How we use XƎLaTeX at our ashram to publish and print multilingual books and documents

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Abstract

We at ISKCON Belagavi use XƎLaTeX primarily to publish books, print prayer sheets, weekly planners, monthly lecture schedules and create slideshows — all bilingual/trilingual, in Devanāgarī, Kannada and Roman. In this article, I wish to share:

1. code snippets to show how we obtained desired results in our publications.
2. how "separation of form and content" benefitted us.

The overall goal is to inspire beginners to get started in using LaTeX for their publishing needs although they may not know all the subtleties and details involved therein.

1 My inspiration to use LaTeX

I was introduced to LaTeX in 2009 as a post-graduate student at the National Institute of Technology, Karnataka, India, by another senior student. The beautiful fonts, structured table of contents and the ease of getting the math on screen were the initial attractions. With time, I discovered that for almost anything that I needed, help was available through online forums and resources like `tex.stackexchange.com`, the TeX Users Group site and Overleaf, just to name a few. Overall, as a student, and later as a University lecturer and eventually as a monk, I found LaTeX to be very dependable. The only thing in question was my lack of expertise in using this great piece of software.

Going forward, the organization of this article is as follows: The specific use-cases are elaborated, one after another. At the end, some project ideas are shared.

2 Bhagavad-Gītā recitation books

This project involved publishing three books, each containing all the verses of the Gītā to help people in reciting them. The first one has all the verses in Devanāgarī script; the second one contains both Devanāgarī and Kannada scripts, and the third one has Devanāgarī script with a Roman transliteration.

Initially, we had access to the verses in the Roman script only. Using the RomDev tool (`github.com/somadeva/RomDev`) the Devanāgarī version was generated. For the Kannada version, we used Aksharamukha (`aksharamukha.com/converter`).

I'm aware that typing in the native language is always beneficial/preferred. I myself use the Tamil layout for my translation and writing services. But in this case, we went for the aforementioned software tools since this was a huge time saver for us. The Devanagari verses were generated from the Roman script which then was used to generate the Kannada verses.

The goal was simple: text that was easy to read and a book that was aesthetic to look at. With this goal in mind, the following had to be finalized:

1. the fonts.
2. the font size.
3. placement of the verse numbers (to facilitate locating the verses).

After checking out different Roman, Devanagari and Kannada fonts, the following were chosen: Gentium Basic for Roman, Shobhika Bold for Devanagari and Noto Serif Kannada for Kannada scripts. The book size was finalized to be 10cm by 13.2cm, so the font size couldn't be more than 12pt. Since some verses wouldn't fit in a single line at this size, we kept three options for the verses — 11pt, 11.5pt and 12pt. This would ensure that all the verses fit properly and at the same time look quite similar in size. The last thing to be sorted out was the placement of the verse numbers. Since the Devanagari script is generally more compact than the Roman and the Kannada scripts, we decided to have the verse numbers displayed near them, being placed on the right margin for that distinct aesthetic look.

The following subsection gives some source code snippets of the recitation book.

2.1 Code snippets — Bhagavad-Gita

Shown below are parts of the code and their effect on the layout in sequence.

The following code shows how the header design was done.

```
\usepackage{fancyhdr}
\usepackage{microtype}
\pagestyle{fancy}
\renewcommand{\chaptermark}[1]{%
\markboth{#1}{}}
\fancyhf{}
  \fancyhead[C]{\textbf{\leftmark}}
  \fancyhead[LE,RO]{\textbf{\thepage}}
  \fancyfoot{}
\renewcommand{\headrulewidth}{0.6pt}
```

The following code shows how the Roman to Devanagari mapping was set, using `\newfontfamily`. Different commands for defining new font sizes have also been defined.

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```
\usepackage{anyfontsize}
\usepackage{polyglossia}

\setdefaultlanguage{english}
\setmainfont{Gentium Basic}
\setotherlanguage{sanskrit}

\newfontfamily{\dev}
  [Script=Devanagari,Mapping=RomDev]{Shobhika Bold}
\newcommand{\deva}
  {\section{}\fontsize{11.7}{11}\selectfont}
\newcommand{\devb}
  {\section{}\fontsize{11.2}{11}\selectfont}
\newcommand{\devc}
  {\section{}\fontsize{11}{11}\selectfont}

\newcommand{\roma}
  {\section*{}\itshape\fontsize{12}{13}\selectfont}
\newcommand{\romb}
  {\section*{}\itshape\fontsize{11.5}{13}\selectfont}
\newcommand{\romc}
  {\section*{}\itshape\fontsize{11}{13}\selectfont}
\newcommand{\adhyaya}
  {\itshape\fontsize{13}{13}\selectfont}
```

We wanted the chapter titles to stand out on a fresh page. To achieve this, the `fncychap` package was used and each `\chapter{}` was followed by a `\newpage` command.

