

Calculating the Total Number of Questions in the *Paṭṭhāna*: the ‘*sata*’ problem in the Abhidhamma tradition of Myanmar

Pyi Phyo Kyaw¹

Abstract

This article focuses on the *Pucchāvāra*, ‘question chapter’, of the *Paṭṭhāna*, the seventh and final text of the *Abhidhamma Piṭaka*. The *Paṭṭhāna* deals with the depth and breadth of conditionality and its functions. The *Pucchāvāra* is one of the two major sections of the *Paṭṭhāna*, which in theory contains all possible questions about conditional relations between *dhammas*, ‘smallest components of reality’, related through twenty-four conditions. Abhidhamma scholars of Myanmar in the past two centuries have engaged with the calculations of the total number of questions in the *Paṭṭhāna* and with unravelling the highly abbreviated text.

The *Pucchāgaṇanagāthāya*, verses on the calculation of the questions, in the 6th century CE sub-commentary (*mūlaṭīkā*) of the *Paṭṭhāna* consists of thirty verses and describes the steps to calculate the total number of questions. There are two discrepancies concerning the sixth Buddhist council edition of the *Pucchāgaṇanagāthāya* in the sub-commentary (*mūlaṭīkā*) of the *Paṭṭhāna*. The first discrepancy is between the Pali text of the final pair of lines of the final verse of the *Pucchāgaṇanagāthāya*, on the one hand, and the Burmese tradition’s rendering of the text, on the other. The Burmese gives 388,778,713,344 as the total number of questions in the *Paṭṭhāna*. The second discrepancy concerns an internal inconsistency within the final four Pali verses of the *Pucchāgaṇanagāthāya*. Drawing on a wide range of Pali and Burmese sources on the *Paṭṭhāna* and its commentarial texts, this article investigates these two discrepancies. Firstly, I examine Burmese sources that describe in detail calculations of the total number of questions in the *Pucchāvāra*. Secondly, I present the structure of the *Pucchāvāra* and explicate the step-by-step calculations of the numbers of questions in each part, section, chapter, and division using the method provided in the *Paṭṭhāna-mūlaṭīkā*. Thirdly, I present and discuss different versions of the final four verses of the *Pucchāgaṇanagāthāya* in Burmese manuscripts, the Sandamuni Pagoda inscription and the sixth Buddhist council edition. In conclusion, I draw broader implications from a wide range of issues discussed in previous sections.

¹ **Institutional affiliations:** Departmental Lecturer in Buddhist Studies, Faculty of Asian and Middle Eastern Studies, University of Oxford, U.K.; Senior Lecturer in Theravada Studies, Shan State Buddhist University, Taunggyi, Myanmar.

Contact: Pyi Phyo Kyaw — ssbu.pyi.p.kyaw@gmail.com.

Key words

Abhidhamma in Myanmar, Burmese Manuscripts, Calculations, Combinations, Pali Commentaries and Sub-commentaries, *Paṭṭhāna*, Printing Technology, Sixth Buddhist Council Editions

Introduction

The focus of this article is the *Pucchāvāra*, ‘question chapter’, of the *Paṭṭhāna*, the seventh and final text of the *Abhidhamma Piṭaka*. The *Paṭṭhāna* deals with the depth and breadth of conditionality, explicating conditional relations between *dhammas*, ‘smallest components of reality’, related through the twenty-four conditions (*paccaya*). The *dhammas* in the *Paṭṭhāna* are the twenty-two triplets (*tika*) and the hundred duplets (*duka*) listed in the *Mātikā*, the ‘Schedule of Categories’. The *Mātikā* appears at the beginning of the *Abhidhamma Piṭaka* and serves as a blueprint for the entire *Abhidhamma Piṭaka*. The triplets are when *dhammas* are grouped into twenty-two sets of three terms under specific categories. For example, the first triplet, ‘skilful triplet’ (*kusalatika*), categorises *dhammas* in terms of ‘skilful *dhamma*’ (*kusaladhamma*), ‘unskilful *dhamma*’ (*akusaladhamma*), and ‘indeterminate *dhamma*’ (*abyākatadhamma*). The first triplet describes things we need to cultivate such as the skilful *dhammas*, things we need to avoid such as unskilful *dhammas*, and things we need to know and understand how our karma shapes our experience such as indeterminate *dhammas*. The second triplet, ‘experience triplet’ (*vedanātika*), describes *dhammas* that are connected to a feeling of happiness, unhappiness, and neither unhappiness nor happiness, and so it is about how we experience things. The duplets are when *dhammas* are classified in hundred sets of two terms under specific categories. The first set of two terms is (1) ‘*dhammas* that are roots’ (*hetūdhammā*) and (2) ‘*dhammas* that are not roots’ (*nahetūdhammā*). Another set of two terms is (1) ‘*dhammas* that are fetters’ (*saṃyojanādhammā*) and (2) ‘*dhammas* that are not fetters’ (*nosamyojanādhammā*). The categories used in the duplets include ‘roots’ (*hetu*), ‘pollutants’ (*āsava*), ‘fetters’ (*saṃyojana*), etc. The *Paṭṭhāna* explicates the conditional relations within as well as between these *dhammas* through the twenty-four conditions. The twenty-four conditions can be considered as conditioning forces (*satti*) that act on the relationships between the *dhammas*. However, these conditioning forces are not separate or independent entities and are inherent in the *dhammas* (Bodhi 2012: 293–294).

When we look at the *Paṭṭhāna*'s structure overall, it follows the format of an exchange of questions and answers. The section containing questions is called the *Pucchāvāra*, and the answer section is known in the Burmese Abhidhamma tradition as the *Vissajjanavāra*,² which means the 'section of answering [to questions]' (Òhn 1936: 307; Nandamedhā 2006: 63; Tilokābhivamsa 2000: 4). In the Chaṭṭhasaṅgīti or Chaṭṭhasaṅgāyana, 'sixth Buddhist council', edition of the *Paṭṭhāna*, the *Pucchāvāra* occupies just over eight pages, while the rest of the five volumes of the *Paṭṭhāna* are dedicated to the answers. The *Pucchāvāra* asks about every possible conditional relation that can be formulated. This means that all the possible ways of formulating questions by arranging the *dhammas* and the *paccayas* are dealt with in the *Pucchāvāra*. The *Pucchāvāra* therefore has a reputation of being a very difficult area of *Paṭṭhāna* study in the Burmese tradition. In the *Vissajjanavāra*, only the questions that have answers—the conditional relations of *dhammas* that are related by way of various *paccayas*—are given (*Paṭṭh-a* 396)³ because each question does not necessarily have an answer (Nārada 1986: 164).

We find the methods to calculate the total number of questions in the commentary and the sub-commentary to the *Paṭṭhāna* in the *Pañcappakaraṇa-aṭṭhakathā*, the 'Commentary on the Five Treatises,' and the *Pañcappakaraṇa-mūlaṭīkā*, the 'Sub-commentary on the Five Treatises' respectively. The *Pañcappakaraṇa-aṭṭhakathā* is the commentary to the final five books of the *Abhidhamma Piṭaka*, i.e., the *Dhātukathā* ('Discourse on Elements'), the *Puggalapaññatti* ('Concepts of Individuals'), the *Kathāvatthu* ('Points of Controversy'), the *Yamaka* ('Book of Pairs'), and the *Paṭṭhāna* ('Book of Conditional Relations') (von Hinüber 1996: 69–75 and 149). The *Pañcappakaraṇa-aṭṭhakathā* has traditionally been attributed to the 5th century CE commentator, Buddhaghosa (Bodhi

² In the answer section, there are two chapters, i.e., the *Vibhaṅgavāra*, the detailed analysis chapter, and the *Saṅkhyāvāra*, the enumeration chapter. The term *vissajjanavāra* appears in the *Paṭṭhāna*'s commentary (*Paṭṭh-a* 417) to explain the number of answers encoded only in the *Saṅkhyāvāra*. The term *vissajjanavāra* in the *Paṭṭhāna*'s commentary does not refer to the *Vibhaṅgavāra*. However, in the Burmese Abhidhamma tradition, *vissajjanavāra* refers to the whole of the answer section. See Kyaw (2014: 87 and 231–233) for the place of *Saṅkhyāvāra* in the whole structure of the *Paṭṭhāna* and how the answers are encoded using numbers.

³ References of the *Paṭṭh-a* and the *Paṭṭh-mṭ* in this article are from the official sixth Buddhist council editions of the *Pañcappakaraṇa-aṭṭhakathā* and the *Pañcappakaraṇa-mūlaṭīkā* in the Burmese script, printed in 1957 and 1960 respectively. These two sources are part of the printed official Chaṭṭhasaṅgāyana editions of the commentaries and sub-commentaries. On the title page of the printed editions of the commentarial texts we do not find the phrase "Chaṭṭhasaṅgīti Piṭakam", like in the printed editions of the canonical texts. Despite this, when I refer to the texts from the printed editions of the *Paṭṭh-a* and the *Paṭṭh-mṭ* in this article, I shall use the phrase 'the sixth Buddhist council edition' because they are the products of the two subsequent councils concerning the commentaries and sub-commentaries.

2012: 13).⁴ The *Pañcappakaraṇa-mūlaṭīkā*, a sub-commentary to the aforementioned five books of the Abhidhamma Piṭaka, has been attributed to Ānanda, “who lived in the otherwise unknown Kalasapura” (Bollée 1969: 832, note 48, cited in von Hinüber 1996: 166).

Based on the method provided in the commentary to the *Paṭṭhāna* in the *Pañcappakaraṇa-aṭṭhakathā* (henceforth *Paṭṭh-a*), Burmese scholars have calculated that there are a total of 404,948,533,248 questions (*pucchā*) (Nandamedhā 2006: *dha*; Nārada 1951: 14; Khin Maung Than 1998: 41). Calculation based on the sub-commentary to the *Paṭṭhāna* in the *Pañcappakaraṇa-mūlaṭīkā* (henceforth *Paṭṭh-mṭ*) gives a slightly lower number, i.e., 388,778,713,344 (Nandamedhā 2006: *ṇa*; Òhn 1936: 289; Āḷāra 1936/37: 441; Nārada 1951: 13; Khin Maung Than 1998: 50–53). Where in the *Paṭṭh-a* and the *Paṭṭh-mṭ* do we find the methods for calculating the total number of questions? In the *Paccayānulomavaṇṇanā* of the *Pucchāvāra* in the *Paṭṭh-a*, specifically from page 141 to page 161, we find in detail how the *dhammas* and the *paccayas* can be combined (see below). The ways in which the *dhammas* and the *paccayas* are potentially be arranged then play an important step in the calculation of the total number of questions. The subsequent sections under the *Pucchāvāraṇṇanā* in the *Paṭṭh-a* provide only an abridged version of how the *dhammas* and the *paccayas* are arranged and the questions that can be formulated. The *Paṭṭh-mṭ* deals with the methods for calculating the total numbers of questions in two places: (1) the *Pucchāvāraṇṇanā* (198–204) and (2) the *Pucchāgaṇanagāthāya* at the end of the *Paṭṭh-mṭ* (245–248). The *Pucchāvāraṇṇanā* describes how the *dhammas* and the *paccayas* are combined and thus the total questions are calculated. It is in the *Pucchāgaṇanagāthāya* that we find the step-by-step method to calculate the total number of questions of the *Paṭṭhāna*.

During my fieldwork in Myanmar in 2010 and 2011, Venerable Innsein Ywarma Sayadaw U Tilokābhivamsa (1938–) and Venerable U Paṇḍita of the Pahtàn-theik-pan Sathintaik in Sagain said to me that the 388,778,713,344-figure in the sub-commentary is regarded by Abhidhamma scholars of Myanmar to be the correct one. Moreover, my own study of the methods in both *Paṭṭh-a* and *Paṭṭh-mṭ* and my own calculation of the total number of questions agree with this consensus. Sayagyi U Khin Maung Than (1998: 41), a keen enthusiast on the *Pucchāvāra* and the *Saṅkhyāvāra*, showed that the commentary’s method includes an additional step earlier in the calculation that creates 16,169,819,904

⁴ See von Hinüber (1996: 149–153) on discussion on the authorship of the commentaries on the *Abhidhamma Piṭaka*.

extra questions, resulting in the 404,948,533,248-figure.⁵ The focus of this article is not the 404,948,533,248-figure, rather the 388,778,713,344-figure.

Based on the Burmese sources I consulted (see below), I followed the step-by-step calculation given in the *Paṭṭh-mṭ* and came to the 388,778,713,344-figure, which is the final figure that the Burmese tradition accepts as valid and accurate. However, there seems to be a discrepancy between the 388,778,713,344-figure and the figure given in the final verse of the *Pucchāgaṇanagāthāya*, the ‘Verses of the Calculation of the Question’, in the sixth Buddhist council edition of the *Paṭṭh-mṭ*, which reads:

Sattāsīti ca lakkhānaṃ, koṭīnañca sattasattatiyo;
Honti’ṭṭhasatāni’ṭṭha-tiṃsasatasahassāni iti gaṇanā.

Paṭṭh-mṭ 248.

Given the inclusion of *sata*, ‘hundred’, in the second pair of lines, it should be translated as follows:

There are thirty-eight hundred thousand eight hundred seventy-seven
crore and eighty-seven lakhs.

In numerals, the above figure is 38,008,778,700,000. In British English, the 38,008,778,700,000-figure is thirty-eight trillion, eight billion, seven hundred and seventy-eight million, seven hundred thousand. However, in the works by Janakābhivamsa (1980: 796) and Nārada (1986: 191), the same line with the word *sata* has been rendered as 388,778,700,000. In British English, 388,778,700,000 is three hundred and eighty-eight billion, seven hundred and seventy-eight million, seven hundred thousand. Therefore, there is a discrepancy between the Pali text and how the text is rendered in these Burmese Sayadaws’ works, which we will explore below.

Another piece of information that complicates the whole issue is found in an introduction to the printed version of an exegetical text on the *Paṭṭhāna* by Htāntabin Sayadaw Venerable Nandamedhā (c. 1708). Nandamedhā’s exegetical text on the *Paṭṭhāna*, composed in the Burmese language in the second half of the 18th century CE, came to be known in Myanmar as *Htāntabin Pahtān Ayakauk*. The term *pahtān-ayakauk* literally means ‘picking up the essential meaning of the *Paṭṭhāna*’. When a group of monks from Masoeyein Sathintaik in Mandalay wrote the introduction to Nandamedhā’s *Pahtān Ayakauk*, they also

⁵ Based on my own calculation using the commentary’s method, the number of questions related by one *paccaya* singly, i.e., *suddha* section, is counted twenty-three times more than what it should be for the skilful triplet (*kusalatika*). When the extra questions are then applied to other sections by following the same steps in calculation, we get many more extra questions. Khin Maung Than’s explanation also supports my calculation.

included detailed calculations of the numbers of questions, reaching the 388,778,713,344-figure. In that introduction, they acknowledged Venerable Kosalla⁶ as the person who did the tabulated calculation. Moreover, that introduction included the same verse in Pali *without* the word *sata*:

Sattāsīti ca lakkhānaṃ, koṭīnañca sattasattatiyo;
Honti’ṭṭhasatāni’ṭṭha, tiṃsasahassāni iti gaṇanā.

Paṭṭh-mṭ 248, cited in Nandamedhā 2006: ṇa.

In that printed introduction, the final line of the final verse of the *Pucchāgaṇanagāthāya* is *without* the word *sata*, and it is rendered as 388,778,700,000. They wrote, “According to the *Paṭṭh-mṭ*’s method, the grand total number of questions in the *Paṭṭhāna* is 388,778,713,344 — [that is], thirty-eight thousand eight hundred and seventy-seven crores, eighty-seven lakhs, thirteen thousand, three hundred and forty-four” (Nandamedhā 2006: ṇa). Here, there is no discrepancy between the Pali text quoted in the introduction of Nandamedhā’s *Pahtàn Ayakauk* and the 388,778,713,344-figure that has been given there. This means that there are inconsistencies in Burmese sources I consulted.

