The typesetting of Gregorian Chant

according to one method amongst many, one with which the author of this workshop has significant experience, expressing no opinions on the merits of other methods – disclaimer before you burn me at the stake.

Also, this is hard, finnicky, not useful to everyone – feel free to leave if it's not for you – but also a skill you're glad to have when you need it, and the need might be unforeseen.

Session Grégorienne Solesmes 2025 – Matthias Bry

0a. Connecting to the Internet

- Good luck
- Yay France!
- Wifi: « marteo » / Password: « SGS2025 »

0b. Fetching the workshop tools

- Plug a USB stick
- GABC/NABC : copy-paste the « introduction » folder on your computer
- LaTeX : copy-paste the « advanced » folder on your computer

1. GABC first steps

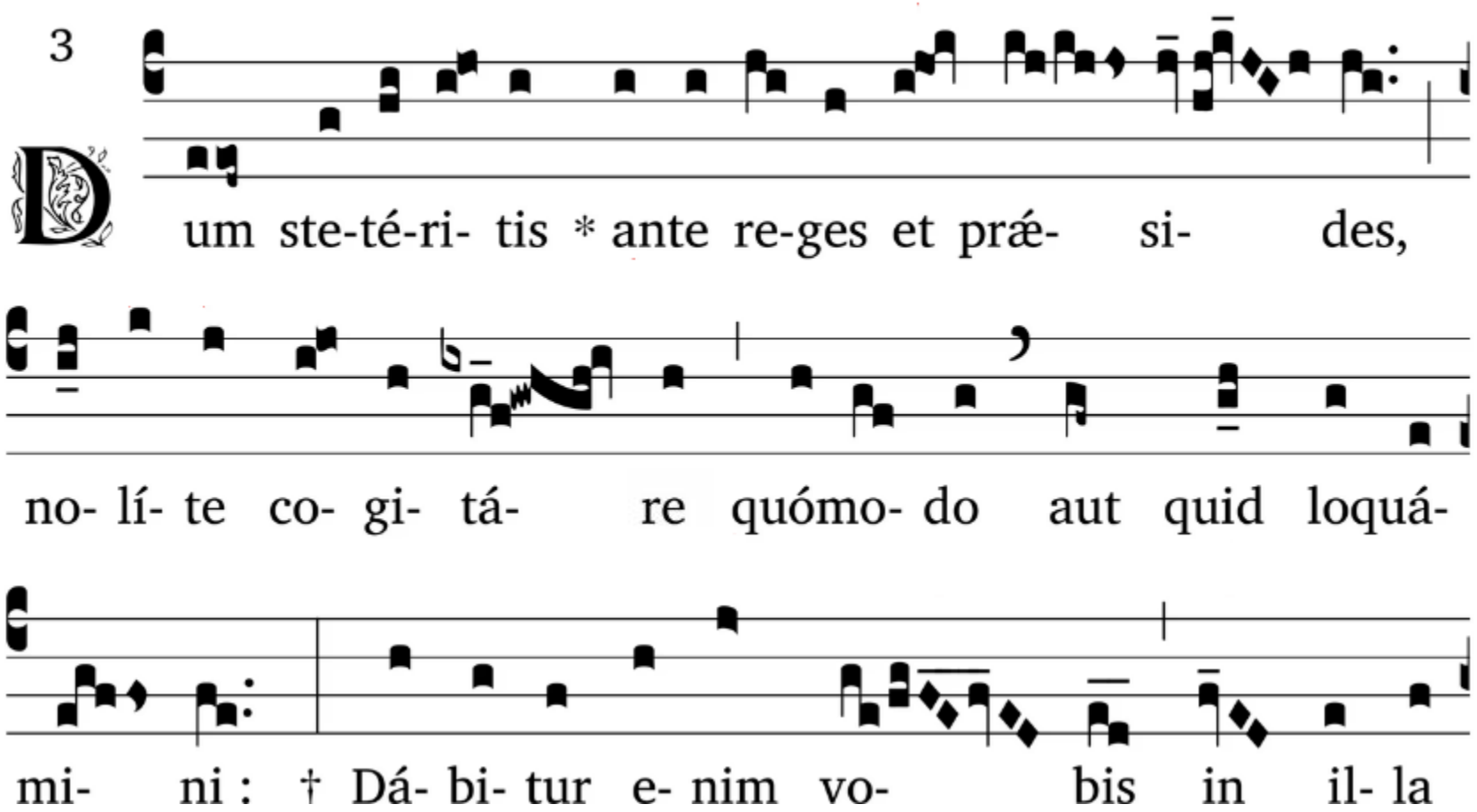
- Let’s play with GABC for a bit, we’ll do the theory later

