The LAC 2014 Percussion Combo

Frank Neumann, April 10th, 2015

Before we start -

A Word Of Warning

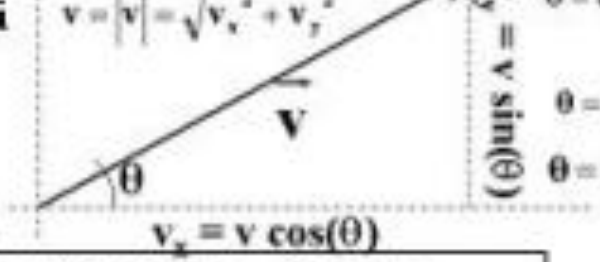
This talk will be very embarassing at the end for at least one person in this room.

If you want to leave, do so **NOW**.

So, you think this will be a highly scientific presentation?

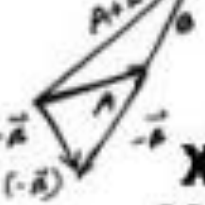
$\Delta x = x_f - x_i \quad \Delta v = v_f - v_i$

$\bar{\vec{v}} = \frac{\Delta \vec{r}}{\Delta t} \quad \bar{\vec{a}} = \frac{\Delta \vec{v}}{\Delta t}$



$\theta = \cos^{-1}\left(\frac{v_x}{v}\right)$

$\theta = \sin^{-1}\left(\frac{v_y}{v}\right)$



$\omega = \frac{\Delta\theta}{\Delta t} \quad \alpha = \frac{\Delta\omega}{\Delta t}$

$x = r\theta \quad \omega = 2\pi f \quad f = \frac{1}{T}$

$v = \omega r$

$a = \alpha r \quad \omega = \omega_o + \alpha t$

$I = \sum_i^{all} m_i r_i^2 \quad \theta = \theta_o + \omega_o t + \frac{1}{2}\alpha t^2$

$\omega^2 - \omega_o^2 = 2\alpha(\theta - \theta_o)$

$v = \sqrt{\frac{T}{\rho}}$

$v = \lambda f$

$L = r_\perp p = mvr_\perp \quad \tau = r_\perp F = rF_\perp$

$L = I\omega \quad \tau = \frac{\Delta L}{\Delta t} \quad \tau = I\alpha$

$\frac{1}{2} I\omega^2$

$\sum_i^{all} \vec{F}_i = 0 \quad \sum_i^{all} \vec{\tau}_i = 0$

$v = v_o + at$

$x = x_o + v_o t + at^2/2$

$v^2 - v_o^2 = 2a(x - x_o)$

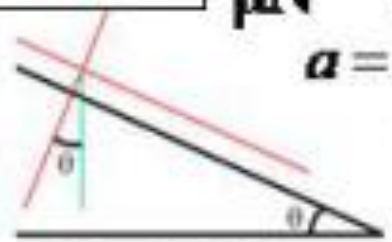
$\bar{v} = \frac{v_f + v_i}{2} \quad \Delta x = \bar{v}\,\Delta t$

$x \to x, y \quad x_o \to x_o, y_o$

$v \to v_x, v_y \quad v_o \to v_{ox}, v_{oy}$

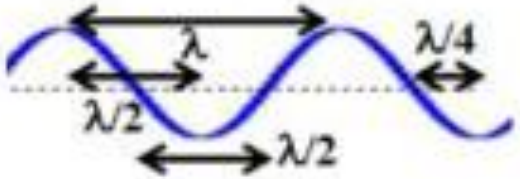
$a \to a_x, a_y$

$\vec{F}_{tot} = m\vec{a}$



μN

$a = \frac{v^2}{R}$



$E = K + U$

$E_i = E_f$

$\frac{1}{2}mv^2$

$\Delta Q = (\text{quant.})\, C_{cond}\, \Delta T$

$\Delta Q_{into} = \Delta W_{by} + \Delta E$

$\frac{RT}{2}\Big|_{\text{deg. freedom}} \quad C_P = C_V + R$

$\Delta S \geq 0$

$\Delta Q = 1\,\Delta(\text{quant.}) \quad PV = nRT$

$e = \frac{\Delta W}{\Delta Q} \quad e = 1 - \frac{T_L}{T_H} \quad P = \frac{F}{A}$