When I investigate this issue further by looking into the steps to calculate the number of questions described in the entire *Pucchāgaṇanagāthāya*, a more complex picture emerges. There is an internal discrepancy within the final four verses of the *Pucchāgaṇanagāthāya* in the sixth Buddhist council edition. When we examine and do the calculation following the steps in the final four verses of the *Pucchāgaṇanagāthāya*, we arrive at the 388,778,713,344-figure as the total number of questions. However, when we look at the sixth Buddhist council edition of the final pair of lines with *’ṭṭhatiṃsa satahassāni* on its own, we get the 38,008,778,700,000-figure. I use the term ‘internal discrepancy’ here because it concerns the two different numbers that we get from reading the final four verses together or just focusing on the final pair of lines of the *Pucchāgaṇanagāthāya* in the sixth Buddhist council edition.

In addition, I examine evidence from the manuscripts of the *Paṭṭh-mṭ* (in Burmese script) and of the Pali-Burmese *nissaya* of the *Paṭṭh-mṭ* in online repositories and the *Paṭṭh-mṭ* inscription at the Sandamuni Pagoda in Mandalay. Based on my survey of these sources, there are at least three versions of the final verse of the *Pucchāgaṇanagāthāya*. The

⁶ I recently found some information about a senior monk called Kosalla who taught at the Masoeyein Sathintaik in Mandalay in the 1950s and 1960s and received honorary titles from U Nu’s government. More research needs to be done to verify if Venerable Kosalla in the sources that I found is the same person who calculated the total number of questions for the introduction.

discrepancies concern the word *sata* in front of *sahassāni* in the final pair of lines of the *Pucchāgaṇanagāthāya*, and I therefore use the phrase ‘*sata* problem’ to refer to it. My findings from these multiple sources, alas, give only a partial answer to the *sata* problem and create more research questions.

This rest of the article is divided into three parts. Firstly, I provide a range of Burmese sources that describe and discuss the *Pucchāvāra*, demonstrating how the Buddhists in Myanmar keenly engage with such mathematical materials. I also bring these sources to light for the first time in modern scholarship in the English medium. Based on my survey of these materials, it is puzzling that these sources are silent on the discrepancies that I mentioned above. As far as I know, the Burmese monastic and lay literati such as Sayagyi U Òhn (1846–1925), Mahagandayon Sayadaw Ven. Janakābhivaṃsa (1900–1977) and Mula-pahtàn Sayadaw Venerable Nārada (1898–1983) have not commented on the *sata* problem. Secondly, drawing on the sources mentioned in the first part, I describe and explain in the second part of this article the structure of the *Pucchāvāra*. I explicate how we can calculate the numbers of questions in each part, section, chapter, and division using the steps in the *Paṭṭh-mṭ*. My hope is to bring a Burmese perspective to light in reading and interpreting large numbers in relation to a highly complex, specialised text. Thirdly, I present and discuss different versions of the final four verses of the *Pucchāgaṇanagāthāya* from the manuscripts, the Sandamuni Pagoda inscription and the sixth Buddhist council edition. Finally, I draw broader conclusions and implications from discussions in previous sections.

1. The Burmese sources on the *Pucchāvāra* and their puzzling silence on the *sata* problem

There were, and still are, monastic members and laypeople in Myanmar who have keen interest in the *Pucchāvāra* and work on it in detail (1) to figure out how the *dhammas* and the *paccayas* are arranged in order to formulate questions, (2) to unravel the abbreviated text in the *Pucchāvāra*, and (3) to calculate the number of questions in each major section or chapter of the *Paṭṭhāna* as well as the total number of possible questions. Many texts and books on the *Paṭṭhāna* have been written and published in Burma/Myanmar.⁷ Here, I would like to present several works that include explanation and discussion of the *Pucchāvāra*. This survey aims to show that monastic and lay literati who have worked on the *Pucchāvāra* have not raised the discrepancies that I highlighted in my introduction.

The first work is *A-bída-ma-tàn-hkun-kyàn hnín yamaka-vihtimanzari-kyàn*, ‘Banner of the *Abhidhamma* and Bouquet of the *Yamaka*’, by Sayagyi U Òhn. He was contemporary with Ledi Sayadaw U Ñāṇa (1846–1923). Although Òhn taught *Abhidhamma* texts in Mandalay during the reign of Mindon (r. 1853–1878) and Thibaw (r. 1878–1885), his teaching career took off when, as a layman, he returned to teaching the *Abhidhamma* texts in Amarapura in 1905, attracting many monastic and lay students from different parts of the country (Kyaw 2014: 157). Òhn’s work mentioned above contains three parts: (1) the first is on the *Dhātukathā*, entitled “*Dhātukathāudānasaṅgahagāthā*”, which is a summary of the methods (*naya*) of analysis described in the *Dhātukathā*; (2) the second is on the *Yamaka*, entitled “*Yamakaṅkhepanayānusārādīpanī*”, which is an explanatory work on the *Yamaka* and covers only nine pairs—the *Dhātuyamaka* is not included; and (3) the third is on the *Paṭṭhāna*, entitled “*Paṭṭhānaṅkhepanayasāṅkhyānīpanī*”, which focuses on the *Sāṅkhyāvāra*, ‘enumeration chapter’, of the *Paṭṭhāna* but also devotes twenty-nine pages to the *Pucchāvāra* (Òhn 1936: 278–307). In the *Pucchāvāra* section, Òhn explicates four areas: (1) how to calculate the total number of individual *kyàn* (ကျိန်), which here means ‘section’ or ‘chapter’,⁸ in the *Pucchāvāra* if we were to expand it out fully; (2) different components within these *kyàn* or sections; (3) how to calculate the total number of questions for the *Paṭṭhāna*; and (4) examples of how questions would look in the Pali language for different

⁷ See (Kyaw 2014: 313–322) for the list of texts and books on the *Paṭṭhāna* that are known to me in the early 2010s. This list needs to be updated with some works that I recently discovered and more recent publications.

⁸ See (Kyaw 2014: 46–47) on the use of the Burmese word *kyàn* in Myanmar.

sections in the *Pucchāvāra*. Òhn describes how to calculate the total number of individual *kyàn* and the total number of questions in prose, reaching to the figures 129,232 and 388,778,713,344 respectively (Òhn 1936: 281 and 289). Later in the works by Nārada (1951 and 1986) we find these calculations in table format, arriving at the same figures. As far as I know, Òhn’s description of these calculations may be one of the earliest attempts to reach specific figures. Even in Nandamedhā’s *Paḥṭàn Ayakauk*, an exposition on the *Paṭṭhāna* in the Burmese language, we do not find such calculations, though Nandamedhā describes in detail the structure of the *Paṭṭhāna*, going through each section (see below).

The second work that deals with the *Pucchāvāra* is Venerable U Āḷāra’s *Sāratthamedinī kyàn: Yamaka-Paṭṭhāna gaṇṭhi a-thít (Dutiya tve)*, ‘Essential Meaning of the Earth: unravelling knots in the Yamaka and the Paṭṭhāna (Vol. 2)’, which was published in 1936/37.⁹ I have no information about Āḷāra at present, except that he taught at a teaching monastery called Tawya Kyaùng Táik in Nyaung Lay Pin.¹⁰ This second volume focuses on the *Yamaka* and *Paṭṭhāna*, while the first volume is on the *Mātikā* and the *Dhātukathā*. As it is in the genre of *gaṇṭhi*, ‘knots’, in some places, it is in a question-and-answer format; in other places detailed explications of the *paccayas* are given. Āḷāra devotes eight pages on the *Pucchāvāra* and starts with the calculation of questions using the *Paṭṭh-a*’s method (Āḷāra 1936: 434–437). He then switches to the method given in the *Paṭṭh-mṭ* (*ibid.*: 437–441), arriving at the final figure of 388,778,713,344. It is interesting to note that in both Òhn’s work and Āḷāra’s work, there is no explanation or comment on different figures that can be obtained depending on which commentarial text one uses. To me, this reflects the attitude held among most Burmese Sangha that the commentaries attributed to Buddhaghosa, the fifth century commentator, are to be regarded almost on par with the word of the Buddha, and therefore it is not critiqued at least explicitly in written work in some quarters.¹¹ Also, in Āḷāra’s work we begin to see a tabular format to present the calculations, although his use of tables is not as extensive as we see in Nārada’s works and in the later Burmese tradition. Presenting complex *Abhidhamma* texts in tables has been regarded as one of the innovative ways of studying *Abhidhamma* in the Burmese tradition and as the cornerstone

⁹ The front page gives the Burmese year 1298 (၆၀၀၀၅ ဝါ) as the year of publication. As it does not include the month in the Burmese calendar, it is difficult to say the precise year in which it was published.

¹⁰ It is not clear to me the town Nyaung Lay Pin refers to the one near Yangon or the one in Bago Division, which is about 100 miles north-east of Yangon.

¹¹ In the Burmese tradition, Buddhaghosa is regarded as the second ‘Budh’, and it sees the Buddha as the first ‘Budh’ and Sayadaw U Budh of the late 19th century Burma as the third ‘Budh’. They are regarded as three stellar ‘Budhs’ of Theravada Buddhism (*Saṅgāyanā Monthly Bulletin* 1954: 15; Nandobhāsa 2020: 6).

of modern *Abhidhamma* studies in Myanmar. Its invention has been attributed to Nārada (Kyaw 2014: 143). What we see in Āḷāra’s work is the beginning of such developments.

The third work that I want to highlight is *Paṭṭhāna Nayadīpanī me-thaw Pahtàn-pya-nì-nithayì-kyàn*, ‘Exposition of the Method of the *Paṭṭhāna*’, by Venerable Sobhita (1896–1969), who taught at Lày-kyùn-hkyaung-tha Hkyaung in Sagaing Hills, west of Mandalay. Sobhita approached Masoeyein Sayadaw U Sūriyābhivaṃsa (1880–1957) of Mandalay to master the *Paṭṭhāna* and taught the *Paṭṭhāna* to many monastic students in Sagaing, and thus he came to be known as “*Pahtàn Ashin Sobhita*” (Kelasa 1979: 221). Currently, I do not have more information on Sobhita nor on the bibliographic details of the book.¹² This work is more like a pedagogical handbook for monastic students, focusing on certain sections and aspects of the *Paṭṭhāna* that are important in the Burmese monastic curriculum and providing a shortcut to master these aspects (Kyaw 2014: 202–227). Like Òhn, Sobhita calculates the total number of individual *kyàn* in the *Paṭṭhāna* and arrives at the same 129,232-figure (Sobhita undated: 146). Apart from this, other aspects of the calculations are different from every other source that I have come across so far. Sobhita seems to have followed his own reasoning and way of calculating the total number of questions, which he gave as 1,105,972,474,944 (Sobhita undated: 153).

I now want to turn to a group of people in Myanmar who have shown in recent decades keen interests in the *Pucchāvāra* and the *Saṅkhyāvāra*. Their endeavour is not only to do the calculations of the *Pucchāvāra* but also to unravel all abbreviated texts in the *Pucchāvāra* and the *Saṅkhyāvāra*, indicated often by the Pali word *peyyāla*, ‘formula’ or ‘repetition’, itself reduced further to *pe, pa, pe...la*. Venerable Visuta, the abbot of Lày-kyùn-man-aung Thamanaykyaw Sathintáik in Mandalay, is particularly interested in the *Saṅkhyāvāra*. The *Saṅkhyāvāra* is in the answer part of the *Paṭṭhāna*, the *Vissajjanavāra*, and highly abbreviated. To unravel the abbreviated texts in that section is more complex than that in the *Pucchāvāra* because we need to find correct conditional relations that can be related by more than one *paccaya*.¹³ Despite such a challenging task, Visuta published a 1310-page book entitled *Pahtàn-thinhkya*, ‘The Enumeration of the *Paṭṭhāna*’ in 2018, detailing the combinations of *paccayas* in the *Pucchāvāra* and in the *Saṅkhyāvāra*. In this book, he does not mention the total number of questions.

¹² This work is likely to have been composed after 1950s because it mentions Masoeyein Sayadaw U Sūriya’s teaching methods, whose works were printed around 1950s (Kyaw 2014: 163 and ff. 315).

¹³ See Kyaw’s Chapter 5 (2014) on the *Saṅkhyāvāra* and see pages 237–247 on how to find conditional relations that are related by more than one *paccaya*.

Another person who had a keen enthusiasm on the *Pucchāvāra* and the *Saṅkhyāvāra* was Sayagyi U Khin Maung Than. He was an Associate Professor of Physics at University of Mandalay and became interested in the *Pucchāvāra* because he had a very strong wish to recite the combinations of *paccayas* using a rosary as a way to pay homage to the Buddha and his omniscience (Khin Maung Than 1998: 1). We may recall that only eight pages are devoted to the *Pucchāvāra* in the sixth council edition of the *Paṭṭhāna*, and the remaining questions are abbreviated. So, the only way for him was to study and work on it by himself, and he did just that for more than thirty years. He never published his work, and it amounts to a cupboard full of papers which was kept at the International Institute of Abhidhamma (IIA) in Yangon when I visited there in 2015. His work *Peyyala-hmyók-pahtàn-póksamyà-ko-kun-pyuta-parogaram-thòne-yéi-hpaw-htóte-hkyìn*, ‘Expansion of the Abridged Texts in Question Division of the *Paṭṭhāna* Using Computer Programme’, discusses the methods of calculating the total number of questions in the *Paṭṭh-a* and the *Paṭṭh-mṭ* and how each of these texts arrived at different numbers (Khin Maung Than 1998: 41–42). It also provides questions in Pali from different sections of the *Pucchāvāra* as examples if we were to expand them (*ibid.*: 11–33). Moreover, Khin Maung Than developed his own method of calculating the total number of questions, arriving at the 388,778,713,344-figure (*ibid.*: 52–62). He also had access to Sobhita’s work and did not agree with the 1,105,972,474,944-figure¹⁴ that Sobhita reached as the total number of questions (see above). He showed the miscalculations that had occurred in Sobhita’s method (*ibid.*: 48–50). Khin Maung Than’s engagement with Sobhita’s work is indicative of how Abhidhamma scholars of Myanmar perhaps since the 18th century CE have actively engaged with Abhidhamma studies that continue to thrive to the present time.

There are a few other people whom I met in Myanmar over the past decade who have been working in the *Pucchāvāra* and can do the calculations using a quick method. In 2018, I encountered one of the lay *Abhidhamma* teachers who explained the calculations to me using a small sheet of paper and a pen, arriving at the 388,778,713,344-figure in minutes. Moreover, Than Win (2019), who is an Abhidhamma teacher at the IIA and also an IT professional, has worked on the *Pucchāvāra* to unravel and expand the abbreviated questions using Python Programming Language. I have not found any mention of the *sata* problem in the sources discussed above.

¹⁴ As the 1,105,972,474,944-figure is not the focus of this article and not related to the ‘*sata* problem’, we will not explore it further in this article.

