

Open-Source Geshe: A Digital Assistant for Tibetan Debate

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Textbooks (*yig cha*) used in Ge-luk-pa Monastic Colleges are designed to be studied and explored by means of syllogistic debate. Thus they are often spoken of as being debate manuals. Introductory debate manuals, grouped under the name Collected Topics¹, address various topics involving logic and epistemology. Daniel Perdue says in *Debate in Tibetan Buddhism*:

The Collected Topics of Valid Cognition is essential introductory material for those seeking to learn Buddhist logic and epistemology. Rather than being a single work The Collected Topics of Valid Cognition refers to any number of debate manuals written in Tibetan for the sake of introducing new students of Buddhist philosophy to a wide range of topics presented within a rigorous framework.²

In Ge-luk-pa Monastic Colleges the method for studying Collected Topics (and other more advanced topics) differs greatly from that of non-Monastic universities. Instead of attaining and demonstrating mastery of the topics primarily through reading and scholarly writing, as in the secular academy, the Ge-luk-pa monks also develop and refine their understanding through memorization of the debate texts and the extensive practice of dialectical debate. Therefore, their primary task in the beginning of the training program is to learn well the modes of dialectical reasoning and the procedure for debate. This is achieved through the study and debate of the Collected Topics.³

The Collected Topics present in condensed and organized form the worldview described in Dharmakīrti's *Commentary on (Dignāga's) "Compilation of Prime Cognition"*⁴. The Collected Topics explain Dharmakīrti's text through definitions, divisions, illustrations, and so forth in order to construct an orderly, scholastic presentation well-designed for syllogistic debating. Syllogistic debating is not just for Collected Topics study, it is used at all levels in Ge-luk-pa training systems for monks and nuns.

This paper will describe a simple web-based open-source application I have designed and scripted using HTML, CSS, and Javascript. I have named it Open-Source Geshe to promote the fact that it is open source. It is hoped that the open-source nature of this project will encourage others interested in Tibetan logic to expand and improve this much-needed heuristic tool. Open-Source Geshe is designed to assist both in self-learning (for readers of Daniel Perdue's *Debate in Tibetan Buddhism*) and classroom situations supplementing the teaching of Tibetan logic with graphical representations.

Fluency in debate, whether in Tibetan or another language, requires determined practice and rote memorization. As a result, there has been limited success in teaching debate in academic settings, where a student's complete attention cannot usually be commandeered for a single purpose. Although effort and memorization are required for more advanced Tibetan logical debate, Open-Source Geshe can help the novice by offering graphical representations of standard

¹ *tshad ma'i bsdus grva*. Also called the Collected Topics of Valid Cognition.

² Daniel Perdue, *Debate in Tibetan Buddhism* (Ithaca, NY: Snow Lion Publications, 1992), xiv.

³ Onoda points out, the Collected Topics "did not originate with the dGe lugs pa, but rather had a long and complicated anterior development in the traditions associated with with the influential monastery of gSang phu sNe'u thog." He makes the point that considering the Collected Topics to be only Ge-lug-pa trivializes their importance in Tibet. Shunzo Onoda, *Monastic Debate in Tibet* (Vienna: Arbeitskreis für Tibetische und Buddhistische Studien, 1992), 1.

⁴ *pramāṇavārttikakārikā*.

logical forms and their implications. Users can enter their own sylogistic elements for ease of understanding and evaluation. Toward this end Open-Source Geshe provides pages (1) displaying the three modes of a correct syllogistic reason, (2) indicating the four possibilities for comparison of phenomena, and (3) flinging absurd consequences stemming from incorrect pervasion statements. Open-Source Geshe also lists twenty crucial terms and definitions in a sidebar.