$W = F\,d_{\parallel} = F_{\parallel}\,d$

$W_{tot} = \Delta(KE)$

$\Delta U = -W_{if}$

$\frac{1}{2}kx^2 \quad \omega = \sqrt{\frac{k}{m}}$

$x = A\cos(\omega t)$ {or} $A\sin(\omega t)$

$v = -A\omega\sin(\omega t)$ {or} $A\omega\cos(\omega t)$

$a = -A\omega^2\cos(\omega t)$ {or} $-A\omega^2\sin(\omega t)$

$M = \rho V \quad P_1 = P_2$

$\Delta P = \rho g\,\Delta h$

$B = \rho_{liq} V_{disp} g$

$A_1 v_1 = A_2 v_2$

$P + \frac{1}{2}\rho v^2 = \text{const.}$

$\vec{p} = m\vec{v}$

$\vec{P}_{init} = \vec{P}_{fin}$

$\left(\sum_j^{all} m_j \vec{v}_j\right) = \left(\sum_j^{all} m_j \vec{v}_j\right)$

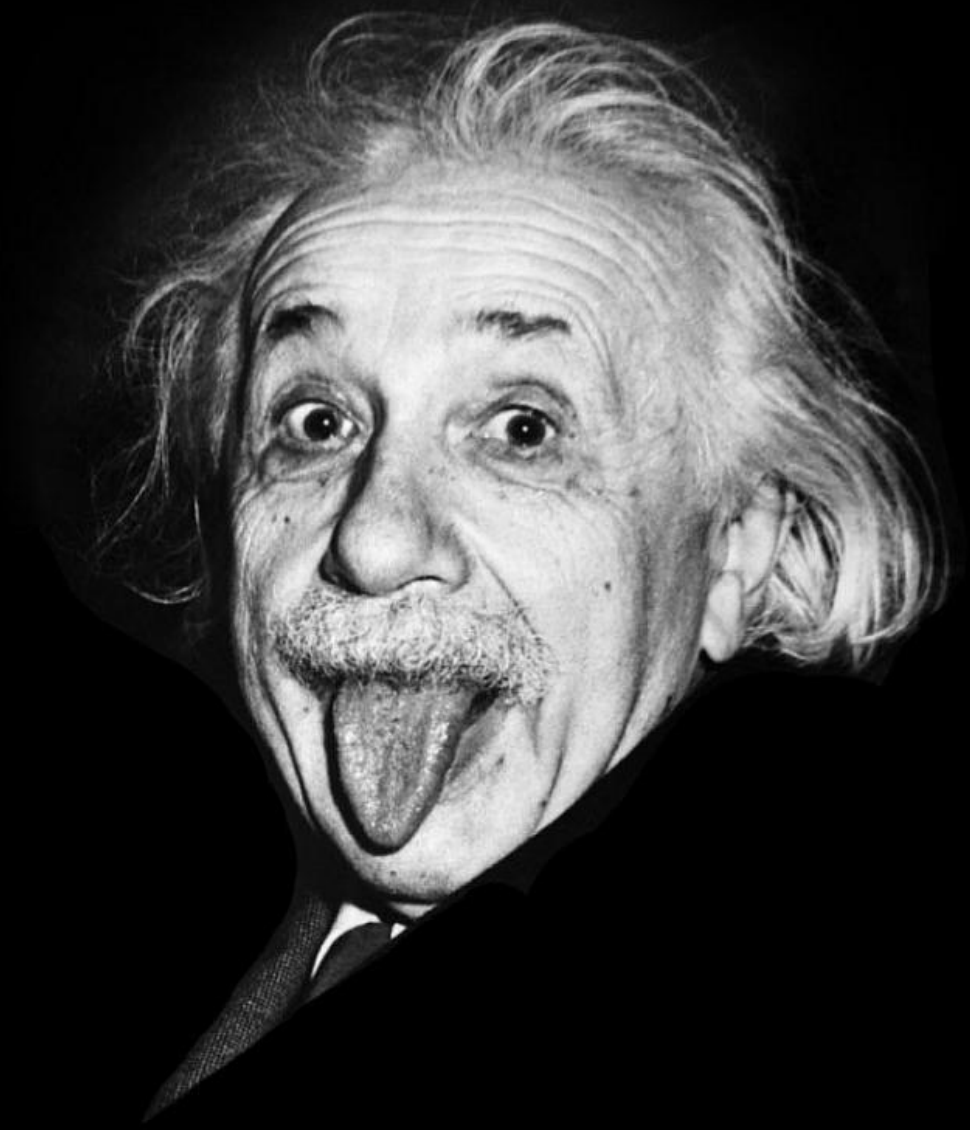
$\frac{GM_e}{R_e} = gR_e \quad \frac{GMm}{r^2}$

