Corrigendum
Libration-induced mean flow in a spherical shell

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Unfortunately, a few misprints have been found in the paper entitled "Libration-induced mean flow in a spherical shell" published in *J. Fluid Mech.* **718**, 181209 (2013).

Contrarily to what is written on page 191, the value of $\mathcal{F}$ at $\rho = 1$ is $\mathcal{F}(1, \omega) = 1/(2\omega^2)$.

The expressions of the function $\mathcal{F}(\sin\theta, \omega)$ given in the appendix B are not correct. Formula (B1) should be

$$
\begin{aligned}
\mathcal{F}(\sin\theta;\omega) = &-\left[\frac{({s_+}^3 + {s_-}^3)\sin^4\theta}{32\,{s_+}^3\,{s_-}^3} + \frac{(s_- - s_+)\,\cos\theta\sin^2\theta}{8 s_+ s_-}\right]\left[\frac{s_+ - \sqrt{\cos\theta}}{{s_+}^2 - \cos\theta} - \frac{s_- - \sqrt{\cos\theta}}{{s_-}^2 + \cos\theta}\right] \\
&+ \frac{\sin^2\theta(s_+ + \sqrt{\cos\theta})}{32\,{s_+}^3(\cos^2\theta + 4\,{s_+}^4)}[2\,{s_+}^2 - 2\,s_+\sqrt{\cos\theta} + \cos\theta]\,[\sin^2\theta + 4\,{s_+}^2\,\cos\theta] \\
&+ \frac{\sin^2\theta(s_- + \sqrt{\cos\theta})}{32\,{s_-}^3(\cos^2\theta + 4\,{s_-}^4)}[2\,{s_-}^2 - 2\,s_-\sqrt{\cos\theta} + \cos\theta]\,[\sin^2\theta - 4\,{s_-}^2\,\cos\theta] \\
&- \frac{\sin^2\theta}{32\,{s_-}^3\,{s_+}^3\,({s_-}^2 + {s_+}^2)\,[{s_-}^2 + {s_+}^2 + 2\,s_+\sqrt{\cos\theta} + \cos\theta]^2} \\
&\Big[({s_-}^2 + {s_+}^2)[{s_-}^6 + 7\,{s_+}^2\,{s_-}^4 + 8\,{s_-}^7\,{s_+}^3 - 7\,{s_-}^2\,{s_+}^4 + 16\,{s_-}^5\,{s_+}^5 \\
&-{s_+}^6 + 4\,{s_+}^3\,{s_-}^3\,(-3 + 2\,{s_+}^4)] + [4{s_-}^6 s_+ - {s_-}^4 {s_+}^3 - 16{s_-}^2{s_+}^5 - 3{s_+}^7 \\
&+4{s_-}^5{s_+}^2(-3 + 16{s_+}^4) + {s_+}^4{s_-}^3(-19 + 32{s_+}^4) + {s_-}^7(-1 + 32{s_+}^4)]\sqrt{\cos\theta} \\
&+[4{s_-}^8{s_+}^2 - 3{s_+}^6 + {s_-}^6(1 - 20{s_+}^4) + {s_-}^2{s_+}^4(-11 + 4{s_+}^4) \\
&+4{s_+}^3{s_-}^3(-3 + 16{s_+}^4) + {s_-}^5(-4s_+ + 64{s_+}^5) + {s_-}^4({s_+}^2 - 20{s_+}^6)]\cos\theta \\
&-[4\,{s_-}^7\,{s_+}^2 + 4\,{s_-}^6\,{s_+}^3 + {s_+}^5 + 56\,{s_-}^4\,{s_+}^5 + {s_-}^3\,{s_+}^2\,(3 - 76\,{s_+}^4) \\
&+{s_-}^5\,(1 - 8\,{s_+}^4) + 3\,{s_+}^3\,{s_-}^2\,(1 - 4\,{s_+}^4)]\,\cos^{3/2}\theta \\
&+[-{s_-}^8 - 4{s_-}^6{s_+}^2 - 4{s_+}^3{s_-}^5 - 48{s_-}^4{s_+}^4 + 60{s_+}^5{s_-}^3 + 20{s_-}^2{s_+}^6 + {s_+}^8]\cos^2\theta \\
&+[{s_-}^7 - 4{s_-}^6 s_+ + 8{s_-}^5{s_+}^2 - 11{s_-}^4{s_+}^3 + 31{s_+}^4{s_-}^3 + 20{s_-}^2{s_+}^5 + 3{s_+}^7]\cos^{5/2} \\
&+[-{s_-}^6 + 4\,{s_-}^5\,s_+ - {s_+}^2\,{s_-}^4 + 12\,{s_+}^3\,{s_-}^3 + 11\,{s_-}^2\,{s_+}^4 + 3\,{s_+}^6]\,\cos^3\theta \\
&+({s_-}^5 + 3\,{s_-}^3\,{s_+}^2 + 3\,{s_+}^3\,{s_-}^2 + {s_+}^5)\,\cos^{7/2}\theta\Big] \\
&+ \frac{\sin^2\theta}{4},
\end{aligned}
\tag{0.1}
$$