- Open scrib.io, from the Internet if we have it, otherwise « introduction / scrib.io / index.html »

- Ouvrir the GABC cheat sheet : https://gregobase.selapa.net/wp-content/uploads/2021/01/summary-gabc-v5.pdf (otherwise « introduction / summary-gabc-v5.pdf »)

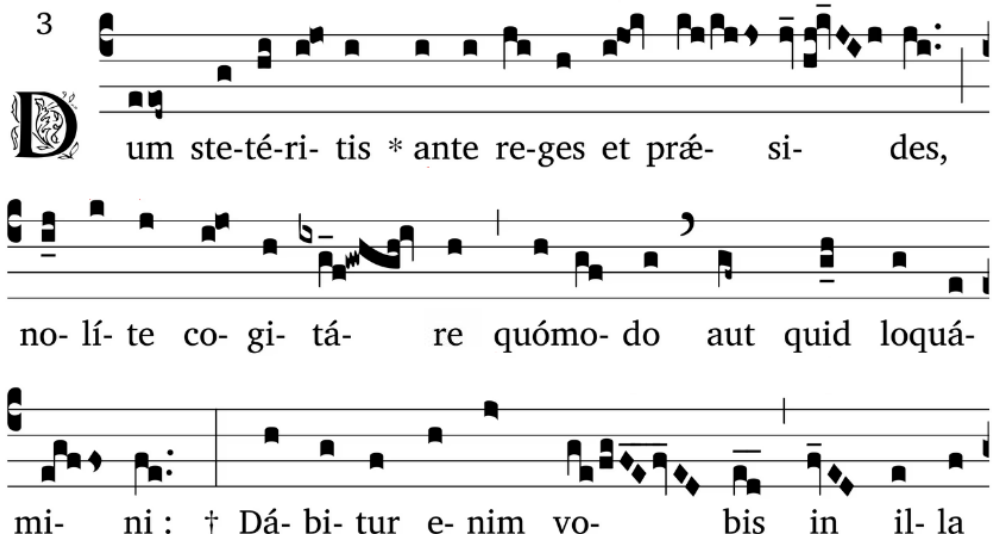
1. GABC first steps

- Assignment



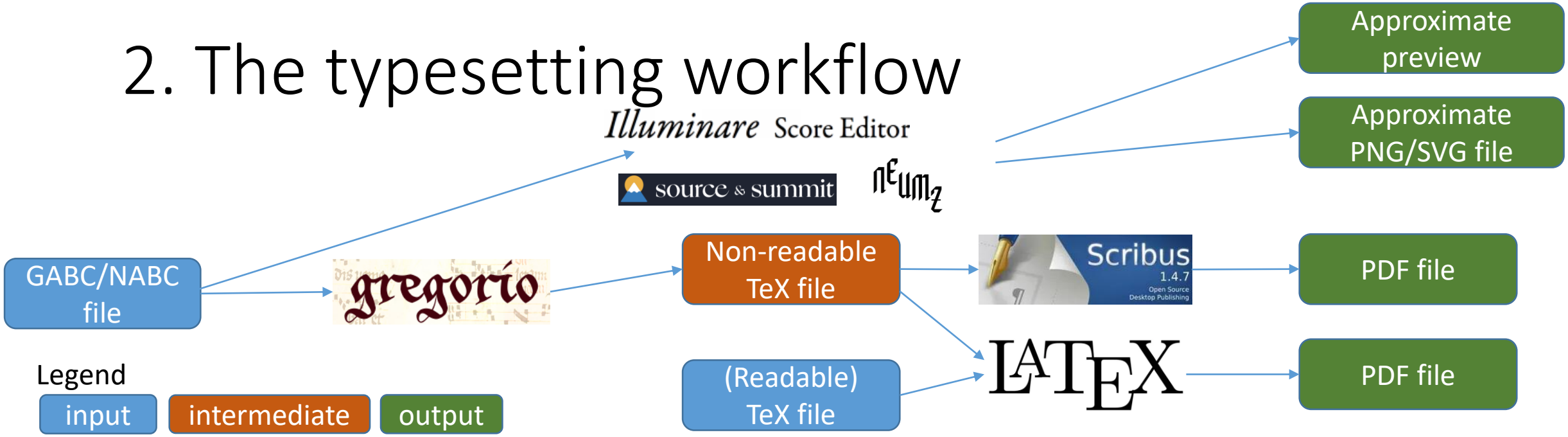
1. GABC first steps

- Answers



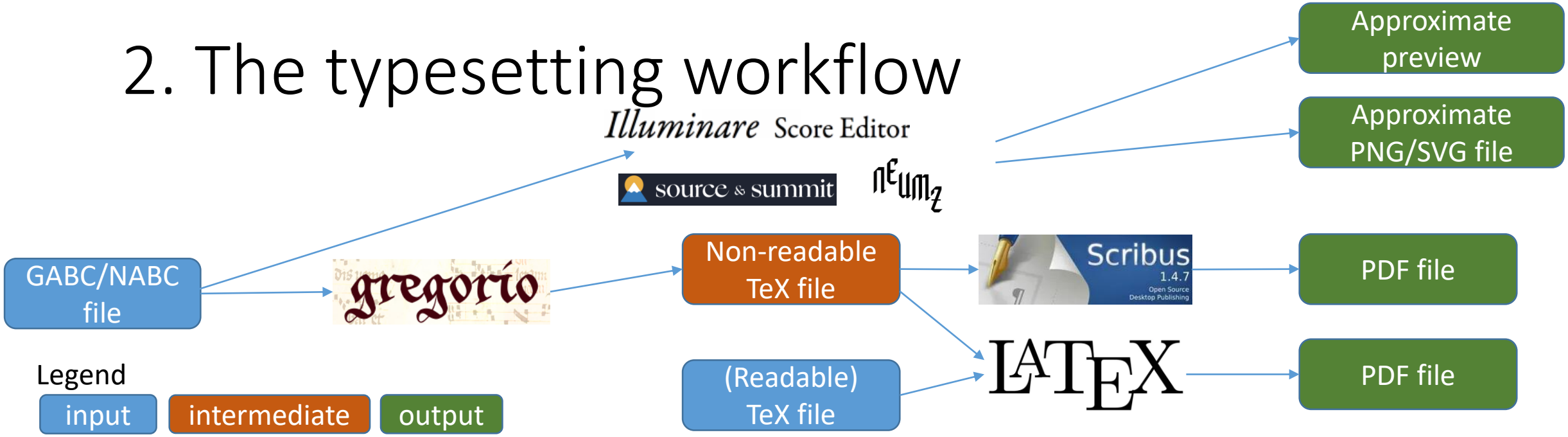

```
(c4) Dum(eeod~) ste(g)té(hi)ri(i@jo)tis(i) <sp>*</sp>
an(i)te(i) re(ji)ges(h) et(i@jok) práe(kj/kjjs)si(jv_//hj!kv_JIj)des,(ji..) (;)
no(i_j)lí(k)te(j) co(i@jo)gi(h)tá(ixg_f!gwhgh!iv)re(h) (,)
quó(h)mo(gf)do(g) (`) aut(gf~) quid(g_h) lo(g)quá(e)mi(egffs)ni:(fe..) (:)
```

2. The typesetting workflow



- GABC is a language that allows a human to describe a monophonic music score in square notes, in a way that a computer can understand
- NABC (see later in this presentation) is an extension of GABC – through additional syntax – that allows a human to describe ancient neumes
- Web-based tools like Chant Tools, Illuminare, Source&Summit and Scrib.io allow previewing of the score described by some GABC code, and to export this preview as an image

2. The typesetting workflow



- gregorio is a program that compiles (= « translates ») a GABC/NABC file into a non-human-readable TeX file that will be eventually eaten by LaTeX.
- LaTeX is a program that compiles a combination of TeX files (some human-readable, some not) into PDF files
- Scribus a desktop publishing program that can integrate TeX fragments, and therefore GABC scores compiled by gregorio, with more limitations than LaTeX.
- gregoriotex is a LaTeX package (= a set of additional features of LaTeX) that allows the user to highly customize the typesetting of GABC/NABC scores within a LaTeX project. It calls gregorio on your GABC file, fetches the TeX result, and integrates it with the rest of your TeX.