$M_e = 6.37(10)^{24}$ kg

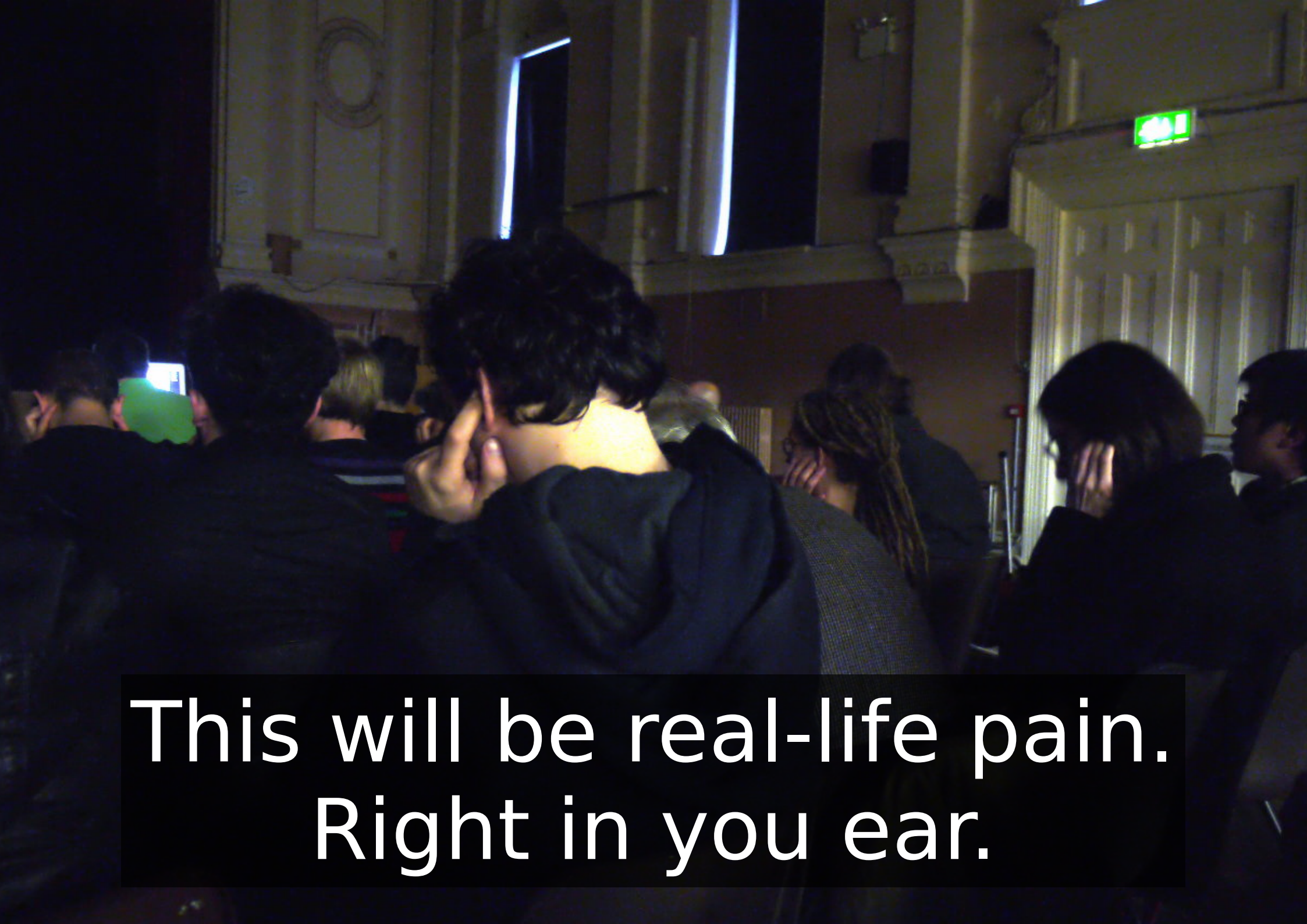
$R_e = 6.37(10)^6$ m

$-\frac{GMm}{r}$

Something like this perhaps?