Next, I turn to a ‘commentary in the Burmese language’ (*bhāsāṭīkā*) on the *Paṭṭh-a* and the *Paṭṭh-mṭ* by Venerable Janakābhivaṃsa, which contains an inconsistency between the Pali text from the *Paṭṭh-mṭ* that he used and his rendering of this text. Before we examine the main source, let us look at the work of Janakābhivaṃsa. He was an educationalist who revived a famous teaching monastery called Mahagandayon Sathintike in Amarapura, located 11 km southwest of Mandalay. He composed over 100 texts on a wide range of topics such as on *Abhidhamma*, *Vinaya*, Pali grammar, monastic education and protective (*paritta*) texts. He is well known among monastics as “Bhāsāṭīkā Sayadaw” because he composed a series of sub-commentaries (*ṭīkā*) on a range of texts, and they are entitled with a suffix *bhāsāṭīkā*, literally translated as ‘language sub-commentary’. There are forty-three printed books in this series of sub-commentaries. He wrote *bhāsāṭīkā* texts on, (i) all commentaries of the seven canonical *Abhidhamma* texts; (ii) sub-commentaries (*mūlaṭīkā*) of these *Abhidhamma* commentaries; (iii) post-canonical *Abhidhamma* texts; (iv) commentaries of the *Vinaya* texts, (v) commentaries of the *Dīgha Nikāya*, and (vi) grammatical texts such as the *Kaccāyana*. The word *bhāsā*, ‘language’, here refers to the Burmese language, so Janakābhivaṃsa’s *bhāsāṭīkā*s can be considered as Pali-Burmese *nissaya*, ‘translations’, of the above-mentioned texts. This is probably why these *bhāsāṭīkā*s appear in the mobile apps called “Aṭṭhakathā Nissaya” and “Ṭīkā Nissaya”. However, these *bhāsāṭīkā*s are more than just Pali-Burmese translations. They are like very detailed lecture notes on the above-mentioned texts because Janakābhivaṃsa—with the help of his senior monastic disciples—composed *bhāsāṭīkā* texts as he taught these texts to the monastic students at his monastery.¹⁵ For instance, he taught the *Dhammasaṅganī*—the first book of the *Abhidhamma Piṭaka*—alongside its *aṭṭhakathā* and *mūlaṭīkā* to his monastic students in the 1960s. During the period of the course, he composed a *bhāsāṭīkā* text on these three texts, which was published in four volumes in 1964, entitled *Aṭṭhasālinī Bhāsāṭīkā and Mūlaṭīkā Nissaya* (Janakābhivaṃsa 2002: *ja*). This *bhāsāṭīkā* has three parts, which are entitled: (1) ‘Aṭṭhasālinī Aṭṭhakathā Nissaya’; (2) ‘Aṭṭhasālinī Mūlaṭīkā Nissaya’; and (3) ‘Dhammasaṅganī Pāli Nissaya’. In this work, like in other *bhāsāṭīkā* texts, Janakābhivaṃsa not only explicates the meaning and intention (*adhippāya*) of the root texts, but also includes detailed footnotes, explaining key phrases, providing grammatical analysis of

¹⁵ Janakābhivaṃsa started teaching the canonical texts, the commentarial literature, and other texts such as grammatical texts at his Mahagandayon teaching monastery in the 1930s. He would teach two 1-hour classes from 12 noon to 1:00pm and from 1:05pm to 2:05pm every day, except on the *uposatha* day, and would write after his teaching (Janakābhivaṃsa 2000: 516–517).

certain words, and highlighting different interpretations of the texts in the commentarial literature. Moreover, he consulted the other exegetical literature such as the *anuṭṭikā*, the *madhuṭṭikā*, *yojana* and Pyay Sayadaw’s *nissaya* on the *Aṭṭhasālīnī*¹⁶ (Janakābhivaṃsa 2002: ja).

In 1973, Janakābhivaṃsa completed composing his three-volume *bhāsāṭṭikā* on the *Vibhaṅga* of the *Abhidhamma Piṭaka*, its commentary—the *Sammohavinodanī*—and sub-commentary. From 1974 to 1977, he taught the *Pañcappakaraṇa-aṭṭhakathā* and the *Pañcappakaraṇamūlaṭṭikā* alongside their canonical texts—the *Dhātukathā*, the *Puggalapaññatti*, the *Kathāvatthu*, the *Yamaka* and the *Paṭṭhāna*—to his monastic students (Janakābhivaṃsa 1981: hku). During the period of the course, he composed *bhāsāṭṭikā* on these root texts. He completed writing his final *bhāsāṭṭikā* on the *Paṭṭhāna* and its commentaries just four months before his death (Janakābhivaṃsa 1980: a-ā). The *bhāsāṭṭikā* texts on the *Pañcappakaraṇa-aṭṭhakathā* and the *Pañcappakaraṇamūlaṭṭikā* were published in five volumes in 1980 and 1981. His *Paṭṭhāna Aṭṭhakathā Bhāsāṭṭikā and Mūlaṭṭikā Nissaya* (henceforth *Paṭṭhāna Bhāsāṭṭikā*), which was first published in 1980, is one of the main sources for this article. This *bhāsāṭṭikā* has two parts: the sub-commentary on (1) the *Paṭṭhāna-aṭṭhakathā*, and (2) the *Paṭṭhāna-mūlaṭṭikā*. Janakābhivaṃsa not only gives Pali-Burmese *nissaya* on these texts but also explains the meaning and intention of these texts as well as highlighting different interpretations between the *aṭṭhakathā* and the *mūlaṭṭikā*. Throughout the *Paṭṭhāna Bhāsāṭṭikā*, he also refers to older *nissayas* on these texts, but he does not describe or give information about the old *nissayas* that he used. Regarding the *Pucchāgaṇanagāthāya*, he writes that he gave “the meaning [*a-nék*] of the verses as it is in the old *nissaya*” (Janakābhivaṃsa 1980: 788).¹⁷

Returning to our main issue, i.e., the *sata* problem, there is an inconsistency between the Pali text in Janakābhivaṃsa’s *Paṭṭhāna Bhāsāṭṭikā* and how he renders it. Below, I provide the final four verses of the *Pucchāgaṇanagāthāya* in the *Paṭṭhāna Bhāsāṭṭikā*.

Bhāsāṭṭikā

tu — in addition to individual calculation of various parts, let’s look at the total.

anulome — in the Dhammānuloma; **chabbidhepi paṭṭhāne** — in all the six-fold

¹⁶ Pyay Sayadaw Venerable Medhā (1788–1863), also known by his lay name U Kyi Nyo, is said to have written thirteen texts, including eleven *nissayas* on a range of texts such as the *Visuddhimagga-aṭṭhakathā*, the *Samyutta-aṭṭhakathā*, and *Kiccāyanasāra* (Medhā 1973: nga-ca).

¹⁷ Based on my reading of some parts of the *Pucchāgaṇanagāthāya* from MW1FPL5858 and UPT374_2F, which are the manuscripts of the Pali-Burmese *nissayas* of the *Paṭṭh-mṭ* I surveyed (see below), Janakābhivaṃsa seems to have access to similar kind of *nissaya* manuscripts. Janakābhivaṃsa’s interpretations of the *Pucchāgaṇanagāthāya* closely follows the *nissaya* interpretations.

(i.e., Tika-paṭṭhāna, Duka-paṭṭhāna, etc. that are the six-fold);¹⁸ **Paṭṭhāne** — in the Paṭṭhāna; **sampiṇḍitā** — combined / in total; **pucchā** — questions; **chattiṃsa tisata saḥassa-tṭhaka yutā** — associated with eight thousand three hundred thirty-six (although it should be taken as yutā, because of metre, yuta with akāranta¹⁹ “ending in a” is used here); **satta nahutāni (niyutāni)**²⁰ — also seventy thousand; **cha cattālīseva** — forty-six that are; **lakkhāni ca** — also lakh; **atha** — in addition; **navakoṭṭiyo** — also nine crore; **dasacakoṭṭiyo** — also ten crore; **sattahikoṭṭisatehi** — with seven hundred crore; (**sahitāni**: accompanied with) **navakoṭṭi saḥassāni ca** — also nine thousand crore; **honti** — there are.

catuppabhede — the four-fold such as the Dhammānuloma etc.; **samantapaṭṭhāne** — in the all-encompassing Paṭṭhāna; **tāpucchā** — the questions that are in the Dhammānuloma; **vā** — the questions in the Dhammānuloma; **catuḅuṇitā** — multiplied by four which are the Dhammānuloma etc.; (**samānā** — if we were to multiply); **catucattālīsa** — also forty-four; **satattayaṃ** — also three hundred; **terasasaḥassānica** — also thirteen thousand; **lakkhānaṃ** — of lakhs; **sattāsītica** — also eighty-seven; **koṭṭinaṃ** — of crores; **sattasattatiyoca** — also seventy-seven; **aṭṭhasatāni** — also eight hundred; **aṭṭhatṭiṃsa satasaḥassāni** — also thirty-eight thousand; **honti** — there are; **iti (ayaṃ)** — this is; **gaṇanā** — the calculation of the questions in the all-encompassing Paṭṭhāna.

Janakābhivaṃsa 1980: 796.

Below, I also provide a translation of the above text for clarity.

Translation of Bhāsāṭikā

In addition to the individual calculation of various parts, let’s look at the total. In all the six-fold Paṭṭhāna (i.e., the Tika-paṭṭhāna, the Duka-paṭṭhāna, etc. that are the six-fold) in the Dhammānuloma, the total number of questions are: nine thousand seven hundred nineteen crore, forty-six lakh, seventy-eight thousand, three hundred and thirty-six [36 + 300 + 78,000 + 4,600,000 + 190,000,000 + 7,000,000,000 + 90,000,000,000 = 97,194,678,336].

There are the four-fold [divisions] such as the Dhammānuloma etc. in the all-encompassing Paṭṭhāna. The [number of] questions in the Dhammānuloma [division] are to be multiplied by four [divisions] which are the Dhammānuloma etc. There are thirty-eight thousand eight hundred seventy-seven crore, eighty-seven lakh, thirteen thousand, three hundred and forty-four [44 + 300 + 13,000 + 8,700,000 + 770,000,000 + 8,000,000,000 + 380,000,000,000 = 388,778,713,344]. This is the calculation of the questions in the all-encompassing Paṭṭhāna.

¹⁸ Use of brackets: () indicates the additions or editions that Janakābhivaṃsa made in the *Paṭṭhāna Bhāsāṭikā*; [] indicates my own additions or editions. Use of colours: not sure in terms of meaning and grammar.

¹⁹ See Ruiz-Falqués (2015: 340) on *akāranta*, “ending in a”.

²⁰ Janakābhivaṃsa added *niyutāni* in brackets, which also means ‘ten thousand’, perhaps to indicate a variant reading that he might have seen in his sources.

In Janakābhivaṃsa's *Paṭṭhāna Bhāsāṭīkā*, the Pali text *aṭṭhatim̐sa satasahassāni* (အဋ္ဌတိသ သတသဟသာနိ) is given, but Janakābhivaṃsa writes in Burmese “သုံးသောင်းရှစ်ထောင်တို့သည်၎င်း”, which means ‘thirty-eight thousand’. The inclusion of *sata*, ‘hundred’, should have given သုံးသန်း ရှစ်သိန်း, i.e., ‘thirty-eight hundred thousand’. In terms of numerals, as we are concerned with crore (*koṭi*), thirty-eight thousand crore is 380,000,000,000, and thirty-eight hundred thousand crore 38,000,000,000,000. Therefore, there is a discrepancy between the Pali text that Janakābhivaṃsa gave and his rendering of it in Burmese. Janakābhivaṃsa did not comment anything on the presence of *sata* in the phrase *aṭṭhatim̐sa satasahassāni* and why it is rendered as thirty-eight thousand.

I also examined two works by Nārada in which he gave the 388,778,713,344-figure (Nārada 1951: 13; 1986: 191). Nārada's *Paṭṭhāna Paragu*, first published in 1951, is one of his main works on the *Paṭṭhāna* in the Burmese language, which summarises the main points of the skilful triplets of the *Paṭṭhāna* in prose and in tables. In it, Nārada describes—using the tables—how the *dhammas* are paired and the *paccayas* are combined, and the number of questions for each section of the *Paṭṭhāna* (Nārada 1951: 10–15). Nārada also describes these patterns of combinations and the same calculations in the English language in *Guide to Conditional Relations (Part 2): Being a guide to pages 13-141 of Conditional Relations*, published in 1986 by Ministry of Religious Affairs in Yangon (Nārada 1986: 162–191).²¹ Here, Nārada's description and explanation of the *Pucchāvāra* is more detailed; the patterns of combinations of the *dhammas*, some examples of the questions and a summary of the *Pucchāgaṇanagāthāya* from the *Paṭṭh-m̐* are given. However, his explanation is still quite terse and remains inaccessible to the reader who is not familiar with the text. His summary of the *Pucchāgaṇanagāthāya* is very terse in that he provides just the key numbers, making it difficult to follow the verses. Regarding the verses in question, he writes as follows:

29. Tā catu guṇitā pucchā-catuppabhede samanta
 paṭṭhāne-catucaṭṭālisa satattayaṃ-sahasāniterasa ca
 30. Sattāsīti ca lakkhānaṃ-koṭīnaṃ ca sattasattatiyo
 hontiṭṭha satāniṭṭha-tim̐sa sātasahassāni iti gaṇanā.²²
 97, 194,678,336 x 4=388,778, 713,344 [sic].

Nārada 1986: 191.

²¹ This book is the second part of *Guide to Conditional Relations (Part 1): Being a guide to pages 1-12 of Conditional Relations Paṭṭhāna*, first published in 1979 by the Pali Text Society.

²² There are typos here — e.g., *sāta* in the final line should be *sata* — and in other places throughout the work. Although this work has potential to be a great resource for the students of the *Paṭṭhāna*, it needs careful editing and perhaps annotating to make it more accessible.

Here, the discrepancy between the Pali text given and the number that Nārada arrived at can be seen. Nārada, like Janakābhivamsa, did not question nor comment on the presence of *sata*, i.e., *aṭṭha-tiṃsa sātasahassāni*, in the final pair of lines of the final verse, and why or how come he rendered the total number as 388,778,713,344.

A summary of the findings so far is as follows.

- 1) In the sixth council edition of the *Paṭṭh-mṭ*, we find the *Pucchāgaṇanagāthāya* with the final pair of lines with the word *sata*, namely, “Honti’ṭṭhasatāni’ṭṭha-tiṃsasatasahassāni iti gaṇanā” (*Paṭṭh-mṭ* 248).
- 2) Abhidhamma scholars in the 20th century Burma/Myanmar interpret the Pali phrase *ṭṭha-tiṃsasatasahassāni* as ‘thirty-eight thousand’, and the consensus among them is that the grand total of questions in the *Pucchāvāra* is 388,778,713,344. There is therefore a discrepancy between the Pali text and the final number.
- 3) The discrepancy between the Pali text and the final number appears in Janakābhivamsa’s *Paṭṭhāna Bhāsāṭikā* and Nārada’s works, but these authors do not comment on it.
- 4) However, there is no discrepancy between the Pali text cited, i.e., *aṭṭha-tiṃsa sahasāni*, and the final number, i.e., the 388,778,713,344-figure, given in the introduction of Nandamedhā’s *Paṭṭhāna Ayakauk*.

These pieces of information complicate the whole issue and raise further questions. Could there be manuscripts and printed editions without the word *sata* in the text under consideration? If we take the whole thirty verses of the *Pucchāgaṇanagāthāya* into account and do the calculations, what would be the final number of questions? We therefore examine the calculations in the next part of the article.

2. The structure of the *Paṭṭhāna* and calculating the total number of questions

The main commentarial sources that describe the steps for calculating the total number of questions are the *Paccayānulomavaṇṇanā* of the *Pucchāvāra* (*Paṭṭh-a* 394–406), and the *Pucchāgaṇanagāthāya* (*Paṭṭh-mṭ* 245–248). Although the *Paṭṭh-mṭ* makes further elaboration on the *Paccayānulomavaṇṇanā* of the *Pucchāvāra* (*Paṭṭh-mṭ* 198–203), it contains very little information on the calculations. According to the Burmese interpretations of these commentarial sources, there is a clear, corresponding relationship between the structure of the *Paṭṭhāna* and how the total number of questions is calculated. This section demonstrates how the Burmese Abhidhamma tradition interprets the *Pucchāgaṇanagāthāya* to arrive at the 388,778,713,344-figure. I draw on Janakābhivaṃsa’s *Paṭṭhāna Bhāsāṭīkā* and Nārada’s works to do this.

