The following corrections have been made to the Lecture Notes. The changes are all included in the current version on my webpage.

Lecture 9 *The definition of Hyperbolic transformations is inconsistent on Page 36. Change it to:*

A non-identity Möbius transformation is said to be:

parabolic if it is conjugate to P;

elliptic if it is conjugate to M_k for $|k| = 1$ $(k \neq 1)$;

hyperbolic if it is conjugate to M_k for $k \in \mathbb{R}^+$ $(k \neq 0, +1)$;

loxodromic if it is conjugate to M_k for $k \in \mathbb{C}$ with $|k| \neq 1$ and $k \notin \mathbb{R}^+$.

So a Möbius transformation $T : z \mapsto \frac{az+b}{cz+d}$, with $ad - bc = 1$, is

the identity if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\pm \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$.

parabolic if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\pm \begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$.

elliptic if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\begin{pmatrix} \lambda & 0 \\ 0 & \lambda^{-1} \end{pmatrix}$ for some λ with $|\lambda| = 1$.

hyperbolic if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\begin{pmatrix} \lambda & 0 \\ 0 & \lambda^{-1} \end{pmatrix}$ for some λ with $\lambda \in \mathbb{R}$ and $\lambda \neq -1, 0, +1$.

loxodromic if $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is conjugate to $\begin{pmatrix} \lambda & 0 \\ 0 & \lambda^{-1} \end{pmatrix}$ for some λ with $\lambda \notin \mathbb{R}$ and $|\lambda| \neq 1$.

Lecture 23 *Change "large" to "small" in the comment after Lemma 23.4:*

Lemma 23.4
Let $\mathcal{D}$ be a hyperbolic plane at a hyperbolic distance ρ from the origin in $B^3 = \mathbb{H}^3$. Then the Euclidean diameter of $\mathcal{D}$ is at most $2/\sinh\rho$.

This is essentially the same result as Lemma 19.4. The inequality is only useful when ρ is large. For small ρ the observation that $\mathrm{diam}(\mathcal{D}) \leqslant 2$ is better.