Baaah!


This will be real-life pain.
Right in you ear.

20_14_?

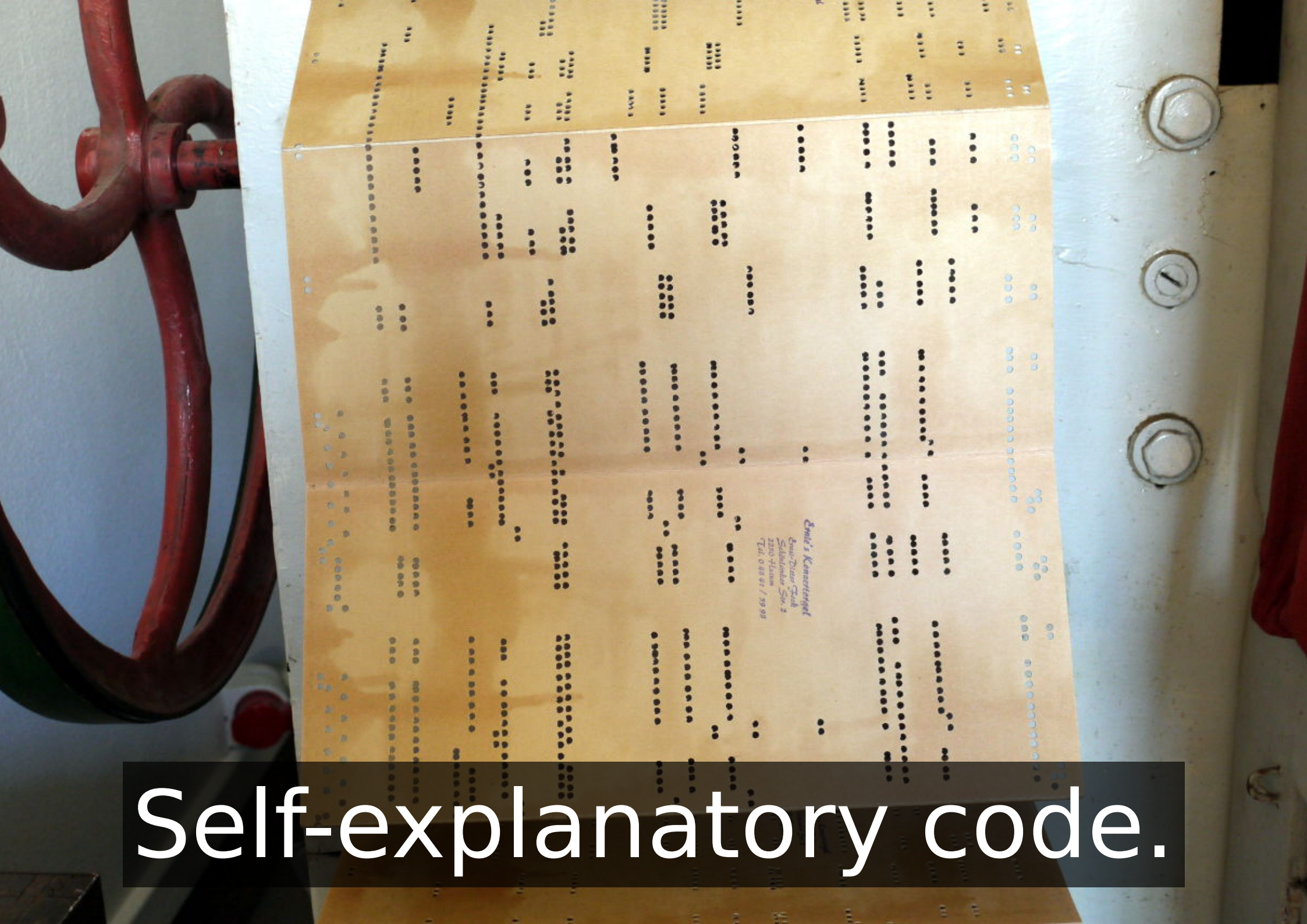
Warp back in time, to LAC in Karlsruhe, May 2014.