```
% Chapter title customization
\usepackage[Conny]{fncychap}
\ChNameAsIs \ChNameVar{\centering\Large\rm\bfseries}
\ChNumVar{\Large} \ChRuleWidth{0.5pt}
\ChTitleAsIs \ChTitleVar{\centering\Large\rm}
```

One of our design specifications was to show the verse numbering in such a way that the verse number is distinctly visible helping the reader thereby to easily locate the verses. Instead of defining a new counter and thinking about its formatting, inspired by Luke Smith (`lukesmith.xyz`), I thought of using the `section` counter for numbering the verses. To take care of the formatting aspect, the `titlesec` package with the following options was used.

```
\renewcommand{\thesection}{\arabic{section}}
\usepackage{titlesec}
  \titleformat{\section}[rightmargin]
  % the section counter appears in the right margin
  % for other options see the 'titlesec' package doc.
  {} % formatting for the section name
  {\it \large \thesection}
  % formatting the counter preceding the section name
  {0em}
  % distance between the counter and the section name
  {}
  % any text between the counter and the section name
```

When the commands `\deva` ... `\devc` and `\roma` ... `\romc` were defined above, one might have noted the presence of the `\section{}` and`\section*{}` commands. The reasoning is thus: We are declaring an empty section before beginning the verses so as to insert the corresponding section number in the right margin. Since the Devanagari script is more compact than the Roman/Kannada script, it makes sense (and looks good) to have the verse numbers next to the Devanagari verses. That explains the `\section*{}` in the definitions of `\roma` ... `\romc`.

The following is a sample code of how we went about typesetting the verses along with the above defined commands. The same process was repeated for the rest of the verses.

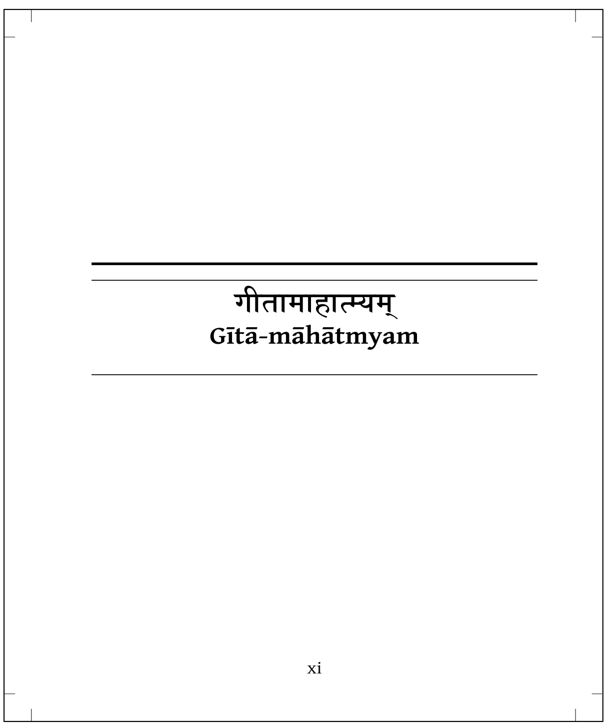
```
\chapter[Gītā-māhātmyam]{{\dev gītāmāhātmyam} \\
  Gītā-māhātmyam}

\newpage

\begin{center}
  {\dev\adhyaya \bfseries atha gītāmāhātmyam} \\
  {\adhyaya \bfseries \textit{atha gītāmāhātmyam}}
\end{center}

{\dev{\deva
  gītāśāstramidaṁ puṇyaṁ yaḥ paṭhetprayataḥ pumān |

  viṣṇoḥ padamavāpnoti bhayaśokādivarjitaḥ ||1||

}}

{\romc
  gītā-śāstram idaṁ puṇyaṁ \hspace{.15em}
  yaḥ paṭhet prayataḥ pumān

  viṣṇoḥ padam avāpnoti \hspace{.15em}
  bhaya-śokādi-varjitaḥ
}

{\dev{\deva
gītādhyayanaśīlasya  prāṇāyāmaparasya ca |

naiva santi hi pāpāni  pūrvajanmakṛtāni ca ||2||

}}

{\roma
gītādhyayana-śīlasya \hspace{0.15em}
prāṇāyāma-parasya ca

naiva santi hi pāpāni \hspace{0.15em}
pūrva-janma-kṛtāni ca

}

{\dev{\deva
malanirmocanaṁ puṁsāṁ   jalasnānaṁ dine dine |

sakṛdgītāmṛtasnānaṁ  saṁsāramalanāśanam ||3||

}}

{\roma
  mala-nirmocanaṁ puṁsāṁ \hspace{0.15em}
  jala-snānaṁ dine dine

  sakṛd gītāmṛta-snānaṁ \hspace{0.15em}
  saṁsāra-mala-nāśanam

}
```

The following code helps in placing the crop marks at the corners of the page. These marks help the binding staff at the press know where exactly to cut the pages. As the readers may be aware, the printing is done on a large sheet of paper, followed by cutting the pages and sending them to the binding process.