The Collected Topics

Ge-luk-pa monks and nuns interested in scholarship strive to attain the degree of Geshe or Geshema, the highest degree awarded by those monasteries. Becoming a Geshe or Geshema is a long and arduous process, not totally unlike the process of earning a doctor of philosophy degree at a research university. Scholar-monks and -nuns train for years to master the primary five topics of the Geshe curriculum: epistemology (*tshad ma, pramāṇa*), perfection of wisdom (*phar phyin, prajñāpāramitā*), the Middle Way School (*dbu ma, mādhyamika*), phenomenology (*mngon mdzod, abhidharma*), and monastic discipline (*'dul ba, vinaya*). Like secular academics, the tasks of these scholars are to demonstrate command, further the study of the topics and, hopefully, to pass their knowledge to later generations; but unlike secular academics, it is also their task to internalize the religious import of the curriculum through a three-fold process of hearing, thinking, and meditating so as to advance themselves spiritually, developing their minds as much as possible.

In general, the methodology of a Geshe training program is to approach the curriculum in an orderly and logical way, avoiding incoherent thought and inconsistent doctrine: and so the study of epistemology has come to be known as the Path of Reasoning. However, their Monastic approach to the study of the topics differs greatly from that of most universities. Instead of attaining and demonstrating command of the topics through reading and writing, the Ge-luk-pa monastics also develop and demonstrate their involvement with the materials through memorization of the debate texts and long hours of dialectical debate. Therefore, their primary task in the beginning of the training program is to learn well the modes of dialectical reasoning and the procedure for debate. This is achieved through the study and debate of the Collected Topics.⁵

Shunzo Onoda gives both an etymology and a concise summary of the importance of this genre:

Texts of the *bsdus grwa* genre were some of the most influential works of Tibetan philosophical literature, since more than any other genre of text they determined how scholastics in the predominant traditions of Tibetan Buddhism reasoned and conceptualized. The term *bsdus grwa* or *bsdus rwa* originally probably meant *bsdus pa slob pa'i sde tshan gyi grwa* or "the schools or classes in which [primary students] learn *bsdus pa* or summarized topics [of logic or dialectics]. Later the term was etymologized as *rig pa'i rnam grang phyogs gcig tu bsdus pa'i grwa* or "the class where many arguments are summarized together." In modern usage, the term has both a general and more restricted meaning. *bsDus grwa* in its broad sense means the introductory course or classes in dialectics, which consist of the following three: *bsdus grwa* (in the narrow sense; ontology), *blo rigs* (epistemology) and *rtags rigs* (logic). Without mastering these basic stages, a student cannot advance any further in the dGe

⁵ However, as Onoda points out, the Collected Topics "did not originate with the dGe luks pa, but rather had a long and complicated anterior development in the traditions associated with with the influential monastery of gSang phu sNe'u thog." He makes the point that considering the Collected Topics to be only Gelug trivializes their importance in Tibet. Shunzo Onoda, *Monastic Debate in Tibet* (Vienna: Arbeitskreis für Tibetische und Buddhistische Studien, 1992), 1.

lugs pa tradition of Tibetan Buddhist scholasticism.⁶

The Collected Topics genre traditionally presents students with three volumes of topics that are to be mastered in stages. It is important for the young student to learn these texts fluently, since they introduce the template for the presentation of debates in Tibetan commentarial literature. The introductory volume of a typical debate manual (for instance, the *Presentation of Collected Topics Revealing the Meaning of the Texts on Valid Cognition* by Pur-bu-jok Jam-ba-gya-tso⁷) presents the student with seven different topics:

1. colors — white, red, and so forth (*kha dog dkar dmar sogs*)
2. established bases (*gzhi grub*)
3. identifying isolates (*ldog pa ngos 'dzin*)
4. opposite from being something and opposite from not being something (*yin log min log*)
5. smaller presentation of causes and effects (*rgyu 'bras chung ngu*)
6. generalities and instances (*spyi bye brag*)
7. substantial phenomena and isolate phenomena (*rdzas chos ldog chos*)

More advanced topics are presented in successive volumes and include presentations of types of minds and modes of logical reasonings, as mentioned above by Onoda. The purpose and place of all this debate is summarized by Daniel Perdue:

Great emphasis is placed on the knowledge to be gained through debate. Debate for the monks of Tibet is not mere academics but a way of using direct implications from the obvious in order to generate an inference of the non-obvious state of phenomena. The diligent debaters are seeking to understand the nature of reality through careful analysis of the state of existence of ordinary phenomena, the bases of reality. This is the essential purpose for religious debate. As renunciates of worldly paths, having abandoned that which will not help, the monks seek to attain an incontrovertible understanding. Religious practitioners must be like bees gathering honey, taking only the essential and leaving the rest.

All Buddhist practices are based on the trilogy of hearing (*thos pa, shruta*) the teaching of the doctrine, thinking (*bsam pa, chintā*) about its meaning, and meditating (*sgom pa, bhavana*) on it. Philosophical debate fits into all three of these levels of practice, but is mainly included in the level of thinking. One hears teaching on the topics of debate, this teaching often being given in the debating form. Then one reads the texts, memorizes the definitions and divisions, and on one's own thinks about the meaning of what one is studying. After this preparation one is able to debate the topic with others. One puts forth one's own view or understanding of a point of doctrine, and others raise objections to that view. Similarly, one raises objections to others' interpretations or understandings. This debating of the points of doctrine with others is included in the level of thinking. Further, the debating process may be utilized in the level of meditation as when one is pursuing analytical meditation and raising qualms as if one were debating with oneself. Analytical meditation is the main type of meditation, and debate is able to help this process by sharpening the reasoning capacities and providing one with a procedure for orderly investigation and analysis. Thus, debate may be included in all three practices of hearing, thinking, and meditating.

Onoda and Perdue make the points that in Ge-luk-pa training centers there are several reasons for students to begin their educational training in Tibetan philosophy with the Collected Topics:

⁶ Onoda, 59.

⁷ *phur bu lcog byams pa rgya mtsho*, 1825-1901.

1. they introduce the student to the practice and theory of the dialectical debate;
2. they introduce the student to the way debates are presented in Tibetan commentarial literature;
3. they introduce the student to terminology and concepts used in Tibetan commentaries on major Indian texts.

The importance of this training yields even more benefits in those rare academic settings in which it has been implemented. At the University of Virginia, for instance, where I encountered fairly rigorous debate training, debate was employed for the following reasons:

1. promoting proficiency in speaking the Tibetan language;
2. providing access to Tibetan grammar at a basic level (the Collected Topics have simple sentence structure, at least in the first few chapters);
3. providing basic understanding of those philosophical issues most helpful in reading the texts of Dharmakīrti;
4. introducing a literary format used in many Ge-luk philosophical texts;
5. enabling students to pursue their researches at one of the traditional monastic institutions.

In Tibet, students began debating without much effort in the beginning on the part of the teacher to explain the purpose of debate or its theoretical underpinnings. Technical presentations involving theory of syllogistic structure, correct signs, and inferential cognitions come towards the end of Path of Reasoning study, not at the beginning. Rather, students memorized the words and went to the debating courtyard to practice the logical moves and unveil the meanings. This educational model still works well in a traditional Tibetan setting where considerable time and focus can be expended on debate with similarly determined colleagues under the direction of a qualified teacher, but those circumstances rarely arise in, for instance, an American graduate school Department of Religious Studies!

Nevertheless, there are rewards to the study of Collected Topics that are not negligible. Over time, I have found that an academic model—a theoretical approach to learning Collected Topics, followed by limited practice in debate—allows students to transfer competencies learned in their study of the debate manuals to other courses in the curriculum, and vice-versa. The academic model accommodates various conceptions of competence and can be accompanied by a theoretical presentation of logic and grammar leading to an academic outcome. An academic approach not only recognizes restricted circumstances for debate but can also help interested students acquire at least a modest level of proficiency in debating, whether in Tibetan or some other language.