where

$$
s_+ = \sqrt{\frac{\omega}{2} + \cos\theta} \quad \text{and} \quad s_- = \sqrt{\frac{\omega}{2} - \cos\theta}. \tag{0.2}
$$

Formula (B3) should be

$$
\begin{aligned}
\mathcal{F}(\sin\theta;\omega) = \frac{\sin^2\theta}{32}\Bigg[& 8 + \frac{(l_+ + \sqrt{\cos\theta})\,(4\,l_+^2\,\cos\theta + \sin^2\theta)}{l_+^3\,(2\,l_+^2 + 2l_+\sqrt{\cos\theta} + \cos\theta)} + \frac{(l_- + \sqrt{\cos\theta})\,(4\,l_-^2\,\cos\theta + \sin^2\theta)}{l_-^3\,(2\,l_-^2 + 2l_-\sqrt{\cos\theta} + \cos\theta)} \\
& - \frac{4\,(l_-^3 + l_-^2\sqrt{\cos\theta} + (l_- + l_+)\,\cos\theta}{l_+\,l_-\,(l_- + \sqrt{\cos\theta})} - \frac{l_-^4\,\sin^2\theta\,(l_- + \sqrt{\cos\theta} + (l_+^3 + l_-^3)/l_-^4\,\cos\theta)}{\cos\theta\,l_+^3\,l_-^3\,(l_- + \sqrt{\cos\theta})} \\
& - \frac{4\,(l_+^3 + l_+^2\sqrt{\cos\theta} + (l_+ + l_-)\,\cos\theta}{l_-\,l_+\,(l_+ + \sqrt{\cos\theta})} - \frac{l_+^4\,\sin^2\theta\,(l_+ + \sqrt{\cos\theta} + (l_-^3 + l_+^3)/l_+^4\,\cos\theta)}{\cos\theta\,l_-^3\,l_+^3\,(l_+ + \sqrt{\cos\theta})} \\
& + \frac{1}{\cos\theta\,l_-^3\,l_+^3\,(l_- + l_+)\,(l_- + l_+ + \sqrt{\cos\theta})^2} \\
& \Bigg(4l_-^2\,l_+^2\,(l_- - l_+)^2\,\cos^{5/2}\theta\,[1 + 2\,(l_- + l_+)\,\sqrt{\cos\theta}\,] \\
& + \cos\theta\,[l_-\,l_+\,(l_- + l_+)\,(2\,(2l_-^2 - 3l_-l_+ + 2l_+^2)\,\sin^2\theta + 4l_-^5\,l_+ - 8l_-^3\,l_+^3 + 4l_-l_+^5) \\
& + 2\,(l_-^5 + l_+^5)\,\sin^2\theta] + (l_- + l_+)^2\,(l_-^4 + l_+^4)\,\sin^2\theta\,[(l_- + l_+) + 2\sqrt{\cos\theta}] \\
& + \cos^{3/2}\theta\,[\,8\,l_+^2\,l_-^2\,(l_-^2 - l_+^2)^2 + (l_-^4 + l_+^4 + l_-l_+\,(l_- - l_+)^2)\,\sin^2\theta] \\
& - 8l_-^2\,l_+^2(l_- + l_+)\cos^2\theta(l_+ - l_-)^2(\cos\theta - 1)\Bigg)\Bigg] \qquad (0.3)
\end{aligned}
$$

where

$$
l_+ = \sqrt{\cos\theta + \frac{\omega}{2}} \quad \text{and} \quad l_- = \sqrt{\cos\theta - \frac{\omega}{2}}. \qquad (0.4)
$$

Formula (0.1) applies when $\omega > 2$, and for $\rho = \sin\theta > \rho_c = \sqrt{1 - \omega^2/4}$ when $\omega < 2$. Formula (0.3) applies when $\omega < 2$ and $\rho < \rho_c$.