```
\usepackage[xetex,twoside,
  paperwidth=10.986cm,paperheight=14.288cm,
  layoutwidth=10cm,layoutheight=13.2cm,
  layoutvoffset=\dimexpr(14.288cm-13.2cm)/2\relax,
  layouthoffset=\dimexpr(10.986cm-10cm)/2\relax,
  top=1.35cm,bottom=1.30cm,
  inner=1.106cm,outer=0.7cm,
  showcrop]
 {geometry}
```

Explanation: `10.986cm x 14.288cm` is the standard size for an A6 layout. `10cm x 13.2cm` was our page dimensions. So to achieve the offset — both vertical and horizontal — we need to divide the difference by two. Then come the margin sizes which were calculated by trial and error.

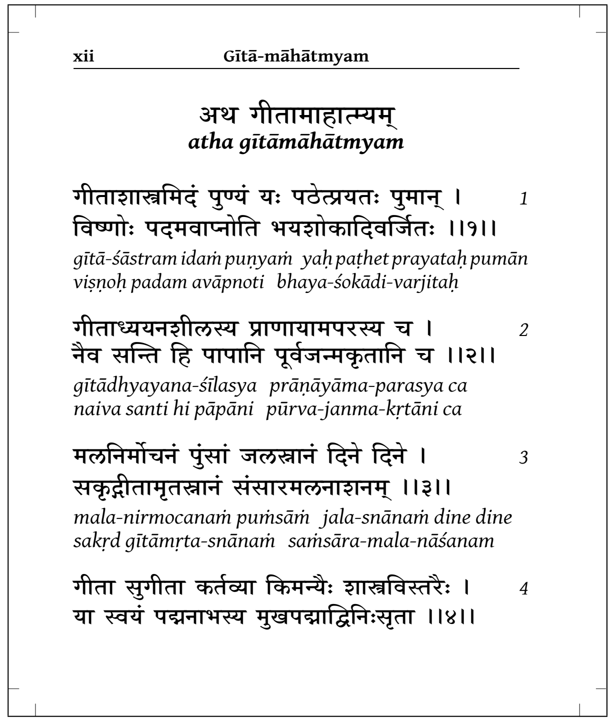
2.2 Page samples — Bhagavad-Gita



गीतामाहात्म्यम्

Gītā-māhātmyam

xi



xii **Gītā-māhātmyam**

अथ गीतामाहात्म्यम्

atha gītāmāhātmyam

गीताशास्त्रमिदं पुण्यं यः पठेत्प्रयतः पुमान् । *1*
विष्णोः पदमवाप्नोति भयशोकादिवर्जितः ।।१।।

gītā-śāstram idaṁ puṇyaṁ yaḥ paṭhet prayataḥ pumān
viṣṇoḥ padam avāpnoti bhaya-śokādi-varjitaḥ

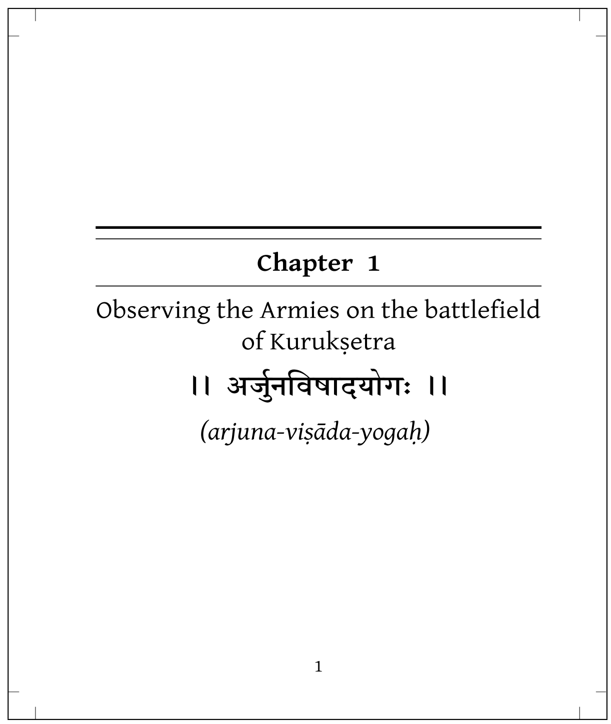
गीताध्ययनशीलस्य प्राणायामपरस्य च । *2*
नैव सन्ति हि पापानि पूर्वजन्मकृतानि च ।।२।।

gītādhyayana-śīlasya prāṇāyāma-parasya ca
naiva santi hi pāpāni pūrva-janma-kṛtāni ca

मलनिर्मोचनं पुंसां जलस्नानं दिने दिने । *3*
सकृद्गीतामृतस्नानं संसारमलनाशनम् ।।३।।

mala-nirmocanaṁ puṁsāṁ jala-snānaṁ dine dine
sakṛd gītāmṛta-snānaṁ saṁsāra-mala-nāśanam

गीता सुगीता कर्तव्या किमन्यैः शास्त्रविस्तरैः । *4*
या स्वयं पद्मनाभस्य मुखपद्माद्विनिःसृता ।।४।।



Chapter 1

Observing the Armies on the battlefield of Kurukṣetra

।। अर्जुनविषादयोगः ।।

(arjuna-viṣāda-yogaḥ)

1

2 **Observing the Armies** | Ch. 1

अथ प्रथमोऽध्यायः
atha prathamo 'dhyāyaḥ

धृतराष्ट्र उवाच *1*
धर्मक्षेत्रे कुरुक्षेत्रे समवेता युयुत्सवः ।
मामकाः पाण्डवाश्चैव किमकुर्वत सञ्जय ।।१।।

dhṛtarāṣṭra uvāca
dharma-kṣetre kuru-kṣetre samavetā yuyutsavaḥ
māmakāḥ pāṇḍavāś caiva kim akurvata sañjaya

सञ्जय उवाच *2*
दृष्ट्वा तु पाण्डवानीकं व्यूढं दुर्योधनस्तदा ।
आचार्यमुपसङ्गम्य राजा वचनमब्रवीत् ।।२।।

sañjaya uvāca
dṛṣṭvā tu pāṇḍavānīkaṁ vyūḍhaṁ duryodhanas tadā
ācāryam upasaṅgamya rājā vacanam abravīt

पश्यैतां पाण्डुपुत्राणामाचार्य महतीं चमूम् । *3*
व्यूढां द्रुपदपुत्रेण तव शिष्येण धीमता ।।३।।

अध्यायः १

कुरुक्षेत्र के युद्धस्थल में सैन्यनिरीक्षण

।। अर्जुनविषादयोगः ।।

१

गीतामाहात्म्य ए

अथ गीतामाहात्म्य

गीताशास्त्रमिदं पुण्यं यः पठेत्प्रयतः पुमान् ।
विष्णोः पदमवाप्नोति भयशोकादिवर्जितः ।। १ ।।

गीताध्ययनशीलस्य प्राणायामपरस्य च ।
नैव सन्ति हि पापानि पूर्वजन्मकृतानि च ।। २ ।।

मलनिर्मोचनं पुंसां जलस्नानं दिने दिने ।
सकृद्गीतामृत स्नानं संसारमलनाशनम् ।। ३ ।।

गीता सुगीता कर्तव्या किमन्यैः शास्त्रविस्तरैः ।
या स्वयं पद्मनाभस्य मुखपद्माद्विनिःसृता ।। ४ ।।

भारतामृतसर्वस्वं विष्णुवक्त्राद्विनिःसृतम् ।
गीतागङ्गोदकं पीत्वा पुनर्जन्म न विद्यते ।। ५ ।।

सर्वोपनिषदो गावो दोग्धा गोपालनन्दनः ।
पार्थो वत्सः सुधीर्भोक्ता दुग्धं गीतामृतं महत् ।। ६ ।।

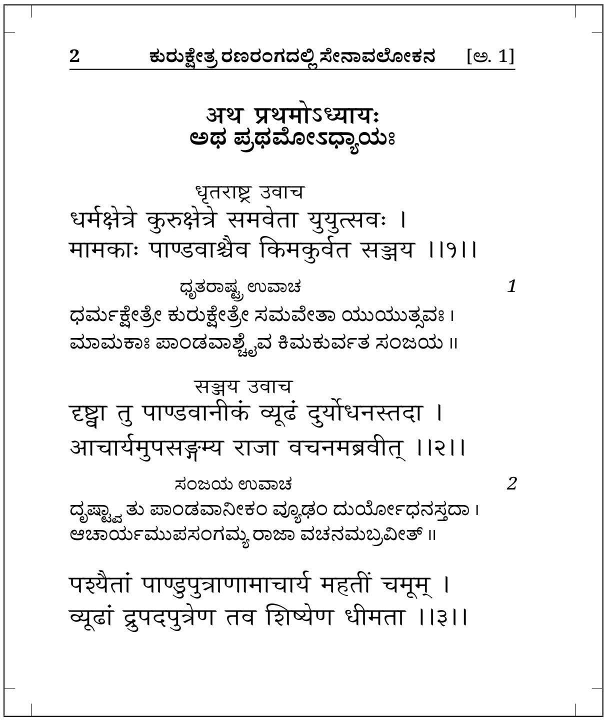
ಅಧ್ಯಾಯ 1

ಕುರುಕ್ಷೇತ್ರ ರಣರಂಗದಲ್ಲಿ ಸೇನಾವಲೋಕನ

।। अर्जुनविषादयोगः ।।