Open-Source Geshe

Even when taught in the vernacular, debate is difficult to learn about. The complexity of the debate procedure and its syllogistic structure is an obstacle to beginners. The approach taken in the Monastery avoids this obstacle through rote memorization; a method that, regrettably, is not popular in American universities. To assist students with acquiring these fundamental procedures, Open-Source Geshe addresses a few of these issues with graphical assistance:

- Comparison of phenomena:
 1. mutually inclusive phenomena;
 2. mutually exclusive phenomena;
 3. phenomena having three possibilities;
 4. phenomena having four possibilities;
- Three modes of a correct reason;

- How to fling a consequence.

I also present a small database of definitions and divisions of key Buddhist terms on the home page.

I call this collection of simple Javascript apps Open-Source Geshe to emphasize that the HTML, CSS, and Javascript code for Open-Source Geshe is freely available at github on a creative commons license at [github.org/wam7c/debate](https://github.com/wam7c/debate). I hope those with programming skills superior to mine will improve on it and freely pass it on. In particular, feel free to change the title: I apologize to anyone offended by my gender-specific use of “Geshe” when the equally good word “Geshema” could have been used instead.

The Comparison of Phenomena

Initially, in the Collected Topics, debates arise regarding the boundaries of pervasion between two phenomena. Perdue states:⁸

One main purpose of debate is to establish the boundaries of pervasion (*khyab mtha'*) between phenomena. The boundaries of pervasion or extension of a phenomenon is its range—what it pervades, what it includes, and what it excludes. By understanding clearly a phenomenon’s boundaries of pervasion one is able to ascertain the scope of that phenomenon. The essential tool in this investigation is the analytical comparison of phenomena. By comparing two phenomena and establishing their relative boundaries of pervasion, the limits of each phenomenon in relation to the other, one comes to understand the points of similarity and dissimilarity between them.

Perdue illustrates the boundaries of pervasion between phenomena by means of the four Euler diagrams often seen in discussions of set theory. These are four possible diagrams illustrating the only four possible boundaries of pervasion. In presentations of Tibetan logic these four are: mutually inclusive phenomena, mutually exclusive phenomena, phenomena having three possibilities, and phenomena having four possibilities. Within phenomena having three possibilities there are two possible diagrams, one with phenomena A in the inner circle and one with phenomena B in the inner circle.⁹

The two phenomena under comparison are not concepts or sets, but rather those things which can occupy the subject position in a syllogism. For instance, “sound” in the syllogism, “sound is impermanent because of being a product.” Although they are not to be thought of as sets, the phenomena under comparison often appear to be sets, since there are often other phenomena that are them. For instance, there is form and there are sounds that are form.

Note this interesting fact: merely being able to say A is B tells us nothing about the possibilities for comparison between A and B. For instance, although sound is form, sound and form have three possibilities for comparison.¹⁰

Open-Source Geshe resides on uvaphd.com. The page on comparison of phenomena is found at uvaphd.com/mu.html. It displays the four possible comparisons and links to those individual pages.

Mutually Inclusive Phenomena

Phenomena that are mutually inclusive must be different and possess the eight approaches to pervasion. Non-existents such as the horns of a rabbit cannot be mutually inclusive with anything

⁸ Daniel Perdue, *Debate in Tibetan Buddhism* (Ithaca, NY: Snow Lion Publications, 1992), 133.

⁹ See Perdue, 135.

¹⁰ For a complete discussion see Perdue, 795.

because they are not phenomena. A difference in meaning or even in nomenclature qualifies as different. For instance, Dr. Perdue and Daniel Perdue are two different phenomena even though these words refer to the same person.