3. File formats: the GABC file

- .gabc extension, e.g. dum_steteritis.gabc
- headers of the form name: value;
- %% separator
- GABC code: (c4) syl(gabc)la(gabc)ble(gabc) (::)

```
name:Dum steteritis ante reges;
office-part:re;
mode:3;
submitter:marteo;
% nabc-lines:1; % this line is commented out (ignored by the computer)
% it must be uncommented if the score has NABC
%%
(c4) Dum(eeod~) ste(g)té(hi)ri(i@jo)tis(i) <sp>*</sp>
an(i)te(i) re(ji)ges(h) et(i@jok) prǽ(kj/kjjs)si(jv_//hj!kv_JIj)des,(ji..) (;)
no(i_j)lí(k)te(j) co(i@jo)gi(h)tá(ixg_f!gwhgh!iv)re(h) (,)
quó(h)mo(gf)do(g) (`) aut(gf~) quid(g_h) lo(g)quá(e)mi(egffs)ni:(fe..) (:)
```

3. File formats: the TeX file

- Preamble
  - \documentclass{…} % article, book, report
  - \usepackage{…}
  - \newcommand{\exemplecommande}[n_args]{définition}
  - Instructions communes à l'ensemble du document
- Document
  - \begin{document}
  - Titre, contenu
  - \chapter{…} % si documentclass = book
  - \section{…}, \subsection{…}
  - \paragraph{…}, \subparagraph{…}
  - \gregorioscore{dum_steteritis}
  - Contenu
  - \end{document}

4. First steps with (Lua)LaTeX

- For Windows users:
  - Run Atelier_RG\latex\miktex-portable.cmd
    - A window should open then close
  - In the lower right icons, find « MiKTeX Console » and open it
    - The MiKTeX console allows you to upgrade MiKTeX and add packages (extensions)
  - Click on the TeXWorks icon, on the left of the console (the « T » with a pen)
  - Open Atelier_RG\exercices\minimal.tex in TeXWorks
  - Compile it using the green « play » button
- For MacOS users:
  - Having installed MacTeX, run in the « exercices » folder:
    `lualatex --shell-escape minimal.tex`
  - Or use your favorite GUI
- For Linux users:
  - I assume you know what to do

4. First steps with (Lua)LaTeX

- Compile joli.tex and observe the differences from minimal.pdf
- What happened?
  - The page format changed
  - The lyrics font changed
  - The lettrine/initial font changed
  - We shrank the mode number above the lettrine
  - Added ancient neumes
    - But there's a bit of a problem on the third line: we'll see how to fix it later
  - Added a dot after the V/ sign, without adding said dot to the GABC; and colored that sign red.
- Read the comments in joli.tex to get an idea of how!

5. A few pointers to go further

- In the folder « exemple_complet » you'll find the Mass of SS. Simon & Jude, with bilingual typesetting and a few useful packages:
  - Typesetting on several balanced columns
  - Typesetting in parallel columns (latin and vernacular) with `paracol` et `parcolumns` (two possibilities with their own pluses and minuses)
  - Typesetting of psalms with the environment `itemize`
  - Typesetting of rubric (use `gregoriocolor` instead of `red` if your scores use <c>, which calls `gregoriocolor`)
  - Translation of hymn lyrics with explicit line breaks

5. A few pointers to go further

- For larger projects
  - Version management / source flow control becomes essential
  - https://github.com/nocturnale-romanum/nocturnale-romanum gives insight into:
    - The package `subfiles` to split a project in several, separately-compiled .tex files
    - Headers shared between sub-projects to ensure typographical uniformity
    - Architecture choices: directory structure – do I want to share my gabc between sub-project or does each have its own? Etc.
    - (side note: Latex can \input a file placed anywhere, but cannot \include (ou \subfile) except in the same folder, or subfolder of its own folder.)
- Helpful but a bit « much »:
  - GregorioRef.pdf
  - GregorioNabcRef.pdf pour le NABC
- Always search before asking (except today):
  - Google
  - TeX Stackexchange

