List of corrections completed

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Main corrections

Page 38 - Comment on criticisms of Bayesian model choice, such as high sensitivity to priors and problems for misspecified models, perhaps with reference to Bernardo and Smith's concept of "M-closed" and other settings in "Bayesian Theory" (Section 6.1.2)
Additional material added to end of Section 1.3.4 (from paragraph starting 'A common criticsm...' on page 39).

Pg 199 - Discuss reasons for taking $\delta t = 1$ rather than $\delta t \ll 1$ in the Lotka-Volterra SDE example.
Added clarification of dependence of efficient Jacobian product decomposition in the Lotka–Volterra experiments on observing all simulated time steps as opposed to simulating using a smaller δt and observing only e.g. every 10th. Sentence added at end of paragraph below generator code snippet on page 201, with added material beginning 'This Markovian structure...'.

Minor corrections

Some Radon-Nikodyn derivatives were written with ∂ symbols.
All instances of use partial derivatives in Radon–Nikodym corrected.

Page 31 - "in figure 1.4 we assume the local latent and observed variables are conditionally independent given the global latent variables". Reword to make clear that it's conditional independence of (y, z) pairs of the other pairs.
Conditional independence statement clarified in first paragraph on page 31.

Pg 103 - Mention condition that p must be absolutely continuous with respect to q.
Absolute continuity condition added in first paragraph on page 105.

Pg 107 - Introduce the notation Y, v used for the measure of the latent variables.
Reference measure ν notation now explicitly defined in last paragraph on page 109.

A few mathematical terms not defined e.g. Pg 172 - "foliation", Pg 181 - "submersion"
The term 'foliation' was replaced with 'partition' which is less technical but still gives the correct meaning on bottom of page 174. Giving a correct definition of 'foliation' would have required introducing further non-relevant differential geometry material which I didn't think was worthwhile. The term 'submersion' is now defined in a margin note on page 183 and 'fibre' is defined on a margin note added to page 174.

Pg 157 - Clarify: "a generative model... will not uniquely define the resulting joint distribution". It could be argued this should be the other way round.
Sentence at start of last paragraph on page 159 reworded.

Pg 200 - Clarify why population blowup is a problem for inference.
Added explanation at end of second paragraph on page 202.

Pg 201 - Confirm that ABC summary statistics were normalised.
On reviewing the code for this experiment, I found that I did not normalise the summary statistics. I repeated the relevant experiments with the summary statistics normalised by their estimated standard deviations under the prior (and excluding outliers corresponding to unstable dynamics). A description of the normalisation scheme was added (end of second paragraph on page 203, starting 'To account for') and the analysis of the results in following two paragraphs and Figure 4.10 updated to reflect the results of the new correctly normalised experiments.

Pg 237 - First term of (5.37) seems incorrect.
Term corrected in equation (5.37) on page 239.

Typos

Pg 88 - "The variables $x \in X$ on which the target distribution P which we wish to estimate integrals with respect to..."
Second paragraph page 90, 'The variables $\mathbf{x} \in X$ on which the target distribution P is defined'

Pg 104 - "with they also giving"
Last paragraph (start of section 3.2) on page 106, 'as part of an'

Pg 106 - "assumption of that the"
First sentence of second pagraph on page 108, 'under an assumption that'

Pg 108 - "we known that"
Start of last paragraph on page 110 'we know that'

Pg 133 - "$j \in \{1..j-1\}$"
Code snippet on bottom of page 135, $j \in \{1 \dots i-1\}$

Pg 163 - "contribution from to"
Penultimate line in last paragraph on page 165. 'contribution to the estimator'

Pg 167 - "it challenging to monitoring"
Third paragraph page 169, 'it challenging to monitor'

Pg 176 - "left target distributions"
First paragraph in Section 4.8 on page 178, 'leaves a target distribution'

Pg 183 - "from the that proposed"
Last paragraph on page 185 'from that proposed in'

Pg 190 - "with they employing"
Third paragraph on page 192, 'with a pseudo-marginal ABC'

Pg 197 - What does "grouped chains" refer to?
Second paragraph on page 199, changed 'in seconds, grouped chains of each the four approaches tested' to 'in seconds for each of the four approaches tested'

Pg 202 - "conditioned on the summary statistics of the data being within a distance of $\epsilon = 2.5$ of the data" should end "of the observed summaries".
Clause 'the estimated posterior may in fact be reflective of the true location of the mass of the distribution conditioned on the summary statistics of the data being within a distance of $\epsilon = 2.5$ of the data' removed from inside parentheses in first paragraph on page 204.

Pg 204 - "we can simply defined"
Second paragraph on page 206 'we can simply define an augmented'

Pg 213 - "and these with which a model can be repurposed"?
Clause removed from first sentence of last paragraph on page 215 '[of the approach] and these with which a model can be repurposed to another task while using the same inference methods[, we also considered]'

Pg 223 - "a sequence of... transition operator... are defined"
After equation (5.5) on page 225 'a sequece of $K-1$ Markov transition operators'

Pg 227 - "with they linking"
After equation (5.15) on page 229 'and $\mathbf{x} \,|\, \beta$, with they lonking this idea to simulated tempering' to 'and $\mathbf{x} \,|\, \beta$ as an obvious analogue to simulated tempering'

Pg 227 - "in of the"
After equation (5.15) on page 229, 'In of the equations' to 'In the equation'

Pg 228 - "momenta however" -> "momenta. However"
Second last paragraph on page 230 'This can be ameliorated by regular resampling of the momenta however this potentially increases random-walk behaviour' to 'This can be ameliorated by regular resampling of the momenta at a cost of increasing the random-walk behaviour'

Pg 234 - "to corresponds to"
Start of second paragraph on page 236 'target distribution to corresponds to' to 'target distribution corresponds to'

Pg 234 - "respect to the the"
After equation (5.25) on page 236 'as expectations with respect to the the marginal distributions' to 'as expectations with respect to the marginal distributions'

Pg 240 - "the as result of"
Final paragraph on page 242 'on $\log Z$ the as result of (5.33)' to 'on $\log Z$ as a result of (5.33)'

Pg 292 - "Maria Antonieta Nunes" -> "Matthew A Nunes"
Reference [44], last entry on page 296.

Additional corrections

- Various typos fixed throughout document as encountered while going through corrections.
- Small text and hyphenation changes throughout document to fix overful hboxes (lines with too many characters).
- Changes to bibliography entries to use consistent formatting.
- Fixes to small mistakes in various figures such as missing axis tick labels or disconnected edges on factor graphs.
- Minor update to acknowledgements.
- Updating acronyms to be cross-reference to list of abbreviations in abstract.
- Fixes to Lebesgue integral notation to make consistent across chapters e.g. $\mathrm{d}\mu(x)$ changed to $\mu(\mathrm{d}x)$.
- Added content comparing continuous tempering method to *Importance tempering* by Gramacy, Samworth and King (2010) in Discussion section on page 254.