In addition to being different, phenomena that are mutually inclusive must have the eight approaches to pervasion. For instance, here between the synonyms, color and hue, the eight approaches show that if something is the one it must be the other and that the presence of one necessitates the presence of the other:¹¹

- 1 whatever is a color is necessarily suitable as a hue
- 2 whatever is suitable as a hue is necessarily a color
- 3 whatever is not a color is necessarily not suitable as a hue
- 4 whatever is not suitable as a hue is necessarily not a color
- 5 if a color exists, then that which is suitable as a hue necessarily exists
- 6 if that which is suitable as a hue exists, then color necessarily exists
- 7 if a color does not exist, then that which is suitable as a hue necessarily does not exist
- 8 if that which is suitable as a hue does not exist, then color necessarily does not exist.

The page on phenomena that are mutually inclusive is found at uvaphd.com/mutualinc.html. One fills in three fields in the diagram: the fields above the labels Left, Right, and Neither Left Nor Right. When these are filled in and the labels clicked to submit them, Left and Right will propagate into the eight approaches to pervasion on the left side of the screen.

Mutually Exclusive Phenomena

Phenomena that are mutually exclusive must be different and have no common locus. Non-existents such as the horns of a rabbit cannot be mutually exclusive with anything because they are not phenomena.

The page on phenomena that are mutually exclusive is found at uvaphd.com/mutualex.html. When the fields are submitted, the diagram and the statement “There is nothing that is both A and B” reveal the meaning of no common locus. As Perdue points out, a common locus is not something that exists half-way between the two and is neither. Rather, it is something which is both.

Phenomena Having Three Possibilities

When there are three possibilities between two phenomena, there must be a common locus between A and B, something that is A but not B and something that is neither. Two Euler diagrams are possible here, depending on whether A pervades B or B pervades A in the comparison.

The page on phenomena that have three possibilities is found at uvaphd.com/threeposs.html. When the fields are submitted, the diagram and the statement “Whatever is A is necessarily B” display the meaning of pervasion. For instance, in the syllogism sound is impermanent because of being produced, the meaning of pervasion is that impermanent encompasses being a product and is invariably associated with it.

¹¹ See Perdue, 67.

Phenomena Having Four Possibilities

If there are four possibilities between two phenomena, all the points of similarity and difference are exemplified. When two phenomena have four possibilities for comparison, there is no pervasion between them: whatever is A is not necessarily B, and whatever is B is not necessarily A. Nevertheless, there is at least on common locus that is both A and B. There is also (usually) something which is neither.

The page on phenomena having four possibilities is found at uvaphd.com/fourposs.html. When the fields are submitted, the diagram and the statement “X is both Y and Z” display the meaning of two phenomena with a common locus but that do not pervade each other.

An example of phenomena having four possibilities of comparison is impermanent and different-from-functioning-thing. Among their many common loci are impermanent phenomenon, copper pot, form, and so forth. That which is impermanent but not different-from-functioning-thing is functioning thing. That which is different-from-functioning-thing but not impermanent is space. The horns of a rabbit is neither.

The Three Modes of a Correct Reason

In Tibetan debates, as Perdue points out, syllogisms (*prayoga*), consisting of a thesis and a correct reason stated together in a single sentence, are used to defeat wrong conceptions and generate clear understanding. Consequences (*thal 'gyur, prasāṅga*), arguments structurally similar to a syllogism, also are used to defeat wrong conceptions and generate clear understanding but do so by indicating a logical outflow of an opponent’s own assertions (*thal, prasajyate*).¹²

The three basic units of a syllogism are (A) the subject (*chos can, dharmīn*), (B) the predicate to be proven (*bsgrub bya'i chos, sādhya-dharma*), and (C) the sign or reason (*rtags, liṅga*). In the sample syllogism:

The subject, sound, is an impermanent phenomenon because of being a product

the subject is *sound*, the predicate to be proven (or predicate of the probandum) is *impermanent phenomenon*, and the sign (mutually inclusive with reason) is *product*.