Before looking at the calculations in detail, it is helpful to be familiar with the structure of the *Paṭṭhāna* first. What do I mean by the structure of the *Paṭṭhāna*? When we examine the sixth council edition of the *Paṭṭhāna* in terms of the parts within a sentence and different sections, chapters, and divisions in the whole text, these different components are arranged and layered in a systematic manner. The pattern of these components in the *Paṭṭhāna* resonates with a mathematical pattern that we see in a popular nursery rhyme “As I was going to St Ives”, which is in the form of a riddle. Biggs’ (1979) article on “The Roots of Combinatorics” is very helpful in my research on the structure of the *Paṭṭhāna* and the calculations of the total number of questions. Biggs (1979: 110–111) explains that the St Ives nursery rhyme, recorded from 1730 at least, and Fibonacci’s problem, written by Leonardo of Pisa in 1202, are good examples to demonstrate the counting principle involved. There we split a set of objects into parts, count the parts separately, and add the results. As we will see below, this is the counting method that has been applied in the *Pucchāgaṇanagāthāya* to calculate the total number of questions in the *Paṭṭhāna*. Moreover, as I have shown elsewhere (Kyaw 2015), if we were to express the St Ives nursery rhyme visually in diagram, it looks very similar to the structure of the *Pucchāvāra* shown in Figure 1 (see below). The pattern of different components in the *Paṭṭhāna* is far more complex than the pattern in the nursery rhyme because the nursery rhyme has regular sets of objects—for instance, it goes, “. . . I met a man with seven wives, each wife had seven sacks, each sack had seven cats, . . .” (cited in Biggs 1979: 110). The

pattern is repeated with sevens, but in the *Paṭṭhāna*, the patterns of components are not regular, as we will see below.

The *Paṭṭhāna*'s complex structure is unique, and as far as I am aware there is no other Pali text that has a similar structure. The study of the *Paṭṭhāna*'s structure has long been part of the Burmese Abhidhamma tradition. In the Abhidhamma *ayakauk* texts, the process of describing the structure of the text is called *kyàn-tat* (ကျမ်းတတ်) in Burmese, which literally means 'climbing the text'. For example, one of the earliest known *ayakauk* text on the *Paṭṭhāna* by Htāntabin Sayadaw U Nandamedhā has this feature, *kyàn-tat*, describing which section follows which and how many sections are in each of them. Nandamedhā's *Paṭṭhāna Ayakauk* is still used by monastic and lay students in Myanmar. His *kyàn-tat* has become a key feature of the pedagogical books on the *Paṭṭhāna* in contemporary Myanmar, and the students of the *Paṭṭhāna* are asked to memorise it. I provide a short excerpt of *kyàn-tat* from Nandamedhā's *Paṭṭhāna Ayakauk*, describing the sequence and the contents of the *Pucchāvāra* as an example.

After teaching the [*Paccaya*]niddesavāra, the *Pucchāvāra* is taught [by the Buddha].²³ In the *Pucchāvāra*, there are four sections: the *Dhammānuloma*, the *Dhammapaccanīya*, the *Dhammānulomapaccanīya*, and the *Dhammapaccanīyānuloma*. Here, [the Buddha] teaches the *Dhammānuloma* first. In the *Dhammānuloma*, there are six sections: the *Tikapāṭṭhāna*, the *Dukapāṭṭhāna*, the *Tikadukapāṭṭhāna*, the *Dukatikapāṭṭhāna*, the *Tikatikapāṭṭhāna*, and the *Dukadukapāṭṭhāna*.

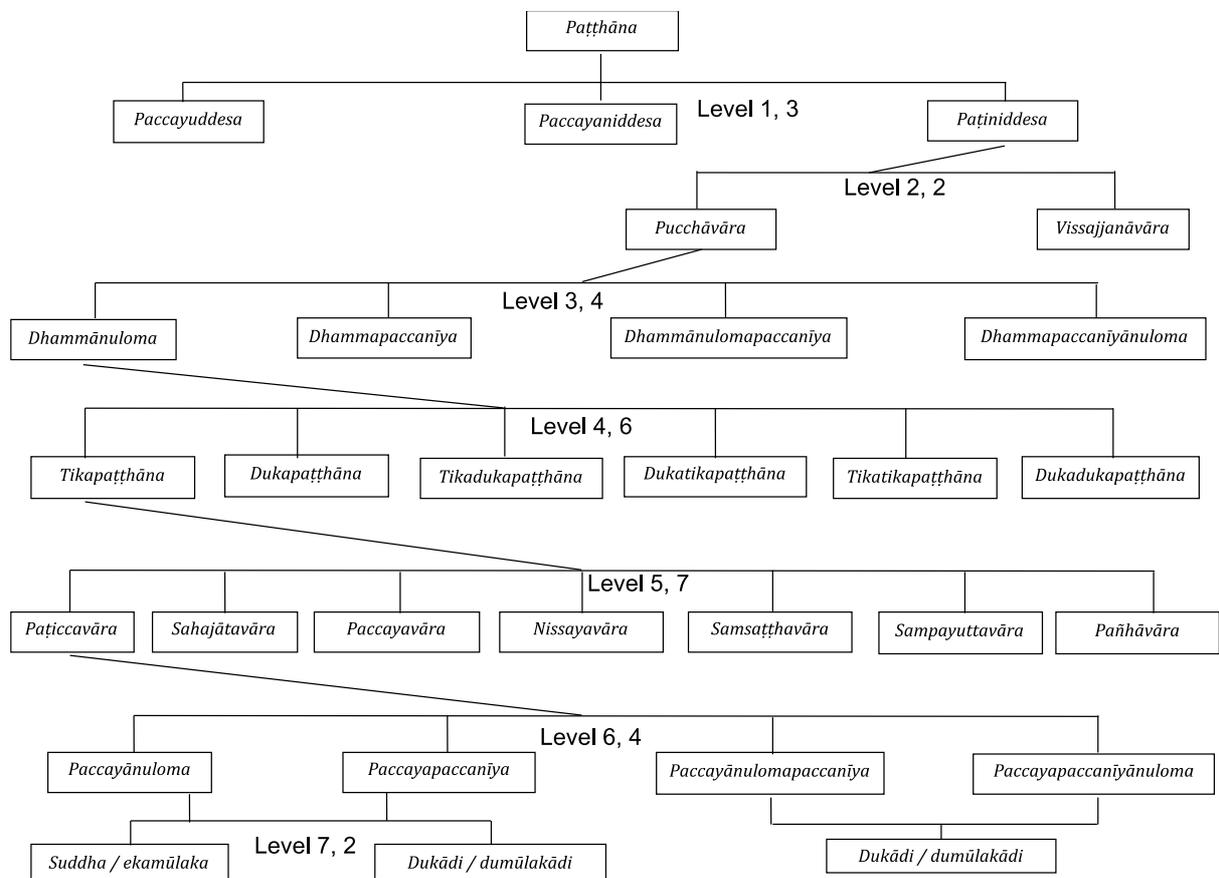
My translation, Nandamedhā (2006: 57).

Nandamedhā's *kyàn-tat* is in prose. Khin Maung Than, Associate Professor of Physics with a keen interest in the *Pucchāvāra* whom we came across earlier, showed the structure of the *Paṭṭhāna* using a tree diagram. In my doctoral thesis, I drew on Khin Maung Than's diagram and adapted it to present an overview of the structure of the sixth council edition of the *Paṭṭhāna*. The discussion of the structure in the thesis focused on the *Vissajjanavāra*, 'answer division'.²⁴ Figure 1 shows sections within the *Pucchāvāra* in detail.

²³ Based on the language that Nandamedhā uses, we know that he is referring to the Buddha. Nandamedhā in the *kyàn-tat* reports how the Buddha teaches one section after another. See Kyaw (2014: 106–108) on the origins of the *Abhidhamma Piṭaka* according to Pali commentaries.

²⁴ See Kyaw (2014) section 1.3.3. for the detailed discussion of the structure of the *Paṭṭhāna*. It should be noted that the structure of the *Paṭṭhāna* shown in Figure 1.2. in the thesis holds valid for the first six chapters, i.e., (1) the *Paṭṭhāna*, 'dependent chapter'; (2) the *Sahajātavāra*, 'co-nascence chapter'; (3) the *Paccayavāra*, 'condition chapter'; (4) the *Nissayavāra*, 'support chapter'; (5) the *Saṃsaṭṭhavāra*, 'conjoined chapter'; the *Sampayuttavāra*, 'association chapter', of the *Vissajjanavāra*. For the seventh chapter, the *Pañhāvāra*, 'investigation chapter', there is no *Vibhaṅgavāra*, 'analysis section', for the *Paccayapaccanīya*. However, the *Paccanīyuddhāra* (*Paṭṭh* 1.189–190) is a short, summary section of the conditional relations, which can be

Figure 1: The structure of the *Paṭṭhāna* with a focus on the *Pucchāvāra*



To make it easier to refer to sections in Figure 1, I have labelled different layers of the *Paṭṭhāna* in terms of levels and the number of sections at each level. For example, ‘Level 1, 3’ in Figure 1 means there are three sections at the first level of the text. It should be noted that Figure 1 shows how certain sections in the *Paṭṭhāna* are nestled within a larger section. For example, the *Pucchāvāra* at Level 2 is broader in scope than the four sections—i.e., the *Dhammānuloma*, the *Dhammapaccaniya*, etc.—at Level 3. Within each section at Level 3, there are six sections, i.e., the *Tikapattāna*, the *Dukapattāna*, etc., at Level 4. Within each section at Level 4, there are seven sections, i.e., the *Paṭiccavāra*, the *Sahajātavāra*, etc., at Level 5. If we were to expand the *Pucchāvāra*, it continues in this pattern.

expanded out to give the *Vibhaṅgavāra* for the *Paccayapaccaniya* section. The *Paccaniyuddhāra* has been attributed to the elders of a Buddhist council (Nandamedhā 2006: 527).

Another relevant aspect to keep in mind is this: there are two types of combinations in the *Paṭṭhāna*, namely, combinations of *dhammas* and combinations of *paccayas* (Kyaw 2014: 263–265). As we saw in the introduction, the *dhammas* are the twenty-two triplets (*tika*) and the hundred duplets (*duka*) listed in the *Mātikā* and the *paccayas* are the twenty-four *paccayas*. I use the word ‘combinations’ to refer to the ways in which the *dhammas*, for example, are arranged to formulate questions and answers. The combinations of *dhammas* and *paccayas* are very systematic and follow certain patterns. We do not have the space to explore these patterns here, but Nārada (1986)²⁵ clearly illustrates how the *dhammas* are combined. It is interesting to note that the titles of sections in Figure 1 indicate the combinations of *dhammas* and *paccayas*. For example, the sections at Level 3 and Level 6 indicate the methods (*naya*) in which the *dhammas* and the *paccayas* respectively are to be combined. The four terms, i.e., *anuloma*, *paccanīya*, *anulomapaccanīya*, and *paccanīyānuloma* are applied to both *dhammas* and *paccayas*. The word *anuloma* literally means ‘with the hair’, conveying a sense of going along with or in the direction of a straightforward order. I think *anuloma* retains this literal sense in the *Paṭṭhāna*, when it is combined with either *paccaya* or *dhamma*. Thus, the term *paccayānuloma* (see Level 6) could be translated as ‘direct order of the *paccaya*’, which means the *Paccayānuloma* section deals with the *paccayas* in their direct order, such as *hetupaccaya*, *ārammaṇapaccaya*, etc. This contrasts with the *Paccayapaccanīya* section, where the *paccaya* is treated in an opposite manner, such as *na-hetupaccaya*, *na-ārammaṇapaccaya*, etc. The word *paccanīya* (*pati*, ‘towards’ or ‘against’ + *anīka*, ‘front’) could be interpreted as ‘opposite’. Therefore, the term *paccayapaccanīya* could be translated as ‘opposite order of the *paccaya*’. In the *Paccayānulomapaccanīya* section, the ‘direct order of the *paccaya*’ (*anuloma*) is combined with the ‘opposite order of the *paccaya*’ (*paccanīya*), like this: *hetupaccaya*, *na-ārammaṇapaccaya*, *nādhīpatipaccaya*, etc. In the final section of Level 6, i.e., the *Paccayapaccanīyānuloma* section, the ‘opposite order of the *paccaya*’ is combined with the ‘direct order of the *paccaya*’, like this: *na-hetupaccaya*, *ārammaṇapaccaya*, *adhīpatipaccaya*, etc. In Figure 1, the *Dhammānuloma* section at Level 3 deals with the *dhammas* in the direct order (*anuloma*) like this: *kusaladhamma*, *akusaladhamma*, *abyākatadhamma*, etc. The next section, the *Dhammapaccanīya*, treats the *dhammas* in the opposite order (*paccanīya*), like this: *na-kusaladhamma*, *na-akusaladhamma*, *na-abyākatadhamma*, etc.²⁶ In Nārada’s works (1969, 1986), these four ways of combining the

²⁵ See Nārada’s (1986) ‘Table 25 (a) and (b) Model of Paṭṭhāna Questions’ for the combinations of the *dhammas*.

²⁶ The *Dhammapaccanīya* section of the answer section (*vissajjanavāra*) starts on page 63 of the final volume (volume 5) in the sixth Buddhist council edition with the following text: *nakusalaṃ dhammaṃ paṭicca nakusalo*

dhammas and *paccayas* came to be known explicitly as the main *nayas*, ‘methods’, used in the *Paṭṭhāna*.

Let us turn to the steps in calculating the number of questions as described in the *Pucchāgaṇanagāthāya* (*Paṭṭh-mṭ* 245–248). The *Pucchāgaṇanagāthāya* consists of thirty verses and is divided into seven parts. The first six of the seven are about calculating the number of questions in each of these six sections, namely, the *Tikapatṭhāna* (vv. 1–11), the *Dukapatṭhāna* (vv. 12–17), the *Tikadukapatṭhāna* (vv. 18–20), the *Dukatikapatṭhāna* (vv. 21–22), the *Tikatikapatṭhāna* (vv. 23–24), and the *Dukadukapatṭhāna* (vv. 25–26). These six sections are at Level 4 in Figure 1. The final part in four verses (vv. 27–30) is about summing up the totals in the previous six parts to get the number of questions in the *Dhammānuloma*, as we saw above. This is the first section at Level 3 in Figure 1. The number of questions in the *Dhammānuloma* is then multiplied by four to get the grand total for all four sections, i.e., the *Dhammānuloma*, the *Dhammapaccanīya*, the *Dhammānulomapaccanīya*, and the *Dhammapaccanīyānuloma*. This grand total is the number of questions in the *Pucchāvāra*, which is at Level 2 in Figure 1.

Drawing on the Burmese interpretations of the *Pucchāgaṇanagāthāya*, I describe the steps in calculating the number of questions in the *Tikapatṭhāna* with specific examples and provide a summary of all the steps in calculating the number of questions in the whole *Pucchāvāra* in Table 2. I am preparing a translation of the *Pucchāgaṇanagāthāya* and of Janakābhivamsa’s reading of it in the *Paṭṭhāna Bhāsāṭikā*, so we will not examine the verses in detail in this article. The reader may wish to look at Figure 1 and Table 2 as one reads through the description below.

According Janakābhivamsa (1980: 789) and Nārada (1986: 186), the opening verse (v. 1) is about how the *dhammas* in the skilful triplet (*kusalatika*) are combined. The *kusalatika* consists of skilful *dhamma* (*kusaladhamma*), unskilful *dhamma* (*akusaladhamma*) and indeterminate *dhamma* (*abyākatadhamma*), and these *dhammas* are arranged singly and in combinations as follows.

dhammo uppajjati hetupaccayā. Akusalam abyakatam ekam khandham paticca akusalo abyakato tayo khandhā cittasamuṭṭhānañca . . . pe . . . “A not-skilful *dhamma* arises because of a not-skilful *dhamma* that is its root condition. Three unskilful and indeterminate aggregates originating from the mind [arise] because of one unskilful and indeterminate aggregate” (*Paṭṭh* 5.63). Based on this text, *na-kusaladhamma* refers to both *akusaladhamma* and *abyākatadhamma*.

Table 1: Combinations of *dhammas* in the *kusalatika*²⁷

1	<i>kusaladhamma</i>	Three sets of <i>dhamma</i> taken singly
2	<i>akusaladhamma</i>	
3	<i>abyākatadhamma</i>	
4	<i>kusala</i> and <i>abyākatadhamma</i>	Three sets of <i>dhamma</i> taken in twos
5	<i>akusala</i> and <i>abyākatadhamma</i>	
6	<i>kusala</i> and <i>akusaladhamma</i>	
7	<i>kusala</i> , <i>akusala</i> , and <i>abyākatadhamma</i>	A set of <i>dhamma</i> taken in threes

These seven sets of *dhammas* are then used to formulate questions about how for example a skilful *dhamma* arises because of a skilful *dhamma*, an unskilful *dhamma*, an indeterminate *dhamma*, and so on. Below is an excerpt from the skilful section (*kusalapada*) in the *Pucchāvāra*.