3 days of lectures, music, fun

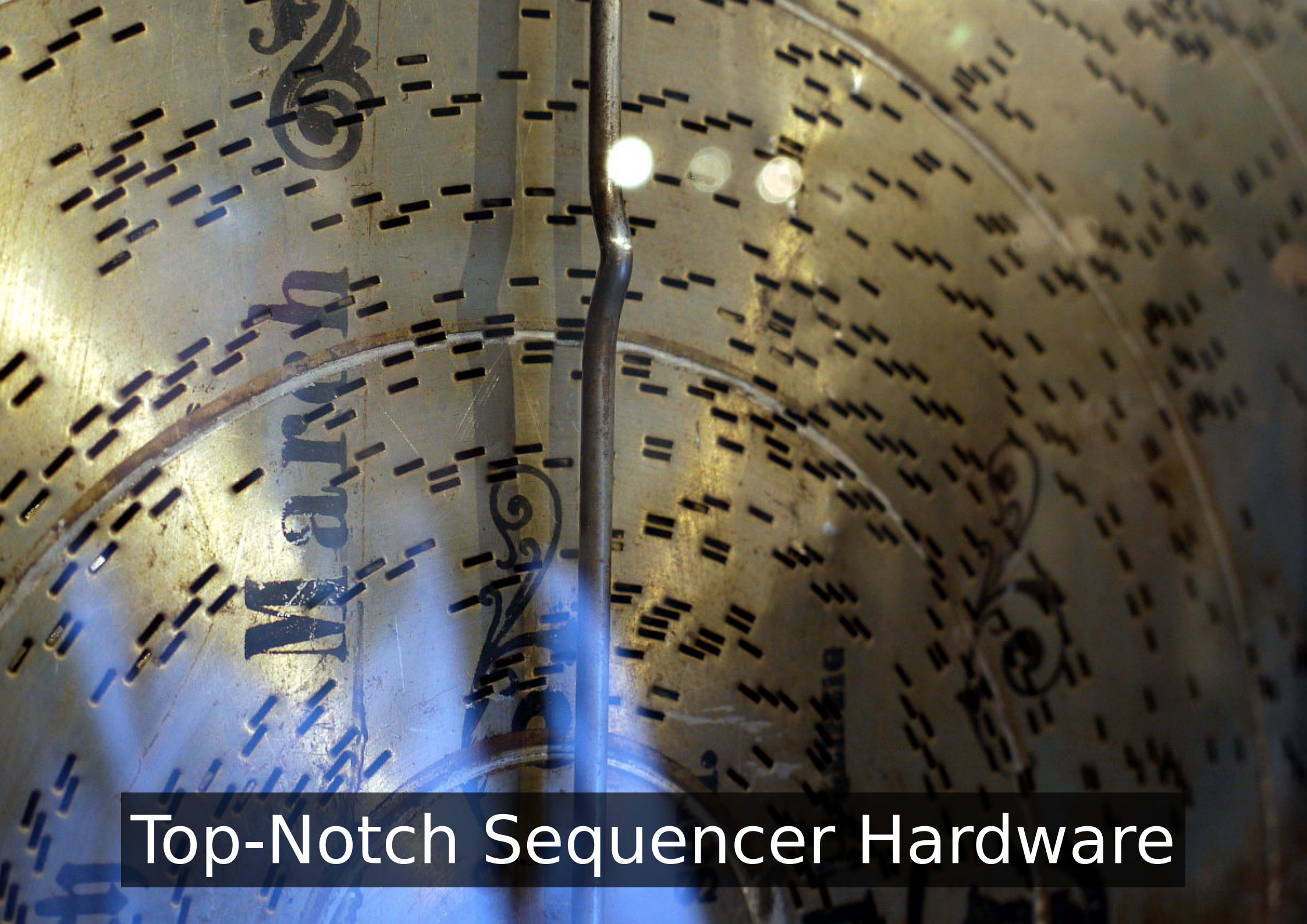
..followed by an excursion to the Museum of mechanical music instruments in Bruchsal (nearby).

http://www.dmm-bruchsal.de/


Nice weather.


Self-explanatory code.

Extremely Haptic UIs.



Top-Notch Sequencer Hardware

Nils Gey even did live-coding on one of them.

After the guided tour - some spare time.

- Enjoy the sun
- Be **creative**


Part of my Percussion Posse.

Recording with my trusty Zoom H4n portable audio recorder

Marc Groenewegen kickin' da Boots until it hurts.


Pjotr Lasschuit, harassing an innocent banana peel.