(ಅರ್ಜುನವಿಷಾದಯೋಗಃ)

1



2 ಕುರುಕ್ಷೇತ್ರ ರಣರಂಗದಲ್ಲಿ ಸೇನಾವಲೋಕನ [ಅ. 1]

अथ प्रथमोऽध्यायः
ಅಥ ಪ್ರಥಮೋಽಧ್ಯಾಯಃ

धृतराष्ट्र उवाच
धर्मक्षेत्रे कुरुक्षेत्रे समवेता युयुत्सवः ।
मामकाः पाण्डवाश्चैव किमकुर्वत सञ्जय ।।१।।

ಧೃತರಾಷ್ಟ್ರ ಉವಾಚ 1
ಧರ್ಮಕ್ಷೇತ್ರೇ ಕುರುಕ್ಷೇತ್ರೇ ಸಮವೇತಾ ಯುಯುತ್ಸವಃ।
ಮಾಮಕಾಃ ಪಾಂಡವಾಶ್ಚೈವ ಕಿಮಕುರ್ವತ ಸಂಜಯ॥

सञ्जय उवाच
दृष्ट्वा तु पाण्डवानीकं व्यूढं दुर्योधनस्तदा ।
आचार्यमुपसङ्गम्य राजा वचनमब्रवीत् ।।२।।

ಸಂಜಯ ಉವಾಚ 2
ದೃಷ್ಟ್ವಾ ತು ಪಾಂಡವಾನೀಕಂ ವ್ಯೂಢಂ ದುರ್ಯೋಧನಸ್ತದಾ।
ಆಚಾರ್ಯಮುಪಸಂಗಮ್ಯ ರಾಜಾ ವಚನಮಬ್ರವೀತ್॥

पश्यैतां पाण्डुपुत्राणामाचार्य महतीं चमूम् ।
व्यूढां द्रुपदपुत्रेण तव शिष्येण धीमता ।।३।।

3 Weekly planner

3.1 Defining the need and terminology

In this section, I present the need and design specifications of a weekly planner and share code snippets that lead to the final output. My spiritual master needed a weekly planner to note his appointments, meetings and travel schedules. His specific need was to combine both the Gregorian and Vedic information at one place. Initially, we were using GUI-based document editors and spreadsheet programs to create a table and enter the data. Obviously this was tedious and time-consuming. As with any WYSIWYG approach, there is no possibility of reusing the formatting information. Upon some contemplation, I decided to use LaTeX, taking advantage of its markup features and obviously code reuse.

Before going ahead, I wish to define a few Vedic terms to help the uninitiated readers. (I should have done this at the conference also. Nevertheless, let me at least do it now.) The Vedic (lunar) year is for 360 days divided into 12 months of 30 days each. Each month is further divided into two *pakṣas*, 15 days each. One denotes the waxing phase of the moon (*śukla pakṣa*), and the other the waning phase (*kṛṣṇa pakṣa*). A lunar month starts just after the full moon night. Therefore, *kṛṣṇa pakṣa* (the waning phase) occurs first, followed by *śukla pakṣa* (the waxing phase). A day is denoted as a *tithi* — 15 in total — starting with day one (*prathamā*) and ending with a no moon (*amāvāsya*) or full moon (*pūrṇimā*).

To sum up, we needed the following information to be printed on the weekly planner:

1. the Gregorian day and date,
2. the Vedic day, including the status of the moon (full moon or no moon),
3. the Vedic (lunar) month,
4. the phase of the moon (waxing or waning), and finally,
5. any event/festival coinciding with that day of the week.

3.2 Building the code from raw data

We have a program, the Gaurabda calendar (`github.com/gopaladasa/GCAL-for-Windows`), to output astronomical data in plain text format. It includes all the information enumerated above. I started planning how this information can be sent to a command as arguments and presented in the way desired. I show the step-by-step procedure with the code used.

Step 1: Raw data

The following is the raw data from the calendar software (some lines abbreviated for presentation here):