Correct reasons or signs satisfy the three modes of a correct sign:¹³

- The property of the subject (*phyogs chos, pakṣha-dharma*) requires that the subject must have the quality of the reason. In other words, one must be able to ascertain that A is C.
- The forward pervasion (*rjes khyab, anvaya-vyāpti*) is a relation between the sign and the similar class. In proving sound to be impermanent, the sign is being a product and the similar class is the class of impermanent phenomena. Forward pervasion implies that anything which is an impermanent phenomenon is a member of the similar class.
- The counter-pervasion (*ldog khyab, vyatireka-vyāpti*) is a relation between the sign and the dissimilar class. In proving sound to be impermanent, the sign is being a product and the dissimilar class is the class of non-impermanent phenomena. The counter-pervasion implies that anything which is not an impermanent phenomenon is a member of the dissimilar class.

¹² Perdue, 35. The source for the Sanskrit terms provided in this chapter is Katherine Rogers, *Tibetan Logic* (Ithaca, NY: Snow Lion Publications, 1998).

¹³ Perdue, 39-48.

The page on three modes of a correct reason is found at uvaphd.com/modes.html. When the fields are submitted, (1) the syllogism is displayed and (2) the statement “A is C” and the two diagrams for forward and counter-pervasion illustrate the three modes. Analysis of the statement and diagrams must be employed by the user to determine the validity of the syllogism. All three modes must be correct for the syllogism to be a correct proof statement.

The Procedure for Flinging an Absurd Consequence

The first debate in the Collected Topics begins with the Defender putting forth the absurd view that “Whatever is a color is necessarily red.” Obviously wrong, the Defender is put in this position in the first debate to help one understand the formal procedure for flinging an absurd consequence stemming from an incorrect pervasion.

The procedure involves stating to the Defender a contradictory consequence of his or her own position in order to draw out its absurdities. For all incorrect views there are logical consequences. Through demonstrating logical consequences the flaws in an incorrect view have the chance of becoming as manifest to the Defender as they are to the Challenger.

For example, in order to demonstrate a consequence that it is not the case that all colors are red, the Challenger must choose a counterexample. The counterexample must be something which is a color but is not red. For instance, the color of a white religious shell. This is used as the subject (the first element). Then, the outer position of the statement of pervasion, red, is put as the predicate of the consequence (the second element) and the inner position of the statement of pervasion, color, is put as the reason of the consequence (the third element). In this way, if someone says that whatever is a color is necessarily red, in response to that mistaken view the Challenger may fling back a logical consequence using the counterexample of the color of a white religious shell: “It [absurdly] follows that the color of a white religious shell is red because of being a color.

The page on the procedure for flinging an absurd consequence from an incorrect pervasion is found at uvaphd.com/modes.html. Instructions on the page help the user fill in the fields. When the fields are submitted the page displays the incorrect pervasion and the absurd consequence the Challenger has constructed from it.

Conclusion

In Ge-luk-pa Monastic Colleges the practice of debate is central to the educational process. Even in the secular academy numerous educational and personal benefits accrue to learning the principals of logical debate. Unfortunately, this field of study is not popular in our graduate classrooms. This lack of popularity may largely be due to the difficulties encountered in learning debate procedures and perhaps a dread of competitive memorization.

Open-Source Geshe attempts to help with some of these initial difficulties. As described above, it is a simple-to-use and fully extensible set of Javascript pages for assisting students with the visualization of certain concepts basic to Tibetan debate. It is internet-based but could be saved to disk for classrooms that are not online. The fields can be filled in with any language supported by Unicode. Currently, Open-Source Geshe lacks the intelligence to determine the validity of a syllogism or pervasion statement. However, I have included an expandable 20-item list of basic Buddhist terms and their definitions, divisions, and illustrations. I suspect a skilled programmer could construct an array to discriminate valid from invalid pervasion statements, and so forth.

All discussions of logical operations in Open-source Geshe are based on descriptions in Daniel Perdue’s *Debate in Tibetan Buddhism*. All students of Tibetan debate should be familiar with this exhaustive and eloquent book. Open-source Geshe is dedicated to its author.