3. Pucchāvāro
1. Paccayānulomaṃ
Ekamūlakaṃ
(1.) kusalapadaṃ

25. Siyā kusalaṃ dhammaṃ paṭicca kusalo dhammo uppajjeyya hetupaccayā.
Siyā kusalaṃ dhammaṃ paṭicca akusalo dhammo uppajjeyya hetupaccayā.
Siyā kusalaṃ dhammaṃ paṭicca abyākato dhammo uppajjeyya hetupaccayā.
Siyā kusalaṃ dhammaṃ paṭicca kusalo ca abyākato ca dhammā uppajjeyyūṃ
hetupaccayā.
Siyā kusalaṃ dhammaṃ paṭicca akusalo ca abyākato ca dhammā uppajjeyyūṃ
hetupaccayā.
Siyā kusalaṃ dhammaṃ paṭicca kusalo ca akusalo ca dhammā uppajjeyyūṃ
hetupaccayā.
Siyā kusalaṃ dhammaṃ paṭicca kusalo ca akusalo ca abyākato ca dhammā
uppajjeyyūṃ hetupaccayā.

3. Question Chapter
1. Positive [Method] with regards to Conditions
[Conditional relations related by] Single Condition
1. Skilful section

25. Does a skilful *dhamma* arise because of a skilful *dhamma* that is its root-cause condition?
Does an unskilful *dhamma* arise because of a skilful *dhamma* that is its root-cause condition?

²⁷ In my doctoral thesis, I have demonstrated in detail that the *dhammas* are arranged in a type of combinations known in mathematics as “combination without repetition” (Kyaw 2014: 270–272).

Does an indeterminate *dhamma* arise because of a skilful *dhamma* that is its root-cause condition?
 Do skilful and indeterminate *dhammas* arise because of a skilful *dhamma* that is its root-cause condition?
 Do unskilful and indeterminate *dhammas* arise because of a skilful *dhamma* that is its root-cause condition?
 Do skilful and unskilful *dhammas* arise because of a skilful *dhamma* that is its root-cause condition?
 Do skilful, unskilful, and indeterminate *dhammas* arise because of a skilful *dhamma* that is its root-cause condition?

My translation, *Paṭṭh* 1.10.

These questions ask if a skilful *dhamma*, as a ‘conditioning *dhamma*’ (*paccayadhamma*), is related to a skilful *dhamma* (line 1 in the above text), unskilful *dhamma* (line 2), indeterminate *dhamma* (line 3), and their combinations—i.e., skilful and indeterminate *dhammas* (line 4), unskilful and indeterminate *dhammas* (line 5), skilful and unskilful *dhammas* (line 6), skilful, unskilful and indeterminate *dhammas* (line 7)—by means of being the root-cause condition (*hetupaccaya*). The latter seven sets of *dhammas* are the ‘conditioned *dhammas*’ (*paccayuppanadhamma*). The next set of seven questions (*Paṭṭh* 1.10-11) is the unskilful section (*akusalapada*), where the unskilful *dhamma* of the skilful triplet is taken as a conditioning *dhamma*. Therefore, these set of questions ask if an unskilful *dhamma* can be related to unskilful *dhamma*, skilful *dhamma*, indeterminate *dhamma*, and their combinations—i.e., skilful and indeterminate *dhammas*, unskilful and indeterminate *dhammas*, skilful and unskilful *dhammas*, skilful, unskilful and indeterminate *dhammas*—by means of being the root-cause condition (*hetupaccaya*). I described in my doctoral thesis in detail how we can formulate a total of forty-nine (7 x 7) questions for the conditional relations between the *dhammas* in the skilful triplet that are related by the root-cause condition singly.²⁸ Verse 2 of the *Pucchāgaṇanagāthāya* is about how we arrive at the forty-nine questions.

Similarly, a set of forty-nine questions can be formulated for the conditional relations between the *dhammas* in the skilful triplet that are related singly by the object condition (*ārammaṇapaccaya*) rather than the *hetupaccaya*. Thereafter questions pertaining to the remaining twenty-two *paccayas* can be formulated in the same way. However, only the method of expanding these questions, rather than the questions themselves, is mentioned as follows.

²⁸ See Kyaw (2014: 265–268) for the detailed description on the combinations of *dhammas* in the skilful triplet.

32. Yathā hetupaccayo vitthārito evaṃ ārammaṇapaccayopi vitthāretabbo
vācanāmaggena.

Just as [the combinations of *dhammas* related by] the root-cause condition has
been expanded, [the combinations of *dhammas* related by] the object condition
now has to be expanded by way of repetition in the same way.

My translation, *Paṭṭh* 1.13.

To calculate the number of questions for twenty-four *paccayas* taken singly, we multiple forty-nine by twenty-four, which gives a total of one thousand, one hundred and seventy-six ($49 \times 24 = 1,176$) questions. These 1,176 questions ask if the *dhammas* in the skilful triplet are related by a single *paccaya* (Kyaw 2014: 268–269). Verse 3 is about this step for calculating the 1,176 questions. So far, we have described and explained some of the contents in the sections labelled *suddha*, ‘simple’, or *ekamūlaka*,²⁹ ‘one as the root’, at Level 7 in Figure 1.

Verse 3 also explains how the conditional relations related by a single *paccaya* is applicable only in the *Paccayānuloma* and *Paccayapaccanīya* section (see Level 6 in Figure 1), but not in the *Paccayānulomapaccanīya* and the *Paccayapaccanīyānuloma* (Nārada 1986: 187). This is because there are no questions about the conditional relations related by a single *paccaya* in the latter two sections. They contain only questions about the conditional relations are related by two or more *paccayas*. This is why only the ‘dukādi / dukamūlakādi’ section is shown under the *Paccayānulomapaccanīya* and *Paccayapaccanīyānuloma* in Figure 1. For example, in the *Paccayānulomapaccanīya*, if *hetupaccaya* is expressed in ‘positive’ (*anuloma*) terms, then the other *paccayas* are expressed in ‘not-positive’ (*paccanīya*) terms (*Paṭṭh* 1.16–17).

Verses 4 and 5 are about how the *hetupaccaya* as the *mūla*, ‘base’, is combined with the other twenty-three *paccayas*, giving the total of two hundred and seventy-six sets or ways of combining the *paccayas*. According to Janakābhivaṃsa’s (1980: 789–790) *Paṭṭhāna Bhāsāṭīkā*, verse 4 describes two methods of combining the *paccayas*.³⁰ With regards to verses 4 and 5, Nārada (1951: 13; 1986: 187) describes the following method: $23 + 22 + 21 + 20$

²⁹ The term *ekamūlaka* is used in the *Pucchāvāra* (*Paṭṭh* 1.10 and 1.14–16) and the commentary (*Paṭṭh-a* 397). In these sources *ekamūlaka* refers to the conditional relations that are related by a single *paccaya*. The sub-commentary does not agree with this usage of *ekamūlaka* and points out that *ekamūlaka* implies that one *paccaya* (*eka*) is taken as a *mūla*, ‘base’, when we combine the *paccayas* (*Paṭṭh-mṭ* 200). The *Paṭṭh-mṭ* (201) argues that the conditional relations related by a single *paccaya* should be called *suddha*, ‘simple’ or ‘single’. Janakābhivaṃsa (1980: 149, n. 1 and 615) highlights these points in his *Paṭṭhāna Bhāsāṭīkā*.

³⁰ When I consulted how this verse is interpreted in UPT374_2F, the manuscript of the Pali-Burmese *nissayas* of the *Paṭṭh-mṭ* from U Pho Thi library, it describes four methods of calculation.

+ 19 + 18 + 17 + 16 + 15 + 14 + 13 + 12 + 11 + 10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 276. Where do these numbers come from? When we take *hetupaccaya* as the *mūla*, ‘base’, and combine it with the other twenty-three *paccayas* in twos, we get twenty-three sets. Taking *hetupaccaya* and *ārammaṇapaccaya* as the *mūlas*, and combining them (i.e., *hetupaccaya* and *ārammaṇapaccaya*) with the other twenty-two *paccayas* in threes give twenty-two sets. When we take the first twenty-three *paccayas* as the *mūlas* and combine them with the final twenty-fourth *paccaya*, i.e., the *avigatapaccaya*, we get only one set. What 276 combinations of *paccayas* means is this: taking the *hetupaccaya* as the *mūla*, there are 276 ways of combining the twenty-four *paccayas* in terms of 2s, 3s, 4s, . . . , 24s. We saw earlier that forty-nine questions are related by the *hetupaccaya* singly. To calculate the number of questions that are related when the *hetupaccaya* is combined with other *paccayas* in 2s, 3s, 4s, etc., we multiply forty-nine with 276 ($49 \times 276 = 13,524$).³¹ The final pair of lines in verse 5 give thirteen thousand, five hundred and twenty-four questions. This means 13,524 questions can be formulated for the skilful triplet that are related by the combinations of *hetupaccaya* with the other twenty-three *paccayas*.

The first pair of lines in verse 6 explains that the questions related by a single *paccaya* are not the same the questions related by the combinations of *paccayas*. In Figure 1, we therefore find two separate sections—the *suddha / ekamūlaka* section and the *dukādi / dukamūla* section—at Level 7. The next step is to calculate the total number of questions for the *Paccayānuloma* section at Level 6. So, we first multiply the total number of questions related by combinations of *hetupaccaya* with the other twenty-three *paccayas* by twenty-four ($13,524 \times 24 = 324,576$), which gives us the total number of questions in the *dukādi* section. We then add the number of questions from the *suddha* section and from the *dukādi* section together ($1,176 + 324,576 = 325,752$). The final pair of lines in verse 6 and verse 7 explain this step, giving three hundred and twenty-five thousand, seven hundred, and fifty-two questions in the *Paccayānuloma*.

Verse 8 explains that there are the same number of questions, i.e., 325,752, in the *Paccayapaccanīya* section like in the *Paccayānuloma*. Moreover, the questions in the *suddha* section, i.e., 1,176, are to be omitted in the *Paccayānulomapaccanīya* and the *Paccayapaccanīyānuloma* sections, which we mentioned above. Therefore, we subtract the

³¹ The *Paṭṭh-a* (397–402) describes the same method of combining the *paccayas*. However, the steps in calculating the number of questions for the *dukādi* section in the *Paṭṭh-a* are different from those in the *Paṭṭh-mṭ*. The difference is this: the *Paṭṭh-a*’s method is to calculate the number of questions for each set of the combination of *paccayas* separately (e.g., 49×23 , 49×22 , 49×21 , . . . , 49×1) and then to add them up, giving the same total, i.e., 13,524.

number of questions in the *suddha*—i.e., 1,176—from the number of questions in the *Paccayānuloma* ($325,752 - 1,176$), we get the number of questions in the *Paccayānulomapaccanīya* and in the *Paccayapaccanīyānuloma*, i.e., 324,576. So far, we have calculated the number of questions in each of the sections at Level 6 in Figure 1. The next step is to calculate the number of questions in the *Paṭiccavāra* at Level 5, which is explained in verse 9. We therefore add the number of questions in each of the four sections — the *Paccayānuloma*, the *Paccayapaccanīya*, the *Paccayānulomapaccanīya*, and the *Paccayapaccanīyānuloma* ($325,752 + 325,752 + 324,576 + 324,576$), and the total is thirteen hundred thousand, six hundred and fifty-six (1,300,656).

The 1,300,656 questions are for only the *Paṭiccavāra* section at Level 5 in Figure 1. To calculate the total number of questions in all sections at Level 5, we multiply 1,300,656 questions by seven ($1,300,656 \times 7$) because there are a total of seven sections at Level 5, namely, the *Paṭiccavāra*, the *Sahajātavāra*, the *Paccayavāra*, the *Nissayavāra*, the *Samṣatṭhavāra*, and the *Pañhāvāra*. Therefore, there are ninety-one hundred and four thousand, five hundred and ninety-two (9,104,592) questions. Verse 10 explains this step. Here, it is important to note that the 9,104,592 questions are about the skilful triplet (*kusalatika*). Basically, this means that there are 9,104,592 questions concerning the conditional relations between the *dhammas* from the skilful triplet (*kusalatika*) related by both single *paccaya* and combinations of *paccayas*. The skilful triplet is the first of twenty-two triplets (*tikadhamma*), making up the *Tikaṭṭhāna*. We still need to multiply 9,104,592 with twenty-two to get the total number of questions for all twenty-two triplets ($91,004,592 \times 22$). Therefore, there are twenty crore, three hundred and one thousand, and twenty-four (200,301,024) questions in all twenty-two triplets. The total number of questions in the *Tikaṭṭhāna* is 200,301,024 questions. Verse 11, the final verse in the *Tikaṭṭhāna* section of the *Pucchāgaṇanaḡāthāya*, explains the final step in calculating the number of questions for the whole of *Tikaṭṭhāna*.

The steps for calculating the number of questions in the remaining sections are summarised in Table 2 below.

Table 2: Steps in calculating the total number of questions according to the *Pucchāgaṇanaḡāthāya* in the *Paṭṭh-mṭ* (245–248)

Steps	Explanation of steps	Calculation	Sub-total	Total
Number of Questions in the Tikapaṭṭhāna				
1	Combinations of <i>dhammas</i> in the <i>kusalatika</i>	3 sets of dhamma in ones 3 sets of dhamma in twos 1 set of dhamma in threes $3 + 3 + 1 = 7$	7	
2	No. of questions in the <i>kusalatika</i> for <i>hetupaccaya</i> as <i>mūla</i>	7×7	49	
3	No. of questions for the 24 <i>paccayas</i> taken singly (<i>suddha</i>)	49×24	1,176	
4	Combinations of <i>paccayas</i> (<i>hetupaccaya</i> as <i>mūla</i> with other 23 <i>paccayas</i> in 2s, 3s, 4s, . . . , 24s) ³²	$23 + 22 + 21 + 20 + 19 + 18 + 17 + 16 + 15 + 14 + 13 + 12 + 11 + 10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1$	276	
5	No. of questions with <i>hetupaccaya</i> as <i>mūla</i> with other 23 <i>paccayas</i> , i.e., <i>hetudukādi</i>	49×276	13,524	
6	No. of questions with the combinations of 24 <i>paccayas</i> , including the <i>suddha</i> , in the <i>Paccayānuloma</i>	$(13,524 \times 24) + 1,176$	325,752	
7	No. of questions in the <i>Paccayapaccaniya</i>		325,752	
8	No. of questions in the <i>Paccayānulomapaccaniya</i>	$325,752 - 1,176$	324,576	
9	No. of questions in the <i>Paccayapaccaniyānuloma</i>	$325,752 - 1,176$	324,576	
10	No. of questions in the <i>Paṭṭicavāra</i>	$(325,752 \times 2) + (324,576 \times 2)$	1,300,656	

³² The pattern in the combinations of *paccayas* are as follows: in 2s — *hetu*, *ārammaṇa*; *hetu*, *adhipati*; *hetu*, *anantara*; *hetu*, *samanantara*; . . . ; in 3s — *hetu*, *ārammaṇa*, *adhipati*; *hetu*, *ārammaṇa*, *anantara*; *hetu*, *ārammaṇa*, *samanantara*; . . . ; in 24s — *hetu*, *ārammaṇa*, *adhipati*, *anantara*, *samanantara*, . . . , *atthi*, *natthi*, *vigata*, *avigata*.