```
13 Jan, 2025 Mon   Pūrṇimā        G Vaidhriti Ardra
      Śrī Kṛṣṇa Puṣya Abhiṣeka
14 Jan, 2025 Tue   pratipat       K Viskumba  Pun...
      Māgha māsa begins,
      Makara Śaṅkrānti,
      Gaṅgā Sāgara Mela
15 Jan, 2025 Wed   dvitīya        K Priti     Puṣyami
16 Jan, 2025 Thu   tṛtīya         K Ayusmana  Aslesa
17 Jan, 2025 Fri   caturthī       K Saubhagya Magha
18 Jan, 2025 Sat   pañcamī        K Sobana    Purv...
      Śrī Rāmacandra Kavirāja -- Disappearance
      Śrīla Gopāla Bhaṭṭa Gosvāmi -- Appearance
19 Jan, 2025 Sun   pañcamī        K Atiganda  Utta...
```

Step 2: Extracting essential information

Next, we take only what is needed to proceed.

```
{13 Jan,  Mon}{}{pū.}
                 Śrī Kṛṣṇa Puṣya Abhiṣeka
{14 Jan,  Tue}{}{pra.}
                 Māgha māsa begins, Makara Śaṅkrānti,
                 Gaṅgā Sāgara Mela
{15 Jan,  Wed}{}{dvi.}
{16 Jan,  Thu}{}{tṛ.}
{17 Jan,  Fri}{}{ca.}
{18 Jan,  Sat}{}{pa.}
           Śrī Rāmacandra Kavirāja -- Disappearance
           Śrīla Gopāla Bhaṭṭa Gosvāmi -- Appearance
{19 Jan,  Sun}{}{pa.}
```

Step 3: Defining the commands

```
\newfontfamily{\dev}
  [Script=Devanagari,Mapping=RomDev]{Shobhika}
\ddone{13 Jan, Mon}{$\medcirc$}{pū.}
                 {Śrī Kṛṣṇa Puṣya Abhiṣeka}
\ddtwo{14 Jan, Tue}{}{pra.}
```