Me, faking hihats with tiny pebbles,
recorded long after LAC2014.
(but the pebbles are authentic
material from Bruchsal)

Nils Gey, clobbering his knee badly with a plastic bottle.


Bernard Tressol, double-snapping
his fingers like no other can do.

Michael Seeber, twanging a rubber band on his jacket


???, clapping his hands carefully.
Who is this? Please help me!

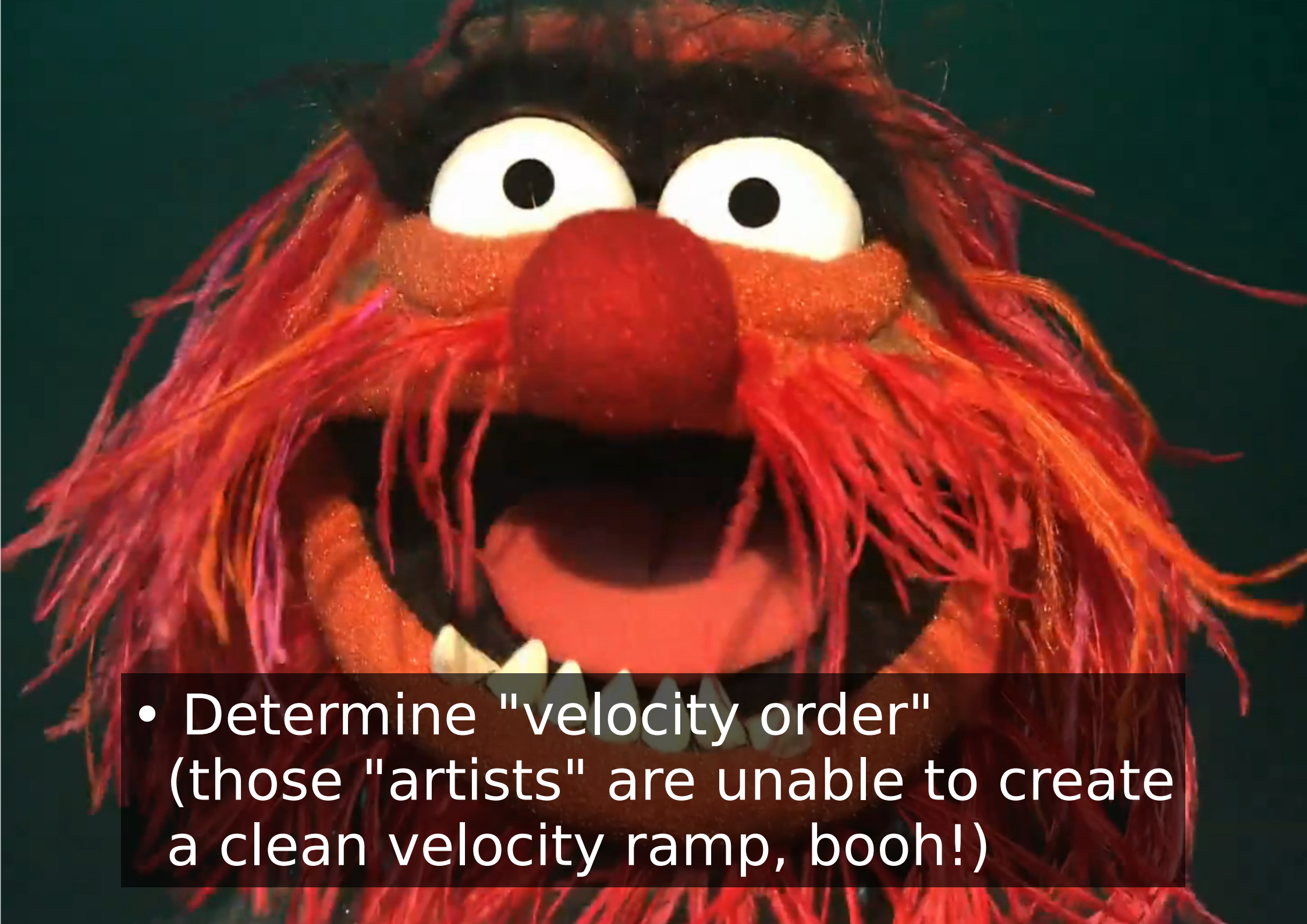

Again Marc Groenewegen, doing
nasty stuff with both hands.

Marie-Kristin Meier, torturing an exhibition ticket with a locker key.