11	No. of questions in the 7 sections in the <i>kusalatika</i> , i.e., the <i>Paṭiccavāra</i> , the <i>Sahajātavāra</i> , the <i>Paccayavāra</i> , the <i>Nissayavāra</i> , the <i>Samṣatṭhavāra</i> , and the <i>Pañhāvāra</i>	$1,300,656 \times 7$	9,104,592	
12	No. of questions in the 22 triplets (<i>tikadhamma</i>) in the <i>Tikapattḥāna</i> of the <i>Dhammānuloma</i>	$9,104,592 \times 22$		200,301,024
Number of Questions in the <i>Dukapattḥāna</i>				
13	No. of questions in the <i>hetuduka</i> for <i>hetupaccaya</i> as <i>mūla</i>	3×3	9	
14	No. of questions in the 24 <i>paccayas</i> taken singly (<i>suddha</i>)	9×24	216	
15	No. of questions with <i>hetupaccaya</i> as <i>mūla</i> with other 23 <i>paccayas</i> , i.e., <i>hetudukādi</i>	9×276	2,484	
16	No. of questions with the combinations of 24 <i>paccayas</i> , including the <i>suddha</i> , in the <i>Paccayānuloma</i>	$(2,484 \times 24) + 216$	59,832	
17	No. of questions in the <i>Paṭiccavāra</i> , i.e., the <i>Paccayānulomadi</i> (4 methods of combining the <i>paccayas</i>)	$[59,832 + 59,832 + (59,832 - 216) + (59,832 - (216))]$	238,896	
18	No. of questions in the 7 <i>vāras</i> in the <i>hetuduka</i>	$238,896 \times 7$	1,672,272	
19	No. of questions in the 100 <i>duka-dhammas</i> in the <i>Dukapattḥāna</i> of the <i>Dhammānuloma</i>	$1,672,272 \times 100$		167,227,200
No. of Questions in the <i>Dukatikapattḥāna</i>				
20	Combinations of <i>dukatika-dhammas</i> (each of the 100 <i>duka-dhammas</i> is combined with (22×3) 66 <i>tika-dhammas</i>)	100×66	6,600	

21	No. of questions for the Hetuduka, i.e., 1,672,272, are combined with the 66 tikadhammas (hetuduka as mūla and 66 tikadhammas as muli)	1,672,272 x 66	110,369,952	
22	No. of questions for the 100 dukas in the Dukatikapāṭṭhāna	110,369,952 x 100		11,036,995,200
No. of Questions in the Tikadukapāṭṭhāna				
23	Combinations of the tikaduka-dhammas (each of the 22 tika-dhammas is combined with (100 x 2) 200 duka-dhammas)	22 x 200	4,400	
24	No. of questions for the Kusalatika, i.e., 9,104,592, are combined with the 200 dukadhammas (kusalatika as mūla and 200 dukadhammas as mūli)	9,104,592 x 200	1,820,918,400	
25	No. of questions for the 22 tikas in the Tikadukapāṭṭhāna	1,820,918,400 x 22		40,060,204,800
Number of Questions in the Tikatikapāṭṭhāna				
26	Combinations of the tikatika-dhammas (Out of a total of (22 x 3) 66 dhammas, a set of tika is taken as a mūla, so there are 63 as mūla and 22 tikadhammas as mūli)	63 x 22	1,386	
27	No. of questions for the 22 tikas in the Tikatikapāṭṭhāna	9,104,592 x 1,386		12,618,964,512
Number of Questions in the Dukadukapāṭṭhāna				

28	Combinations of the dukaduka-dhammas (Out of a total of (100 x 2) 200 dhammas, a set of duka is taken as a mūla, so there are 198 as mūla and 100 dukadhammas as mūli)	198 x 100	19,800	
29	No. of questions for the 100 dukas in the Dukadukapaṭṭhāna	1,672,272 x 19,800		33,110,985,600
Number of Questions in the six-fold Paṭṭhāna				
30	No. of questions in all six-fold Paṭṭhāna of the Dhammānuloma, i.e., Tikapaṭṭhāna, . . . , Dukadukapaṭṭhāna	200,301,024 + 167,227,200 + 11,036,995,200 + 40,060,204,800 + 12,618,964,512 + 33,110,985,600		97,194,678,336
31	No. of questions in all four divisions of the combinations of Dhammas, i.e., Dhammānuloma, . . . , Dhammapaccanīyānuloma	97,194,678,336 x 4		388,778,713,344

I would like to make three points here before we move to the final part of the article. Firstly, the steps for calculation described in the *Pucchāgaṇanagāthāya* of the *Paṭṭh-mṭ* are systematic. In the Burmese sources that I have consulted, there is a close relationship between the steps for calculating the number of questions and the structure of the *Paṭṭhāna*. The close relationship is this: we calculate the number of questions in each section, starting at Level 7 in Figure 1; we move to calculate the number of questions in other sections at the same level from left to right; and we then go up to the next level and repeat the process. Secondly, the *Pucchāgaṇanagāthāya* is terse, and some of the verses, such as verse 1 and 4, seem like riddles, especially when we do not consider how the *Paṭṭhāna* is structured. Based on the sources that I have consulted in this article, Abhidhamma scholars in 20th century Burma have worked out how to make sense of the terse verses. Thirdly, there is coherent evidence of how the step-by-step calculations, shown in Table 2, provide a grand total of 388,778,713,344. What do I mean by coherent evidence? When we focus on the steps for the calculations, as interpreted by the Burmese *Abhidhamma* scholars, the final four verses (vv. 27–30) of the *Pucchāgaṇanagāthāya* are about summing up the individual calculations and finding the grand total of questions for the *Pucchāvāra*. Verses 27 and 28 describe that we are to add up the number of questions we found for the six sections, i.e., the *Tikapāṭṭhāna*, the *Dukapāṭṭhāna*, the *Tikadukapāṭṭhāna*, the *Dukatikapāṭṭhāna*, the *Tikatikapāṭṭhāna*, and the *Dukadukapāṭṭhāna*. This step gives the total number of questions for the *Dhammānuloma* (97,194,678,336). Verses 29 and 30 are about how this number is to be multiplied by four because there are four sections (see Level 3 in Figure 1). This final step (97,194,678,336 x 4) gives the grand total of 388,778,713,344 questions in the *Pucchāvāra*. So, the individual calculations throughout these steps are coherent (see Table 2). However, the final 388,778,713,344-figure is not coherent when we take the word *sata* in the final pair of the lines into account. There seems to be something amiss about the apparent inconsistency between the grand total of questions and the final pair of lines of the *Pucchāgaṇanagāthāya* with the word *sata* in it. As we saw earlier, the sixth Buddhist council edition has the word *sata* in the final pair of lines (*Paṭṭh-mṭ* 248). I therefore surveyed the Burmese manuscripts of the *Paṭṭh-mṭ* and its Pali-Burmese *nissayas*, focusing on the final four verses of the *Pucchāgaṇanagāthāya*. I present the findings so far from this ongoing research in the final part of this article.

3. The final four verses of the *Pucchāgaṇanagāthāya* in the Burmese Manuscripts of the *Paṭṭhāna-mūlaṭikā*

Using the Buddhist Digital Archives (BDA) and Myanmar Manuscript Digital Library (MMDL), I found nineteen Burmese manuscripts of the *Paṭṭh-mṭ* and two manuscripts of the Pali-Burmese *nissayas* of the *Paṭṭh-mṭ*. These manuscripts are from the National Library of Myanmar collection, the Fragile Palm Leaves collection, and the U Pho Thi Library collection. In addition, I consulted the inscription of the *Paṭṭh-mṭ* at Sandamuni Pagoda in Mandalay, which was inscribed as part of the project that preserves the Pali commentaries and sub-commentaries on carved marble stelae at the initiation of U Khanti (1868–1949).³³ The sixth Buddhist council edition is also included in our analysis below.

When I compared the final four verses³⁴ from these sources, a more complex picture begins to emerge. Based on my close reading of these verses, the manuscripts can be categorised into three groups. The manuscripts in the first group have the final verse that gives 39,097,778,713,344 questions. In British English, 39,097,778,713,344 is thirty-nine trillion, ninety-seven billion, seven hundred and seventy-eight million, seven hundred and thirteen thousand, three hundred and forty-four questions. The final verse in the manuscripts in the second group states 38,008,778,713,344 questions. The final verse in the manuscripts in the final group gives 388,778,713,344 questions. I summarise the findings so far from this survey in Table 3.

³³ U Khanti was a well-known semi-monastic hermit who lived in the Mandalay Hills and led many renovation and new projects of Buddhist buildings and sites across the country during the colonial period. As Woodward (1988: 82) observes, U Khanti developed an innovative way of raising funds for the projects by allowing individual donors to display their names on plaques at the Buddhist site they had donated to, a practice that continues to the present day. Moreover, he allowed the donors to make their donations through an instalment system, i.e., donors, who cannot afford to pay for the entire amount that they donated upfront, can pay it by instalments (Ludu Daw Amar 1999: 56). A form of the instalment system is still used in Myanmar today. See Woodward (1988), Ludu Daw Amar (1999) and Yee Yee Win (2011) on U Khanti's innovative, pragmatic approaches in achieving his activities of *thathana-pyu*, 'doing the work of *sāsana*'.

³⁴ As I still need to do more research on the *Pucchāgaṇanagāthāya* in the sources that I surveyed here, I shall not refer to the verses under consideration as verses 27 to 30 because I cannot say at present whether or not these sources contain fewer or more verses.

Table 3: A table of the Burmese manuscripts of the *Paṭṭh-mṭ* which give three different grand total of questions.

	Online Catalogue number / Place ³⁵	Year	Notes
Group A: manuscripts with the grand total of 39,097,778,713,344 questions			
1	BGY0063	1785	
2	MW1FPL5283	1811	
3	MW1FPL3816	1854	
4	MW1FPL1102	1861	
5	MW1FPL4797	1880	
6	UPT704	1889	
7	MW1FPL1160	1890	
8	UPT699_7F	1895	
9	MW1FPL1312	1902	
10	MW1FPL5393	1906	
11	MW1FPL5529	1908	
12	MW1FPL3308	1919	
13	MW1FPL3218	Undated.	
14	MW1FPL4434	Undated.	
15	BGY5241	Undated.	
Group B: manuscripts with the grand total of 38,008,778,713,344 questions			
1	MW1FPL1529	1908	
2	Inscription at Sandamuni Pagoda ³⁶	ca. 1913	Although the Sandamuni Pagoda inscription is included in this group, we cannot be confident that it belongs here. See below for the reasons.
3	UPT498_3F	1927	
4	The sixth Buddhist council edition	1960	

³⁵ The online catalogue number that begins with BGY is from the National Library of Myanmar collection, MW1FPL indicates the Fragile Palm Leaves collection, and UPT refers to those from the U Pho Thi Library collection.

³⁶ For this analysis, I have transcribed and studied the text visible in a photograph of stela number 11, housed in the stupa number Gha/173 (ဝ/၁၇၃), taken by Venerable Nāradālaṅkara of Mandalay on 13 July 2023. I would like to thank Venerable Tikkhavaṃsalāṅkāra of Shan State Buddhist University (Taunggyi) and Venerable Nāradālaṅkara of State Pariyatti Sasana University (Mandalay) for their help in getting the photograph of the stelae at the Sandamuni Pagoda.

Group C: manuscripts with the grand total of 388,778,713,344 questions			
1	MW1FPL5385	1867 ³⁷	
2	MW1FPL5858	1905	Pali-Burmese <i>nissaya</i>
3	MW1FPL3121	1911	
4	UPT374_2F		Pali-Burmese <i>nissaya</i>

As shown in Table 3, fifteen manuscripts out of twenty-one sources that I compared are in the first group. It is interesting that the first group contains the manuscript with the earliest date of copy in this survey, i.e., BGY0063, entitled ‘Paṭṭhāna Ṭīkā’, which is dated 1785³⁸ and is now held in the National Library of Myanmar, Naypyitaw. Much fewer sources are in the other two groups.

Let us look at the final four verses from a sample of manuscripts. From each of the three groups I identified, I choose the manuscript with the earliest date of copying because each of these manuscripts contains verses that are representative of other manuscripts in the same group. The final four verses from ms. BGY0063 from group A are as follows.

Sampiṇḍitā tu pucchā, anulome chabbadhepi paṭṭhāne,
Chattisati satahassa ṭṭhakayuta sattana hutāni.

Lakkhāni chacca cattālisava navādha koṭiyo dasa ca,
Sattahi koṭisatehi ca koṭisahassāni nava honti.

Now, the total number of questions in all six-fold Paṭṭhāna that are in the Dhammānuloma³⁹ are: nine thousand, seven hundred, nineteen crore, forty-six lakh, seventy-eight thousand, three hundred and thirty-six [i.e., 97,194,678,336].

Tā catuṅṅitā pucchā, catuppabhedo samantapaṭṭhāne,
Catucattāliṣa satattayaṃ sahasā terasa ca.

Sattāsiti ca lakkhā koṭisatanava sattasattatiyo honti,
Aṭṭhāsiti satāni navatiṃsa tāsahassāni iti gaṇanā.

Those questions [in the Dhammānuloma] are to be multiplied by four [as there are] four-fold [division of Dhamma] in the entire Paṭṭhāna. There are thirty-nine

³⁷ On the BDA website, the date of copy of this manuscript is given as 1870. The manuscript states “၁၂၉ ခု တဆောင်မုန်လပြည့်ကျော် ၇ ရက်နေ့”, and when I checked the date, it is November 1867.

³⁸ The manuscript is in a very good condition. It states “၁၁၄၇ ခု ဝါခေါင်” in Burmese calendar, which is August-September 1785.

³⁹ As we have seen above with Janakābhivaṃsa’s Paṭṭhāna Bhāsāṭīkā, *anulome* is taken to refer to the Dhammānuloma section where the *dhammas* are related in positive ways.

hundred thousand ninety-seven hundred seventy-seven crore, eighty-seven lakh, thirteen thousand three hundred and forty-four [i.e., 39,097,778,713,344 questions]. This is the calculation.

My translation. BGY0063, ò-ò.

I wish to make a few observations about these four verses here.

1. The number that we get from the first two verses, i.e., 97,194,678,336, is the same as the number in the sixth Buddhist council edition (see above and Table 2). When we multiply the number 97,194,678,336 by four, as stated in the third verse, the final number we get should be $97,194,678,336 \times 4 = 388,778,713,344$. Therefore, the grand total of 39,097,778,713,344 questions from BGY0063 is inaccurate and the final verse is incoherent with the first three verses in BGY0063. This is true for all group A manuscripts.
2. A literal translation of the final verse in BGY0063 is this: “There are eighty-seven lakh and thirty-nine hundred thousand eighty-eight hundred and nine hundred seventy-seven crore”. It is rather strange that we have the hundredth place in terms of crore (*koṭi*) is split into two, namely, eighty-eight *hundred* (*aṭṭhāsīti satāni*) and nine *hundred* (*satanava*). To arrive at the final number 39,097,778,713,344, I add eighty-eight and nine together, giving ninety-seven hundred in terms of crore.
3. In all fifteen manuscripts in this group, the final verse has the numbers *satanava*, *aṭṭhāsīti satāni*, and *navatiṃsa sataśahassāni* (shown in bold above). We may consider them as the major diagnostic characteristics for this group.⁴⁰ Moreover, there are five minor diagnostic characteristics found in the other three verses across all fifteen manuscripts. These are as follows: (i) *saṃpiṇḍitā* contains the nasal consonant *ṃ*, not *m*, as found in the sixth council edition; (ii) *navādha* in the first pair of lines of the second verse appears with *adha*, not *atha*, as in the sixth council edition; (iii) *sattahi* in the second pair of lines of the second verse includes *hi*, which is not present in the sixth council edition; (iv) *catuppabhedo* in the first pair of lines of the third verse ends with *do*, not *de*, as found in the sixth council edition; and (v) *honti* appears at the end of the first pair of lines of the final verse, whereas in the sixth council edition, *honti* is at the beginning of the second pair of lines in the final verse.

⁴⁰ I borrow what Kyungrae Kim and Andrew Skilton (2025) call “diagnostic criteria” for differentiating recensions of the *Dīpavaṃsa* text. Through personal communication with them in 2023, we discussed the terms ‘major diagnostic characteristics’ and ‘minor diagnostic characteristics’ to differentiate major recensional divergences from those of the minor ones.