```
    {\textbf{Māgha māsa begins},
    Gaṅgā Sāgara Mela, Makara Śaṅkrānti}
\ddthree{15 Jan, Wed}{}{dvi.}{}
\ddfour{16 Jan, Thu}{}{tṛ.}{}
\ddfive{17 Jan, Fri}{}{ca.}{}
\ddsix{18 Jan, Sat}{}{pa.}
    {\app{Śrīla Gopāla Bhaṭṭa Gosvāmī}
    \footnote{\normalsize
      \disapp{Śrī Rāmacandra Kavirāja}}}
\ddseven{19 Jan, Sun}{}{pa.}{}
\shuklakrishna{Pauṣa}{1}{Māgha}{6}
```

The `\ddone` ... `\ddseven` commands used above are defined as follows (only three data sets have been shown for illustration):

```
% day_one
\newcommand{\ddone}[4]{%
\def\dayone{#1} % Gregorian day
\def\moonone{\hfill #2} % full moon or no moon
\def\tithione{#3} % Vedic day
\def\eventone{#4} % any event?
}

% day_two
\newcommand{\ddtwo}[4]{%
\def\daytwo{#1}
\def\moontwo{\hfill #2}
\def\tithitwo{#3}%
\def\eventtwo{#4}%
}

% day_three
\newcommand{\ddthree}[4]{%
\def\daythree{#1}
\def\moonthree{\hfill #2}
\def\tithithree{#3}%
\def\eventthree{#4}%
}
```

The explanation is thus: `\ddone` and the other six commands each take four arguments, which are:

1. `\dayone`: What is the Gregorian day and date?
2. `\moonone`: Is it a full moon or no moon?
3. `\tithione`: Vedic day info.
4. `\eventone`: Any event coinciding today?

Take, for example, this command:

```
\ddone{13 Jan, Mon}{$\medcirc$}
     {pū.}{Śrī Kṛṣṇa Puṣya Abhiṣeka}
```

1. `13 Jan, Mon` is the Gregorian day and date.
2. `$\medcirc$` (○) denotes a full moon. A new moon is denoted by `\medbullet` (●).
3. `pū.` denotes the Vedic day, in this case a *pūrṇimā*, the 15th day of that cycle and also a full moon.
4. `Śrī Kṛṣṇa Puṣya Abhiṣeka` is a festival coinciding on that day.

The `\shuklakrishna` command above refers to the week which starts with the waxing phase and end with a waning phase. The other possibilities are:

1. `\krishnashukla`: A week that starts with the waning phase and ends with a waxing phase;
2. `\krishna`: a week that contains only the waning phase; and
3. `\shukla`: a week that contains only the waxing phase.

For example,
`\shuklakrishna{Pauṣa}{1}{Māgha}{6}`
means: The waxing phase (and therefore the month, *Pauṣa*) is present just for a day and with the waning phase, the next month (*Māgha*) has started and is present for the next 6 days of that particular week. Please recollect that a lunar month ends with a full moon night, the climax of the waxing phase.

Please find below how all the above defined commands along with their arguments fit into a nice table.

```
\newcommand{\shuklakrishna}[4]{%
\noindent
\begin{tabularx}{\textwidth}{@{\rule[-2ex]{0pt}{6ex}}|*{7}{L|}}
\toprule
  \multicolumn{#2}{|c|}
  {\textbf{\large #1 māsa - \'Sukla pakṣa}} &
  \multicolumn{#4}{c|}
  {\cellcolor{black!20}\textbf{\large #3 māsa - Kṛṣṇa pakṣa}}
  \\
\midrule
  \textbf{\dayone}\moonone\hfill{\small\dev\tithione} &
  \textbf{\daytwo}\moontwo\hfill{\small\dev\tithitwo} &
  \textbf{\daythree}\moonthree\hfill{\small\dev\tithithree} &
  \textbf{\dayfour}\moonfour\hfill{\small\dev\tithifour} &
  \textbf{\dayfive}\moonfive\hfill{\small\dev\tithifive} &
  \textbf{\daysix}\moonsix\hfill{\small\dev\tithisix} &
  \textbf{\dayseven}\moonseven\hfill{\small\dev\tithiseven}
\\ \hline
    \event{\eventone}   & \event{\eventtwo}
  & \event{\eventthree} & \event{\eventfour}
  & \event{\eventfive}  & \event{\eventsix}
  & \event{\eventseven} \\
\hline
\end{tabularx}
\pagebreak}
```

Similar code has been used for `\krishnashukla`, `\krishna` and `\shukla`.

The resulting output is in fig. 1.

4 Monthly lecture schedule

My next topic is to show how we generated a monthly lecture schedule from the weekly planner. Since most of the information contained in the weekly planner is required for the monthly lecture schedule also, an idea struck me to extend the weekly planner to result in a monthly lecture schedule. So here goes the steps involved.

We start with the weekly planner. If you may recall, we started with the following definitions for the weekly planner.

