

# Proofreading Notes for Theta.pdf (Pages 1–6)

## Page 1

- Abstract: Use standard math punctuation: ' $\Theta = (\Delta, \theta)$ '.
- Abstract bullets: make parallel; e.g., start each with an adjective ('Fast:', 'Strong:', 'Meaningful:', 'Fun:').
- Abstract: 'compute it in full'  $\rightarrow$  'compute it fully'.
- Abstract: 'evaluation at simple rational numbers'  $\rightarrow$  'evaluate it at simple rational numbers'.
- Tone: ' $\Delta$  is merely the Alexander polynomial'  $\rightarrow$  ' $\Delta$  is the Alexander polynomial.'
- Date line: 'First edition Not Yet. This edition August 31, 2025.'  $\rightarrow$  'First edition: —. This edition: August 31, 2025.'
- Replace placeholder 'arXiv:????.?????' with final arXiv ID; wrap URLs with `\url{}` or `\href{}`.
- Keywords / MSC: check capitalization and hyphenation ('polynomial-time computations').

## Page 2

- Section title '1. Fun': fine; consider a brief lead-in sentence connecting images to invariants.
- Typo/notation: Specify the knot when giving  $\Delta$  example; e.g., 'For the trefoil  $3_1$ ,  $\Delta(T) = T^{-1} - 1 + T$ '.
- Style: '2D'  $\rightarrow$  '2-D' (journal-dependent) and 'colours'/'colors' consistency (choose one).
- Clarity: 'on right'  $\rightarrow$  'on the right' in caption text.
- Shear description: add 'we': 'we apply a shear transformation ... before printing'.
- Figure references: clarify 'the bar code and hexagonal QR code are shown in Figure 1.1'.

## Page 3

- Figure 1.1 caption: Consider italics for  $\Theta$  and consistent casing for 'QR code'.
- Accessibility: explain the row/column indexing ('0 1 3 1 4 1 ...') or remove if unnecessary.
- Clean typeset: unify or omit external links in page footer for final version.

## Page 4

- Figure 1.2 caption: Cite '[BV3, WeaveKnots.nb]' via the bibliography.
- Figure 1.3 caption: 'with equal probabilities'  $\rightarrow$  'with equal probability'.
- Image credit block: standardize license formatting and punctuation.

## Page 5

- Section 2 opening: 'an example upright knot diagram'  $\rightarrow$  'an example of an upright knot diagram.'
- Footnote 1: 'with +1 signs and caps with -1'  $\rightarrow$  'with +1 for cups and -1 for caps.'
- Matrix A definition: add colon after 'defined by'.
- Eq. (2): prefer 'equal to ... up to multiplication by a unit'.
- Define writhe and total rotation immediately after Eq. (2).
- Capitalize 'Green Function' consistently if treated as a term.
- Traffic rules: hyphenate 'under-strand' consistently.

## Page 6

- Theorem 1: separate the definition of  $\theta_0(D)$  from  $\theta(D)$  for readability.
- Comment 2: 'takes values in the field  $Q(T_1, T_2)$ ' (rather than 'ring').
- Comment 5: avoid colloquial 'computers don't care' in journal version.
- Numerics: mention ' $\approx n^3$  operations' once; avoid repeating.