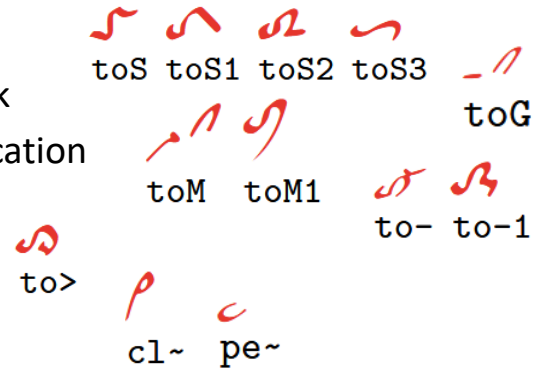
6. NABC first steps

- All examples given for sangallian neumes.
  Laon works identically with its own base glyphs (uncinus…).
- Base glyphs:

vi virga	po porrectus	tr torculus resupinus	tv trivirga	pq pes quassus
pu punctum	to torculus	st stropha	pr pressus maior	ql quilisma (3 loops)
ta tractulus	ci climacus	ds distropha	pi pressus minor	qi quilisma (2 loops)
gr gravis	sc scandicus	ts tristropha	vs virga strata	pt pes stratus
cl clivis	pf porrectus flexus	tg trigonus	or oriscus	
pe pes	sf scandicus flexus	bv bivirga	sa salicus	

sc scandicus

- Base glyphs modifiers:
  - S « shape » = long variant
  - G « grouping » = neumatic break
  - M « melody » = melodic modification
  - - (tiret) episema
  - > augmentative liquescence
  - ~ diminutive liquescence



6. NABC first steps

- prepunctis/subpunctis descriptor:

  pp1, pp2, pp3…
  ppt1, ppt2, ppt3…
  …
  su1, su2, su3…
  sut1, sut2, sut3…
  …

- Significative letters

1 2 3

4 6

7 8 9

vi-pp2su2

- t tractulus
- u tractulus with episema
- v tractulus with double episema
- w gravis
- x liquescens stropha
- y gravis with episema

lsal altius
lsam altius mediocriter
lsb bene
lsc celeriter
lscm celeriter mediocriter
lsco coniunguntur
lscw celeriter (wide form)
lsd deprimatur
lse equaliter
lseq equaliter
lsew equaliter (wide form)
lsfid fideliter
lsfr frendor
lsg gutture
lsi iusum
lsim iusum mediocriter

lsiv iusum valde
lsk klenche
lsl levare
lslb levare bene
lslc levare celeriter
lslen leniter
lslm levare mediocriter
lslp levare parvum
lslt levare tenere
lsm mediocriter
lsmoll molliter
lsp parvum
lspar paratim
lspfec perfecte
lspm parvum mediocriter
lspulcre pulcre

lss sursum
lssb sursum bene
lssc sursum celeriter
lssimil similiter
lssimul simul
lssm sursum mediocriter
lsst sursum tenere
lssta statim
lst tenere
lstb tenere bene
lstm tenere mediocriter
lstw tenere (wide form)
lsv valde
lsvol volubiliter
lsx expectare

6. NABC first steps

- Vertical alignment :

  ha, hb… hm
  Between (base glyph+modifiers) and the pre/subpunctis descriptor

- Horizontal alignment :
  / = half a square note width to the right
  ` = half a square note width to the left

- Neumatic fusion : exclamation point « ! » between two (base glyph+modifier)

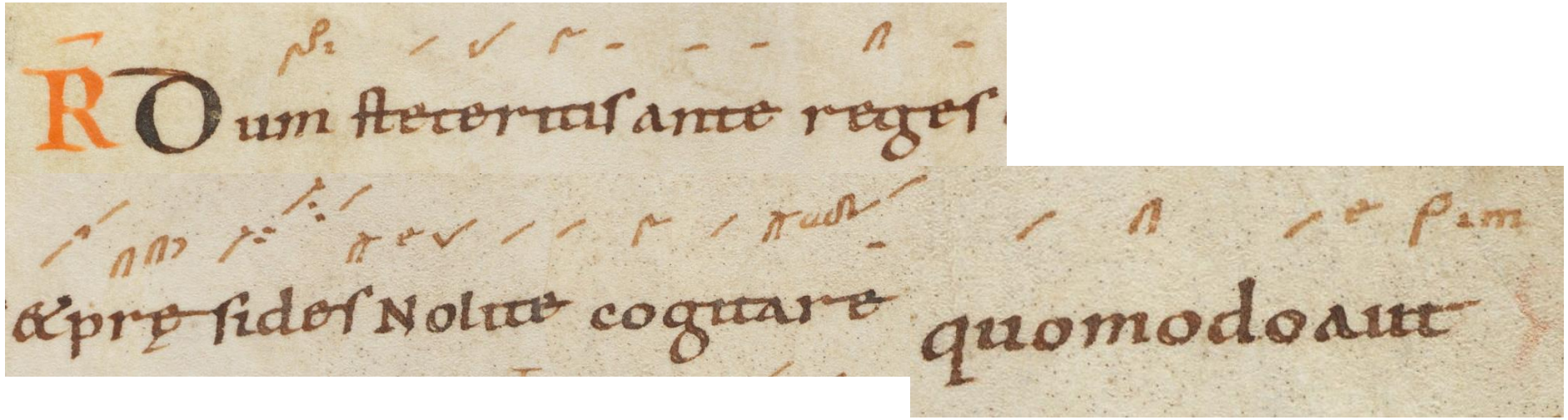
- Examples :