```
\newcommand{\ddone}[4]{%
\def\dayone{#1} % Gregorian date
\def\moonone{\hfill #2} % full moon or no moon
\def\tithione{#3} % Vedic date
\def\eventone{#4} % any event?
}
```

Pauṣa māsa - Śukla pakṣa	Māgha māsa - Kṛṣṇa pakṣa					
13 Jan, Mon ○ पू.	**14 Jan, Tue** प्र.	**15 Jan, Wed** द्वि.	**16 Jan, Thu** तृ.	**17 Jan, Fri** च.	**18 Jan, Sat** प.	**19 Jan, Sun** प.
Śrī Kṛṣṇa Puṣya Abhiṣeka	**Māgha māsa begins**, Gaṅgā Sāgara Mela, Makara Śaṅkrānti				**App.**: Śrīla Gopāla Bhaṭṭa Gosvāmī [1]	

[1]**Disapp.**: Śrī Rāmacandra Kavirāja

Figure 1: Example weekly planner output.

We just need to add two more arguments to `\ddone`, as shown:

```
\newcommand{\ddone}[4]{%
\def\dayone{#1}
\def\moonone{\hfill #2}
\def\tithione{#3}
\def\eventone{#4}
\def\speakone{#5} % Speaker name?
\def\bhagone{#6} % Topic/Verse number.
}
```

In a similar fashion, `\ddtwo`...`\ddseven` are defined. The collected data is given like this:

```
\ddone{13 Jan, Mon}{$\medcirc$}{pū.}
                {Śrī Kṛṣṇa Puṣya Abhiṣeka}
                {Ādi Rasa dāsa}{ŚB 4.29.57}
\ddtwo{14 Jan, Tue}{}{pra.}
                {\textbf{Māgha māsa begins},
                Gaṅgā Sāgara Mela, Makara Śaṅkrānti}
                {Śrīla Prabhupāda}{}
\ddthree{15 Jan, Wed}{}{dvi.}{}
                {Hari Keśava dāsa}{ŚB 4.29.58}
\ddfour{16 Jan, Thu}{}{tṛ.}{}
                {Mahāprabhu Kṛpā dāsa}{ŚB 4.29.59}
\ddfive{17 Jan, Fri}{}{ca.}{}
                {Śaṅkarāraṇya dāsa}{ŚB 4.29.60}
\ddsix{18 Jan, Sat}{}{pa.}
                {\app{Śrīla Gopāla Bhaṭṭa Gosvāmī},
                \disapp{Śrī Rāmacandra Kavirāja}}
                {Uttam Śloka dāsa}{}
\ddseven{19 Jan, Sun}{}{pa.}{}
                {Śrī Jīva Paṇḍita dāsa}{ŚB 4.29.61}
\week
```

The next step is to define the format in which the collected data will appear.

