the speaker/hearer (in other words, not mental concepts). See Ganeri 2011, 34ff.

7.   *śabda-vyāpārād yasya avyādhāna avagatis mukhyatvam*. Bhaṭṭa 1977, 203.

8.   *sa hi yathā sarvebhyo hasta-ādibhyo 'vayavebhyaḥ pūrvam mukham avalokyate tadvad eva sarvebhyaḥ pratīyamānebhyo 'rtha-antarebhyaḥ pūrvam avagamyate*. Bhaṭṭa1977, 203.

9.   In his discussion of *aropa* (superimposed) and *ādhyavasāna* (suppressed) indication, he observes that for very conventional cases, there is no cognition of a relationship between the denotative and indicated meanings, but only the indicated meaning by itself. It is by reflection, or *vicāraṇa*, that we come to know the relationship, and the denotative meaning. Bhaṭṭa 1977, 208.

10.   See the discussion of *rājan* in section 6.2, Bhaṭṭa 1977, 226.

11.   While Mukula is clearly indebted to the Mīmāṃsa, he also has views in line with the Grammarians. It is unclear with which philosophical school, if any, he aligned himself. See McCrea 2008, 264.

12.   For more details on the dispute between the Prābhākara and Bhāṭṭa on sentence meaning, see Siderits 1991 and Taber 1989. Taber's point (429n20) is well taken and ought to be kept in mind throughout my presentation: the Prābhākara do not deny that there can be a context-independent core to words, but they do deny that a word successfully picks anything out, or designates anything, outside of a particular sentence.

13.   See Jha 1942, 146ff.

14.   Ānandavardhana 1990, 122.

15.   Ibid., 562–63.

16.   This aim is stated explicitly only at the end of the work: "*lakṣaṇā-mārga-avagāhitvaṃ tu dhvaneḥ sahṛdayair nūtanatayopavarṇitasya vidyata iti diśam unmūlayitum idam atra uktam.*" However, as McCrea (2008) has convincingly argued, the entire work is structured around this goal and ought to be understood in terms of it.

17.   *sa-ākāṅkṣāṇāṃ padānām eka-arthaḥ samūho vākyam. śabdena mukhyaṃ lākṣaṇikam abhidhā-vyāpāram āśritya yad gocarī-kriyate tad vācyam.* Bhaṭṭa 1977, 209.

18.   See Lewis 1986.

19.   Jha 1942, 157.

20.   Grice 1989, 26. The following principles and maxims are taken directly from Grice's "Logic and Conversation."

21.   Jha 1942, 152. See Ganeri 2011, 15–18, on Kumārila's analysis. He concludes that the distinction between definite and indefinite uses (or when a particular cow is indicated or a universal class property is literally denoted) is a "pragmatic one." In my terminology, this kind of metonymical shift falls under "semantic" indication because it is a more or less automatic process driven by compositional principles rather than Gricean conversational maxims.

22.   Mukula does not take up the metaphysics of how individuals are related to *jāti*, or "universals." For a discussion of this topic, see Scharf 1996.

23.   Raja 2000, 210.

24.   Pustejovsky 1993, 76.

25.   As with Gricean implicatures, the details are contentious. Here, I am sketching the general idea to motivate my reconstruction of Mukula.

26.   See, for example, Partee 1976.

27.   Borschev and Partee 2001, 144. The original accounts of sort-shifting and type-shifting can be found in Partee and Rooth 1983 and Partee and Borschev 1998. For the sake of illustration, I have adapted examples from their recent analysis of the Russian genitive, simply for the clarity with which this paper sets out the details.

28.   Formalizations can be found in Borschev and Partee 2001. This relational N can be represented as: $\lambda y \lambda x$ [Thing(x) & Related-to-y(x)]. My argument does

not require a particular transformation into lambda calculus, so I omit these details for the sake of perspicuity.

29.   Raja 1993, 199.

30.   I would like to thank Josh Dever, Larry McCrea, Stephen Phillips, and the members of the UT Austin Dissertation Seminar for reading earlier drafts of this paper.

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