4. There are scribal variations and errors in these fifteen manuscripts. For example, in BGY0063, *sattāsīti* and *aṭṭhāsīti* are given as *sattāsīti* (သတ္တဝါသီတိ) and *aṭṭhāsīti* (အတ္တဝါသီတိ), and in Burmese scripts သီ and သီ are very similar, as we can see. Moreover, in BGY0063, the second *sa* from *navatiṃsa sataśahassāni* is missing, which is a crucial piece of information, given that we are dealing with the *sata* problem. How can we be sure that BGY0063 belongs to the first group? I have shown ample evidence with both major and minor diagnostic characteristics in support of this categorisation. As we will see below, similar diagnostic characteristics can be applied to manuscripts in the other two groups.

Let's now turn to an example from group B of manuscripts. The final four verses from MW1FPL1529, copied in 1908, are as follows.

Sampiṇḍitā tu pucchā anulome chabbidhepi paṭṭhāne,
Chattiṃsati sataśahassa ṭṭhakayuta sattanaḥutāni.

Lakkhāni chacca cattāliśeva navātha koṭiyo dasa ca,
Satta koṭisatehi ca koṭisahassāni nava honti.

Now, the total number of questions in all six-fold Paṭṭhāna that are in the Dhammānuloma are: nine thousand, seven hundred, nineteen crore, forty-six lakh, seventy-eight thousand, three hundred and thirty-six [i.e., 97,194,678,336].

Thā catuḡuṇitā pucchā, catuppabhede samantapaṭṭhāne,
Catucattāliśa satattayaṃ, saḥassāni terasa ca.

Sattāsīti ca lakkhāna, koṭinañca **sattasattatiyo,**
Honti'ṭṭhasatāni'ṭṭha tiṃsa sataśahassāni iti gaṇanā.

Those questions [in the Dhammānuloma] are to be multiplied by four [as there are] four-fold [division of Dhamma] in the entire *Paṭṭhāna*. There are thirty-eight hundred thousand eight hundred seventy-seven crore, eighty-seven lakh, thirteen thousand, three hundred and forty-four [i.e., 38,008,778,713,344 questions]. This is the calculation.

My translation. MW1FPL1529 ၈-၁.

I would like to make several points regarding the verses in ms. MW1FPL1529.

1. This version of the text is almost the same as the sixth Buddhist council edition, except there are two scribal variations here. The first pair of lines of the third verse begins with *thā*, while it is *tā* in the sixth council edition, and *lakkhāna* in the final verse is *lakkhānaṃ* in the sixth council edition.

2. As in the sixth council edition, the second pair of line in the final verse have the word *satasahassāni*, which means ‘hundred thousand’. This gives the grand total of 38,008,778,713,344 questions. However, as with BGY0063, this final figure is not accurate because the final number should be $97,194,678,336 \times 4 = 388,778,713,344$. Therefore, there is an inconsistency between the number stated in the final verse and the number that we get through calculations.
3. In terms of textual analysis, the major diagnostic characteristic that we identified regarding BGY0063 is still applicable because the major variation occurs in the final verse in relation to changes in numbers. The other minor diagnostic characteristics are also observable in MW1FPL1529: (i) *sampiṇḍitā* is with *m*; (ii) *navātha* has *-atha*; (iii) *satta* at the start of the second pair of lines of the second verse lacks *-hi*; (iv) *catuppabhede* has *-de* not *-do*; and (v) the second pair of lines of the final verse begins with *honti*.

Let us look at ms. MW1FPL5385 from group C, copied in 1867, as an example.

Sampiṇḍitā tu pucchā, anulome chabbidhepi paṭṭhāne,
Chattiṃsati ti satasahassa ṭṭhakayuka yuta sattanahutāni.

Lakkhāni chacca cattā, liseva navāta koṭiyo dasa ca,
Sattahi koṭisatehi ca, koṭisahassāni napa honti.

Now, the total number of questions in all six-fold Paṭṭhāna that are in the Dhammānuloma are: nine thousand, seven hundred, nineteen crore, forty-six lakh, seventy-eight thousand, three hundred and thirty-six [i.e., 97,194,678,336].

Tā catuṅṇitā pucchā, catuppabhede samantapaṭṭhāne,
Catucattālīsa satattayaṃ, sahasāni terasa ca.

Sattāsihi ca lakkhānaṃ, koṭinañca **sattasattatiyo,**
Honti’ṭṭhasatāni’ṭṭha, ttiṃsa sahasāni iti gaṇanā.

Those questions [in the Dhammānuloma] are to be multiplied by four [as there are] four-fold [division of Dhamma] in the entire Paṭṭhāna. There are thirty-eight thousand eight hundred seventy-seven crore, eighty-seven lakh, thirteen thousand, three hundred and forty-four [i.e., 388,778,713,344 questions]. This is the calculation.

My translation. MW1FPL5385 ၆-၂.

The points that I wish make regarding MW1FPL5385 are as follows.

1. The second pair of lines in the final verse does not have the word *sata* with *sahassāni*, i.e., it reads *’ṭṭha, ttiṃsa sahasāni*, which means ‘thirty-eight thousand’. This gives a

grand total 388,778,713,344 questions. This final number is consistent with the number that we get through calculations.

2. The text in this manuscript and ms. MW1FPL1529 from group B is practically the same, apart from the difference with the absence and presence of the word *sata* respectively in the second pair of lines in the final verse. This also implies that the manuscripts in groups B and C are much closer to each other than those in group A.
3. The other minor diagnostic characteristics are also observable in MW1FPL5385: (i) *sampiṇḍitā* uses the nasal consonant *m*; (ii) *navātha* has *-ata*, though it could be a scribal error and thus it is likely to be *-atha*; (iii) *satta* at the start of the second pair of lines of the second verse has *-hi*, like the manuscripts in the first group; (iv) it has *de*, not *do*, in *catuppabhede*; and (v) the second pair of lines of the final verse begins with *honti*.
4. As with other manuscripts in the survey, there are scribal variations and errors in MW1FPL5385. For example, *sattāsīti* (သတ္တဝါသီတိ) in the first pair of lines in the final verse is *sattāsīhi* (သတ္တဝါသီဟိ), and *nava* (နဝ) in the second pair of lines of the second verse is *napa* (နပ), which are quite difficult to differentiate from each other in handwritten Burmese scripts. It also contains scribal variations that have resulted in additional words in the second pair of lines in the first verse and consonant in the second pair of lines of the final verse.
5. The two manuscripts of the Pali-Burmese *nissaya* on the *Paṭṭh-mṅ* in my survey—MW1FPL5858 and UPT374_2F—are categorised in group C as MW1FPL5385, as these *nissayas* do not include the word *sata* in front of *sahassāni*. It is interesting to note that Janakābhivamsa's *Paṭṭhāna Bhāsāṭīkā*, which is said to follow an old *nissaya*, could belong to a different group of *nissayas* that has the word *sata* in front of *sahassāni* in the final pair of lines. More detailed research on these *nissaya* manuscripts and on the broader Pali-Burmese *nissaya* literature is needed to explore if there are variations between Janakābhivamsa's *Paṭṭhāna Bhāsāṭīkā* and the *nissaya* manuscripts, and how they might differ.

What does my analysis of the final four verses of the *Pucchāgaṇanaḡāthāya* in these sources imply? My current hypothesis is this: the 39,097,778,713,344-figure in many manuscripts, i.e., group A, could have been the norm until someone started calculating the number and found the discrepancy between the text and the number obtained through calculations, which could have led to the creation of a new recension that made the text

and the number coherent in the second half of the 19th century. The first strand of reasoning relates to the manuscripts in the first and third groups. The majority (over 67%) of sources surveyed here provide the 39,097,778,713,344-figure, and their date of copy ranges from 1785 to 1919. We then have the manuscript, MW1FPL5385, in group C with the 388,778,713,344-figure, which is dated to 1867. As we have seen above, the numbers in the final verse of the *Pucchāgaṇanagāthāya* in these two groups of manuscripts differ significantly, and the discrepancy between the text and the number that we find in the first group of manuscripts is no longer present in the third group. Whoever created the version with the 388,778,713,344-figure could have realised the discrepancy and calculated so that the number is coherent with the text. When we take these points into consideration, they suggest that at some point in the second half of the 19th century a recension that contains the consistency between the text and the final number may have been created. When we look at the dates of the manuscripts with the 39,097,778,713,344-figure, it is also significant that ten out of fifteen manuscripts date from 1880 to 1919. It suggests that this version of the text could have been in a wider circulation and continued to be the main source text for the copies made in the late 19th and early 20th centuries. Although a new recension with the revised and correct figure, i.e., the 388,778,713,344-figure, seems to have appeared after the mid-19th century, its outreach could have been quite limited because (i) the version with the 39,097,778,713,344-figure seems to have been copied well after 1867; and (ii) I so far found only four manuscripts with the over 388,778,713,344-figure. In sum, I see that the 388,778,713,344-figure is the ‘correct’ number. I also see that it is the recension of the text as the result of intentional revision to create consistency in a received transmission that is erroneous.

The second strand of reasoning relates to groups B and C. How does the version with the 38,008,778,713,344-figure fit with my hypothesis? Based on the data that I have collated so far, the version with the 388,778,713,344-figure in group C could have been the ‘correct’ recension, in contrast to the version with the 38,008,778,713,344-figure. This is because if my proposal that whoever worked out the discrepancy between the text and the number and thus attempted to emend this discrepancy is the case, one would have gone with the 388,778,713,344-figure, i.e., *’ṭhatim̐sa saḥassāni*, without the *sata* in front of *saḥassāni*. This is what we find in MW1FPL5385 copied in 1867. How come then we find the version with the 38,008,778,713,344-figure not just in a wider circulation in the 20th century but also in significant sources such as in the Sandamuni Pagoda inscription and in the sixth

council edition? I do not have a plausible answer to this question based on my research to date. Nonetheless, I wish to summarise what we know so far regarding the Sandamuni Pagoda inscription and the sixth council edition of the commentarial texts to the best of my knowledge.

Regarding the Sandamuni Pagoda inscription, it is well known that U Khanti initiated and oversaw the project to inscribe the *aṭṭhākathā* and the *ṭīkā* on the canonical texts on 1776 marble stelae (Ludu Daw Amar 1999: 61), which were installed at the Sandamuni Pagoda. U Khanti is said to have consulted the then head of Sangha (*thathanabaing*) Taunggwin Sayadaw Venerable Visuddhasīlācārahā (1844–1938) about his wish to inscribe the commentarial texts on stone. According to Ludu Daw Amar (1999: 61–62 and 65–67), with Taunggwin Sayadaw’s permission and guidance, U Khanti sought consultations with other senior monks from the four quarters of Mandalay about this matter. Moreover, there was an editing process performed by fifteen monks who “edited” and “purified” (*tè-hpát thót-thin* in Burmese) the text against the variant readings in manuscripts so that the “syllables [and] passages are correct” (Ludu Daw Amar 1999: 65).⁴¹ Based on Ludu Daw Amar’s (1999: 67) report, it seems that Moehti Sayadaw Venerable Jāgara, the author of *nissaya* on some of the canonical texts, was responsible for the editing process of the *aṭṭhākathā* and the *ṭīkā* of the *Abhidhamma* texts for the Sandamuni inscription project. Jāgara’s *nissayas* include the Pali-Burmese *nissaya* on the *Puggalapaññatti*, the *Yamaka* and the *Paṭṭhāna*, which were published in 1924 by Mandalay Taung Pitakat-taw Press.⁴² Drawing on Ludu Daw Amar’s work and the front matter of these printed version of Jāgara’s *nissayas*, we can suggest that Jāgara oversaw the carving of the *Paṭṭhāna mūlaṭīkā* at the Sandamuni Pagoda. We can also suggest that the text inscribed on the marble stelae was checked and edited by senior monks in Mandalay before the engraving occurred in the early 20th century, though we do not have information about the sources that they used in the editing process.

⁴¹ See Ludu Daw Amar (1999: 65–67) for the list of monks who were involved in the editing process. Recent research on U Khanti’s renovation and construction projects in 2011 by Daw Yee Yee Win at University of Mandalay and on the Sandamuni Pagoda inscriptions in 2019 by Venerable Ashin Indavaṃsa at Sītagu Buddhist Academy cite Ludu Daw Amar’s work regarding the monks involved in the editing process.

⁴² Mandalay Taung Pitakat-taw Press was established by U Khanti around 1919 and printed the Pali-Burmese *nissayas* on the canonical and the *aṭṭhākathā* texts written by Jāgara (Ludu Daw Amar 1999: 71–72). These *nissayas* are labelled “Moehti-mu” (မိုးထိမု) on the front page of the printed books. Jāgara wrote in the conclusion of his *Paṭṭhāna* Pali-Burmese *nissaya* that U Khanti did many renovation projects on Buddhist sites, led the project to preserve the Pali canonical texts (*tipīṭaka*), the *aṭṭhākathā* and the *ṭīkā* on palm leaves, in printed books, and on marble slabs, and asked him to produce *nissayas* on the canonical texts (Jāgara 1924: no pagination). Although Ludu Daw Amar mentioned the *nissaya* on the *aṭṭhākathā* texts by Jāgara, I have not come across Jāgara’s *nissayas* on the *aṭṭhākathā* texts either in manuscripts or in printed versions.

To what extent can we be sure that the text inscribed on the stela in the early 20th century is the same as the text in the photograph of stela number 11, located in the stupa Gha/173 (ω/၁၇၃), which was taken in July 2023? In other words, how reliable does my source reflect the early 20th century version? I am not confident enough—based on the data collated so far—to say that my source reflects the early 20th century version accurately. This is because destruction to Buddhist sites on and around the Mandalay Hill during the Second World War (Woodward 1988: 86; Ludu Daw Amar 1999) as well as decay and deterioration of the whole Sandamuni Pagoda site and the marble stelae due to a range of causes such as weather, human impact and lack of regular maintenance have been well recorded (Aung Thu 2007: 44–47; Yee Yee Win 2011: 173; Indavaṃsa 2019: 42).⁴³ Moreover, it seems that there were restoration efforts in the late 1970s and in the 1990s in order to restore the marble slabs that had collapsed and broken into pieces (Indavaṃsa 2019: 38–39). Although the extent and nature of these restoration efforts are not clear to me at present, the restoration efforts undertaken in 1992 and 1999 involved installation of at least 252 newly inscribed marble slabs to replace the broken ones (Yee Yee Win 2011: 185; Indavaṃsa 2019: 39).⁴⁴ The stela in the photograph, my source, looks to be in a good condition with very legible text, and the inscribed text may have been inked recently as it appears so clearly. More research on the Sandamuni Pagoda site is needed to have a clear picture of the history of restoration efforts that were undertaken at various points. With this historical research, we could then do a broader textual analysis and comparison, i.e., looking at other sections of the *Paṭṭh-mṭ* inscribed at the Sandamuni Pagoda and those from other sources, to have a better understanding of the Sandamuni Pagoda inscriptions, which might allow us to suggest the recension to which it belongs. Until then, we cannot rule out the possibility that the Sandamuni Pagoda inscription version, i.e., *’tṭhatimṣa sataṣaṣṣāni*, with the *sata* in front of *saṣṣāni*, could have been influenced by the sixth Buddhist council edition of the *Paṭṭh-mṭ*.

Let us now turn to the sixth Buddhist council edition of the *Paṭṭh-mṭ*. Clark (2015) shows in his detailed analysis of the sixth Buddhist council that a lot of effort went into the preparatory editing work of the Pali canonical texts, which preceded the recitation and

⁴³ For causes of degradation of the marble slabs at the Kuthodaw Pagoda site and the threats to preservation, see Allon et. al. (2016: 227–232).