```
\newcommand{\week}{%
\noindent
\begin{tabularx}{\textwidth}{p{3.3cm}p{4cm}p{2.6cm}p{8.3cm}}
  \midrule
    \textbf{\dayone}\moonone\{\small\dev\tithione} &
      \speakone  & \bhagone & \eventone\\
    \textbf{\daytwo}\moontwo\ {\small\dev\tithitwo} &
      \speaktwo & \bhagtwo & \eventtwo\\
    \textbf{\daythree}\moonthree\ {\small\dev\tithithree} &
      \speakthree & \bhagthree & \eventthree\\
    \textbf{\dayfour}\moonfour\ {\small\dev\tithifour} &
      \speakfour & \bhagfour & \eventfour\\
    \textbf{\dayfive}\moonfive\ {\small\dev\tithifive} &
      \speakfive & \bhagfive & \eventfive\\
    \textbf{\daysix}\moonsix\ {\small\dev\tithisix} &
      \speaksix & \bhagsix & \eventsix\\
    \textbf{\dayseven}\moonseven\ {\small\dev\tithiseven} &
      \speakseven & \bhagseven & \eventseven
\end{tabularx}
}
```

The code shown here is for purposes of illustration. I've added some extra formatting to make the schedule visually more appealing. The final result looks like this:

Gaurabda 538 — **Morning class schedule – Jan 2025** — Pauṣa – Māgha

1 Jan, Wed	द्वि.	Prem Rasa dāsa	ŚB 4.29.48	
2 Jan, Thu	तृ.	Uttam Śloka dāsa	- - - - - -	**Disapp.**: Śrīla Jīva Gosvāmī, Śrī Jagadīśa Paṇḍita
3 Jan, Fri	च.	Nāgendra dāsa	ŚB 4.29.49	
4 Jan, Sat	प.	Śaṅkarāraṇya dāsa	ŚB 4.29.50	
5 Jan, Sun	ष.	Hari Keśava dāsa	ŚB 4.29.51	
6 Jan, Mon	स.	Nagendra dāsa	ŚB 4.29.52	
7 Jan, Tue	अ.	Śrīla Prabhupāda	- - - - -	
8 Jan, Wed	न.	Rādheśyāma dāsa	ŚB 4.29.53	
9 Jan, Thu	द.	Rādheśyāma dāsa	ŚB 4.29.54	
10 Jan, Fri	ए.	Madana Govinda dāsa	Līlāmṛta	**Putradā Ekādaśī**
11 Jan, Sat	द्वा.	Keśava Kiśora dāsa	ŚB 4.29.55	**[07:02 - 08:23]**, **App.**: Sri Jagadīśa Paṇḍita
12 Jan, Sun	च.	Madana Govinda dāsa	ŚB 4.29.56	
13 Jan, Mon	○ पू.	Ādi Rasa dāsa	ŚB 4.29.57	Śrī Kṛṣṇa Puṣya Abhiṣeka
14 Jan, Tue	प्र.	Śrīla Prabhupāda		**Māgha māsa begins**, Gaṅgā Sāgara Mela, Makara Śaṅkrānti
15 Jan, Wed	द्वि.	Hari Keśava dāsa	ŚB 4.29.58	
16 Jan, Thu	तृ.	Mahāprabhu Kṛpā dāsa	ŚB 4.29.59	
17 Jan, Fri	च.	Śaṅkarāraṇya dāsa	ŚB 4.29.60	
18 Jan, Sat	प.	Uttam Śloka dāsa		**App.**: Śrīla Gopāla Bhaṭṭa Gosvāmī, **Disapp.**: Śrī Rāmacandra Kavirāja
19 Jan, Sun	प.	Śrī Jīva Paṇḍita dāsa	ŚB 4.29.61	
20 Jan, Mon	ष.	Hari Keśava dāsa		**Disapp.**: Śrī Jayadeva Gosvāmī
21 Jan, Tue	स.	Śrīla Prabhupāda		**Disapp.**: Śrī Locana Dāsa Ṭhākura
22 Jan, Wed	अ.	Śaṅkarāraṇya dāsa	ŚB 4.29.62	
23 Jan, Thu	न.	Mahāprabhu Kṛpā dāsa	ŚB 4.29.63	
24 Jan, Fri	द.	Nāgendra dāsa	ŚB 4.29.64	
25 Jan, Sat	ए.	Nandanandan dāsa	Līlāmṛta	**Ṣaṭ-tilā Ekādaśī**
26 Jan, Sun	द्वा.	Śrī Jīva Paṇḍita dāsa	ŚB 4.29.65	**[07:02 - 10:50]**
27 Jan, Mon	द्वि.	Prem Rasa dāsa	ŚB 4.29.66	
28 Jan, Tue	तृ.	Śrīla Prabhupāda	- - - - -	
29 Jan, Wed	च.	Uttam Śloka dāsa	ŚB 4.29.67	
30 Jan, Thu	प.	Madana Govinda dāsa	ŚB 4.29.68	
31 Jan, Fri	ष.	Kṛṣṇa Āśraya dāsa	ŚB 4.29.69	

Thus ends (so far) my experiments with LaTeX to create beautiful looking books and documents. However, I am limited by my own capacity. Anyone interested to beautify these documents further may write to me personally so that I can share the entire code and learn something more. That is not all. I also present few project ideas in the next section — I am open to more ideas as well.

5 Further scope

The goal of this section is to show how ancient wisdom can be presented (and published) with the help of TeX and friends.

5.1 Diagrammatic presentation of Vedic concepts

One of our prominent services to the society has to do with education and training: Educating people about the quintessential conclusions of the Vedic literature and training them how to put these teachings into practice. Vedic literature works themselves are quite coherent and cogent and therefore need to be presented as such.

Diagrams, including flowcharts, block diagrams, etc., are one of the best ways to convey a flow of thought, a step-by-step procedure, and hierarchical concepts/facts. In contrast to reading (and getting lost in) seemingly endless verses, a succinct diagram encapsulating a chapter's (or group of chapters') main points can benefit a person looking for a quick summary.

5.2 Vedic cosmology

Vedic cosmology is one of India's best kept secrets. Detailed descriptions of our planetary systems replete with the linear and angular distances between different celestial objects have been presented in codified Sanskrit verses. This information and the mathematical capabilities of Ti*k*Z can be used to depict the structure of the universe along with orbits of planets therein.

5.3 Astrological science (Jyotiṣa śāstra)

Indian astrology involves calculating the positions of planets and constellations in a system of squares according to a person's date, place and time of birth. They also involve extensive mathematical calculations. The cyclical nature of time and the movements of planets and constellations can be programmed and used to generate automated horoscopes.

5.4 Architectural science (Vāstu śāstra)

Vāstu śāstra is a traditional Indian system of architecture based on ancient texts that describe principles of design, layout, measurements, ground preparation, space arrangement, and spatial geometry. Most design parameters are heavily symmetric and can be represented using Ti*k*Z.

6 Conclusion

I would like to wholeheartedly thank the entire TeX community for their hard work in giving us this wonderful software. Thanks also to the TUG board for allowing me to attend the TUG'25 conference. Special thanks to Karl Berry for encouraging me to present our use case. If anyone would like to discuss further, collaborate with or help us in our efforts, please send email to `vrgovinda2019@protonmail.com`.

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