qlhh!vshhppt1sut2

pe>2lse7lsl3

6. NABC first steps

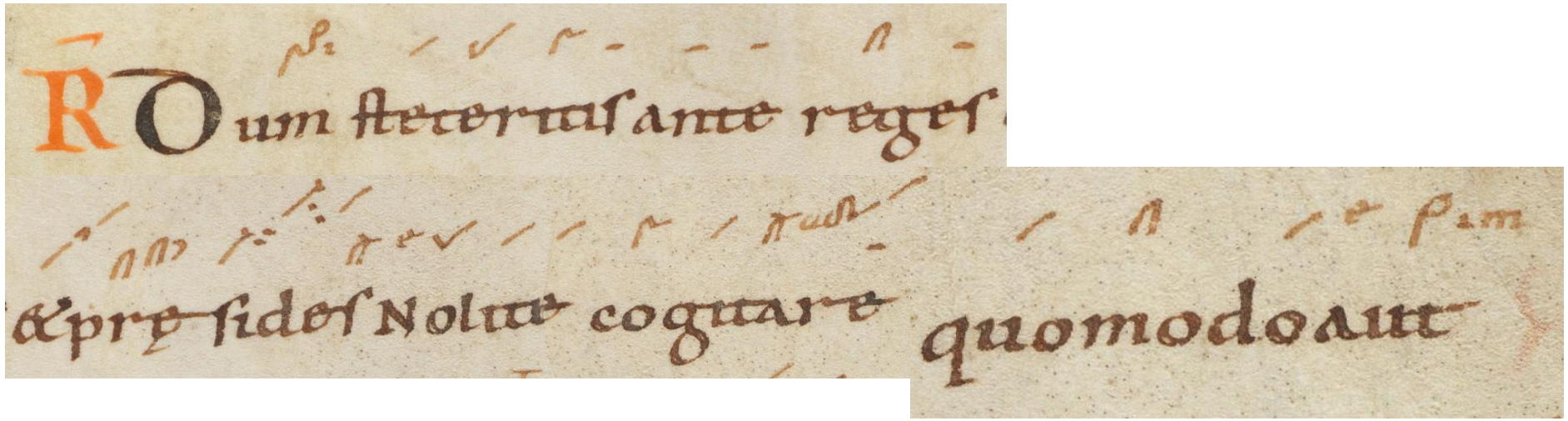
- Assignment :
  https://scrib.io
  https://www.e-codices.unifr.ch/en/csg/0391/167



```
(c4) Dum(eeod~) ste(g)té(hi)ri(i@jo)tis(i) <sp>*</sp>
an(i)te(i) re(ji)ges(h) et(i@jok) práe(kj/kjjs)si(jv_//hj!kvJIj)des,(ji) (;)
no(ij)lí(k)te(j) co(i@jo)gi(h)tá(ixgf!gwhgh!iv)re(h) (,)
quó(h)mo(gf)do(g) (`) aut(gf~)
```

6. NABC first steps

- Answer (1/2)



```
(c4) Dum(eeod~|vs>lsi6) ste(g|vi)té(hi|pe)ri(i@jo|vshg)tis(i|ta) <sp>*</sp>
an(i|ta)te(i|ta) re(ji|cl)ges(h|ta) et(i@jok|saM)
práe(kj/kjjs|clhhclhisthk)si(jv_//hj!kv_JIj|vi-hh///ci-hlpp2vihj)des,(ji..|cl-) (;)
no(i_j|```peSlse4)lí(k|vi)te(j|vi)
co(i@jo|vs)gi(h|vi)tá(ixg_f!gwhgh!iv|////cl-/ql!po/vihk)re(h|ta) (,)
quó(h|vi)mo(gf|cl)do(g|vilse6) (`) aut(gf~|vi>lsim6)
```

6. NABC first steps

- Answer (2/2)