⁴⁴ Yee Yee Win (2011: 185) gives a list of the texts and their corresponding 252 stelae that were replaced in 1999, and this list does not contain the *Paṭṭhāna mūlaṭikā*. However, Indavaṃsa (2019: 39–40) writes that there was a seven-month renovation project in 1992, which led to reconstruction of marble slabs, possibly almost 300 slabs, by three local construction companies.

approval of the edited text during council proceedings that took place from 17 May 1954 to 24 May 1956. My research on the sixth Buddhist council edition of the *Paṭṭh-mṭ* indicates that the same kind of editing work was done regarding the commentarial texts, i.e., the *aṭṭhakathā* and *ṭīkā*. For instance, the *Saṅgāyanā Monthly Bulletin* (1953: 18) reports in 1953 that each monastic committee responsible for editing and “purifying” the canonical texts started to “purify” the *aṭṭhakathā* and *ṭīkā* of the canonical texts at the request of the Buddha Sāsana Council.⁴⁵ The edited version of the commentarial texts was recited and approved at the two councils held in Yangon (formerly Rangoon). From 26 December 1956 to 3 March 1960, a council met over four sessions to recite and approve the commentaries (*aṭṭhakathā*), and another council met regarding the sub-commentaries (*ṭīkā*) over two sessions between 5 November 1960 and 16 February 1962 (Myat Myat Htun 2007: 244–263). In terms of publication of these approved texts, the annual progress report of the Buddha Sāsana Council for the fiscal year 1961–62 states that “40 volumes of Pāli Texts, 51 volumes of commentaries, [and] 26 volumes of sub-commentaries of the 6th Synod edition . . . are now available at the cheapest price” (*The Light of the Dhamma* 1963: 49).⁴⁶ The sixth council edition of the *Paṭṭh-mṭ* is found in a printed book entitled “*Pañcapakaraṇa-mūlaṭīkā* [and] *Pañcapakaraṇa-anuṭīkā*”, published in 1960⁴⁷ as one of the volumes in the “authorised” sixth Buddhist council editions of the Pali canon, commentaries, and sub-commentaries.⁴⁸ If rigorous editing work was carried out on the sub-commentaries at the time of the sixth Buddhist council, then the *Paṭṭh-mṭ* would have been subject to the same kind of editing process. Could it be that the sources used by the monastic editors at the sixth Buddhist council are those from the second group (see Table 3) with the *sata* in front of *sahassāni*? Could the word *sata* be a misprint in the sixth Buddhist council edition? It is impossible to

⁴⁵ See Clark (2015) for the detailed description and discussion of committees that were formed and involved in the sixth Buddhist council and official publications of the event that were published.

⁴⁶ Grönbold (2005: 48) says that the sub-commentaries were printed in thirty-one volumes from 1960 to 1961. However, Grönbold does not cite sources for this information. My survey of the printed sub-commentaries so far has found twenty-six printed volumes from July 1960 to December 1961. The exact dates of print and the number of copies printed are included on a page at the back of most volumes.

⁴⁷ In the scanned version of the book *Pañcapakaraṇa-mūlaṭīkā* [and] *Pañcapakaraṇa-anuṭīkā*, the front page gives 1960 as the publication year, but the date of print of the *Pañcapakaraṇa-mūlaṭīkā* is 5 December 1960 and of the *Pañcapakaraṇa-anuṭīkā* is 9 January 1961. These texts were recited at the first session of the council concerning the sub-commentaries, which concluded on 13 January 1961 (Myat Myat Htun 2007: 261).

⁴⁸ *The Light of the Dhamma* (1962: 55) included a full-page advertisement of the printed, authorised version of the commentaries and sub-commentaries that were already published, listing all the texts and their corresponding volumes. The texts from the second session of the council concerning the sub-commentaries were not included in this advertisement, which was published in July 1962, although the second session concluded in February 1962.

answer these questions without further research on the editing and printing processes of these texts.

So far, I have argued that the version with the 388,778,713,344-figure is likely to have been a new recension created in the second half of the 19th century. It raises a question: can the version with the 38,008,778,713,344-figure be regarded as a recension in its own right? Answering this question is beyond the scope of this article. It would require us to examine the use of the word *sata* in the context of large numbers and to explore how large numbers are interpreted and understood across different texts. Moreover, an analysis of the metre of the *Pucchāgaṇanagāthāya* may provide additional insights that could help us begin to address this question. Janakābhivaṃsa in his *Paṭṭhāna Bhāsāṭīkā* notes that most verses of the *Pucchāgaṇanagāthāya* are in *ariyā* metre (Janakābhivaṃsa 1980: 788–789). A study of the metre of the *Pucchāgaṇanagāthāya* therefore merits a separate paper.

Conclusion

This article began with what I call the ‘*sata* problem’ concerning the final pair of lines in the final verse of the *Pucchāgaṇanaḡāthāya* that is in the *Paṭṭh-mṭ*. The sixth Buddhist council edition of the text with ‘*ṭṭhatimṣa sataṣahassāni*’ should give over 38,008,778,713,344 questions in total for the *Pucchāvāra*. However, the Burmese Abhidhamma tradition interprets and understands the *Pucchāgaṇanaḡāthāya* to give a total of 388,778,713,344 questions. Therefore, there is a discrepancy between the Pali text, i.e., the final pair of lines of the final verse and the Burmese tradition’s rendering of the text. However, Burmese sources that we surveyed in the first part of the article are silent on this discrepancy.

There is also another discrepancy concerning the sixth Buddhist council edition of the *Pucchāgaṇanaḡāthāya*. When we take the final four verses of the *Pucchāgaṇanaḡāthāya* together, not just focusing on the final verse, the total number of questions is 388,778,713,344. However, the sixth Buddhist council edition of the final pair of lines with ‘*ṭṭhatimṣa sataṣahassāni*’ suggests the over 38,008,778,713,344-figure. In the second part of the article, I demonstrated how we calculate the numbers of questions in each part, section, chapter, and division using the steps described in the *Pucchāgaṇanaḡāthāya* in the *Paṭṭh-mṭ*, arriving at the 388,778,713,344-figure. This calculation suggests that the final pair of lines of the final verse of the *Pucchāgaṇanaḡāthāya* should be without the word *sata* in front of *ṣahassāni*. This then led me to look at manuscript copies and the Sandamuni Pagoda inscription of the *Paṭṭh-mṭ*.

The final part of the article revealed that there are at least three versions of the final four verses of the *Pucchāgaṇanaḡāthāya* in the sources I surveyed. I proposed that the version with the 39,097,778,713,344-figure could have been the norm, as it appears in many manuscripts from the 18th to 20th centuries. In the second half of the 19th century, someone may have begun calculating the number and discovered a discrepancy between the text and the number obtained through those calculations. This could have led to the creation of a new recension that made the text and the number coherent. My current hypothesis does not adequately explain why the version with the 38,008,778,713,344-figure appears in these sources—i.e., manuscripts, the Sandamuni Pagoda inscription (as we found it in 2023) and the sixth Buddhist council edition. More research is needed to explore how the whole *Pucchāgaṇanaḡāthāya* differs across sources I surveyed; whether Burmese Abhidhamma

scholars in the 18th and 19th centuries made any observation about the *sata* problem; and how the editing and printing processes of the sub-commentaries during the time of the sixth Buddhist council were conducted. Moreover, we need to examine the *Pucchāḡaṇanagāthāya* in the Sinhalese and Thai traditions, and how large numbers in Pali texts and in different Buddhist traditions are interpreted and understood. Further research in these areas might help us solve the *sata* problem. Until then, it remains unresolved.

While the focus of this article has been on one specific issue, we have explored a wide range of related topics throughout, allowing us to draw broader conclusions. Firstly, with the increasing availability of printing and computer technologies in 20th century Myanmar, Burmese Abhidhamma scholars have developed ways to express these complex patterns and numerical data both in printed books and through software programmes. Printing technology, along with editing marks and processes, has had a significant impact on how we engage with texts—and perhaps understand them (Ruiz-Falqués 2017). In the case of a complex text such as the *Paṭṭhāna*, it appears that printing and editing processes played an important role in giving the text some kind of structure or form with headings, sub-headings, and clear demarcation of sections. The sections and sub-sections become more visually apparent in printed books than those in manuscripts and in inscriptions. Such technological developments may have contributed to the evolution of pedagogical methods and the use of tabulated texts in Abhidhamma studies in 20th century Myanmar.

Secondly, Burmese monastic and lay Abhidhamma scholars in the 20th century have engaged persistently with the *Pucchāvāra*, particularly with the calculations of the total number of questions using the methods in the *Paṭṭh-a* and the *Paṭṭh-mṭ*. Moreover, they have shown interest in unravelling and expanding the patterns of combinations of the *paccayas* and *dhammas*. By engaging with the *Pucchāvāra* using technologies of the time in innovative ways, these Abhidhamma scholars have performed both analysis and synthesis of the text. For instance, Nārada probably engaged with the different layers of texts concerning the *Paṭṭhāna*—from the canonical text to the commentarial texts and pedagogical handbooks—absorbed key ideas from these texts and conveyed them using tables. Nārada would have applied analytical thinking to understand the main components of the *Pucchāvāra* from various sources and then synthesised this information in tabular form. Like many other Abhidhamma scholars in Myanmar, Nārada probably memorised key aspects of the canonical *Paṭṭhāna* and of the detailed explanation on the *Paṭṭhāna* found in

the pedagogical handbooks such as those in Nandamedhā's *Paṭṭhāna Ayakauk*, which would have been instrumental in his analytical and synthetic work on Abhidhamma topics.

When we perform analysis and synthesis on these topics, we are, in a way, condensing the information or the text to the extent that a given topic can be summarised in a sentence, table, or diagram—as we have seen in Figure 1. By 'condensing,' I refer to the process by which text units—i.e., sections of the texts related to a similar topic—in the *Paṭṭhāna* can be, and are, summarised using a table or a numerical value. For example, as I have shown in my doctoral thesis (Kyaw 2014: 267–269), we can summarise in a table the 1,176 questions that can be formulated for the conditional relations between the *dhammas* in the skilful triplet, which are related by the twenty-four conditions singly. If printed in the same format as the sixth Buddhist council edition, these would span over seventy-two pages. The *Saṅkhyāvāra* of the *Vissajjanavāra* is an excellent example of where text units are condensed or encoded using numbers. In the sixth Buddhist council edition of the *Vissajjanavāra*, we find the *Vibhaṅgavāra*, 'analysis section', where the conditional relations are spelt out in detail. These conditional relations are the 'text units' that are being encoded using numbers in the *Saṅkhyāvāra*.⁴⁹ The Burmese Abhidhamma scholars are also interested in expanding the text, as seen in the efforts of Visuta, Khin Maung Than, and Than Win to unravel the abbreviated *Pucchāvāra* and *Saṅkhyāvāra*, with the aim of reconstructing and writing out the full text.

Salomon (2022) identifies and discusses three distinctive features of Indian Buddhist texts—namely, expansion, compilation, and abbreviation—with reference to a range of texts such as the *Udānavarga*, *Anavatapta-gāthā*, and *Rhinoceros (Horn) Sūtra*, and Sanskrit and Gāndhārī manuscripts. Two of the three features—i.e., expansion and abbreviation—highlighted in Salomon's insightful article, are attested in the *Paṭṭhāna*. As Salomon (2022: 504) demonstrates with the Sanskrit version of the *Rhinoceros Sūtra*, we find parallels in the *Pucchāvāra*, where there are explicit instructions on how to expand the text (e.g., the *Paṭṭh* 1.13; see above). Such instructions to expand the text are found throughout the *Paṭṭhāna*. We may recall that the *Pucchāvāra* occupies just over eight pages in the sixth Buddhist council edition. It would be accurate to say that almost the entire *Pucchāvāra* is abbreviated. The *Pucchāvāra*, as we have it in the printed editions,⁵⁰ might be regarded as "symbolic

⁴⁹ See Kyaw (2014: 231–237) for the detailed explanation of the relationship between the *Vibhaṅgavāra* and the *Saṅkhyāvāra*.

⁵⁰ I recently found a copy of the fifth Buddhist council edition of the *Paṭṭhāna* printed in 1900 by Haṃsāvati Press in Mandalay. In it, the *Pucchāvāra* occupies just over six pages. In the Siam Rath edition printed in 1927, the *Pucchāvāra* is just over ten pages long.

texts” to use Salomon’s (2022: 517) words. It represents the whole *Pucchāvāra*, and, in theory, the entire *Pucchāvāra* could be unravelled and reconstructed. Salomon describes the second feature—i.e., compilation—as “the incorporation of pre-existing texts or text units into larger compendia” (2022: 514). This implies that larger Buddhist text materials “tend to suck in and eventually supplant smaller individual text units” (*ibid*: 515). We might note that the repetitions of certain text units and patterns throughout the *Paṭṭhāna* and the use of twenty-two triplets and hundred duplets from the *Mātikā* follow a specific structure and are compiled in a systematic manner to construct a much larger text. Drawing Gethin’s (1992: 160–161) analysis of the *mātikās* as a “mother”, the smaller text units of the *Mātikā*—twenty-two triplets and the hundred duplets—can be seen as generating a much larger body of text, the *Paṭṭhāna*, rather than being subsumed or supplanted by larger compilations. An in-depth investigation into how “compilation” as a feature appears in the *Paṭṭhāna*, along with its other features, may shed light on the distinctive literary characteristics of Pali texts.

Thirdly, we may be puzzled by Burmese Abhidhamma scholars’ persistent and enthusiastic engagement with the calculations of the number of questions and with the effort to unravel the combinations of *paccayas* and *dhammas*. What is the purpose of this endeavour? As we have seen, Khin Maung Than had a very strong wish to recite the combinations of *paccayas* using a rosary as a way of paying homage to the Buddha and his omniscience. Khin Maung Than (1998: 1) writes about how happy and delighted he was when he eventually found ways to unravel the questions in their entirety. Visuta also expresses his interest in the *Saṅkhyāvāra* of the answer section in terms of his awe and reverence for the Buddha and his omniscience. When I met him in 2012 at his monastery, he gave me a small booklet entitled “The *Paṭṭhāna* Circles to be Recited and Worshipped Daily”, which contains the text from the *Saṅkhyāvāra* arranged in circular diagrams. He told me to use the booklet every day during my my daily Buddha worship. As I have shown in my doctoral thesis (Kyaw 2014) and elsewhere (Crosby and Kyaw 2022), the use of the *Paṭṭhāna* in devotional and protective practices is very common in Myanmar. In this context, the rationale behind Khin Maung Than’s and Visuta’s engagement with the *Paṭṭhāna* appears to stem from a fascination with the Buddha’s omniscience, as they express their awe and reverence toward him. Their motivation, however, goes beyond devotional and protective practices.

In Myanmar, when people engage persistently with the *Paṭṭhāna*—by reciting it daily, studying it, or conducting research on it, as I do—they are often asked whether they have *wathana* (ဝါထာနာ) for the *Paṭṭhāna*.⁵¹ The word *wathana* is a Pali-Burmese loan word from *vāsanā*, meaning ‘latent habitual inclination’. In Burmese, *wathana* also conveys a sense of fascination or deep interest in a particular topic. The question implies whether the *Paṭṭhāna* is their passion. In the western scholarship, it is often said that the Abhidhamma is dry, scholastic, philosophical, and metaphysical. This is a valid, accurate perspective—particularly when cultural and personal dimensions are not considered. However, this perception and engagement with the Abhidhamma contrasts sharply with the Burmese tradition, which has approached it differently over the centuries. For Burmese Abhidhamma enthusiasts, it seems that each person has their own personal story or journey that led to their interest in the Abhidhamma, or in specific aspects of it—as we have seen with Visuta and Khin Maung Than. If I include myself within the Burmese Abhidhamma tradition and reflect on my initial rations for engaging with the *Paṭṭhāna*, it is, firstly, because my mother taught me how to recite the twenty-four *paccayas* in my teens by counting on my fingers, and secondly, because of my eagerness to learn about Buddhist causality following a long meditation retreat in Myanmar. These personal stories—combined with the belief that Abhidhamma, and the *Paṭṭhāna* in particular, embodies the Buddha’s omniscience, is the first text to disappear as the Buddha’s *sāsana* declines, and is a core part of Myanmar’s Abhidhamma culture (Kyaw 2014; San Tun 2017)—make Abhidhamma studies in the Burmese tradition feel more like a fascination (*wathana*) than a purely intellectual pursuit.

⁵¹ Recently I was asked if I have *wathana* in the *Paṭṭhāna* by a Burmese person when he found out about my research.

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