Fernando Lopez-Lezcano, exercising his camera pocket's zipper.

Postprocessing (all manual):

- Isolating samples
- Trimming
- Short Fade ins/outs
- Amplify/Normalize "al gusto"
- and also..



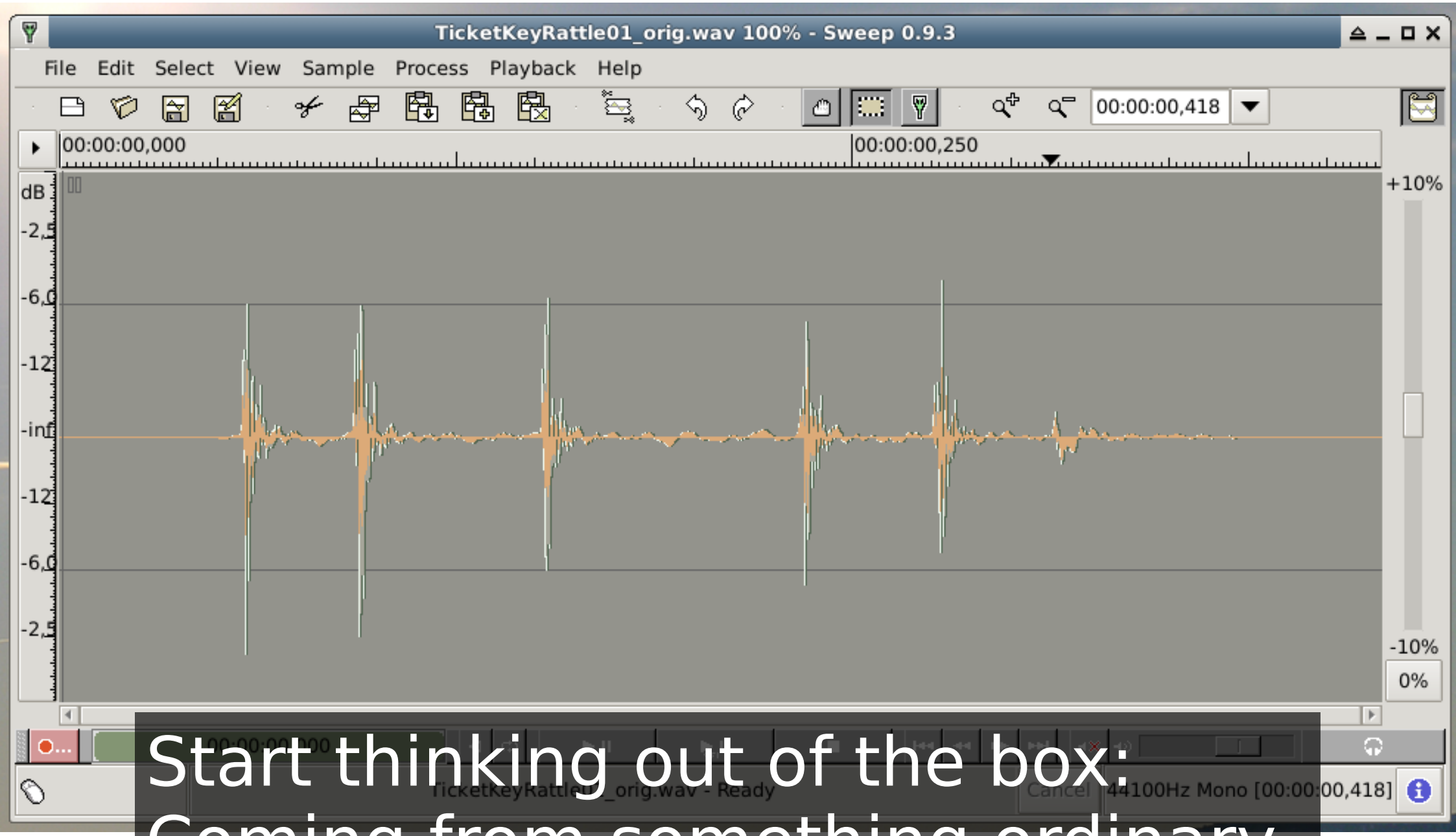
- Determine "velocity order" (those "artists" are unable to create a clean velocity ramp, booh!)

Sweep is sooo nice - anyone want to maintain it? Please?

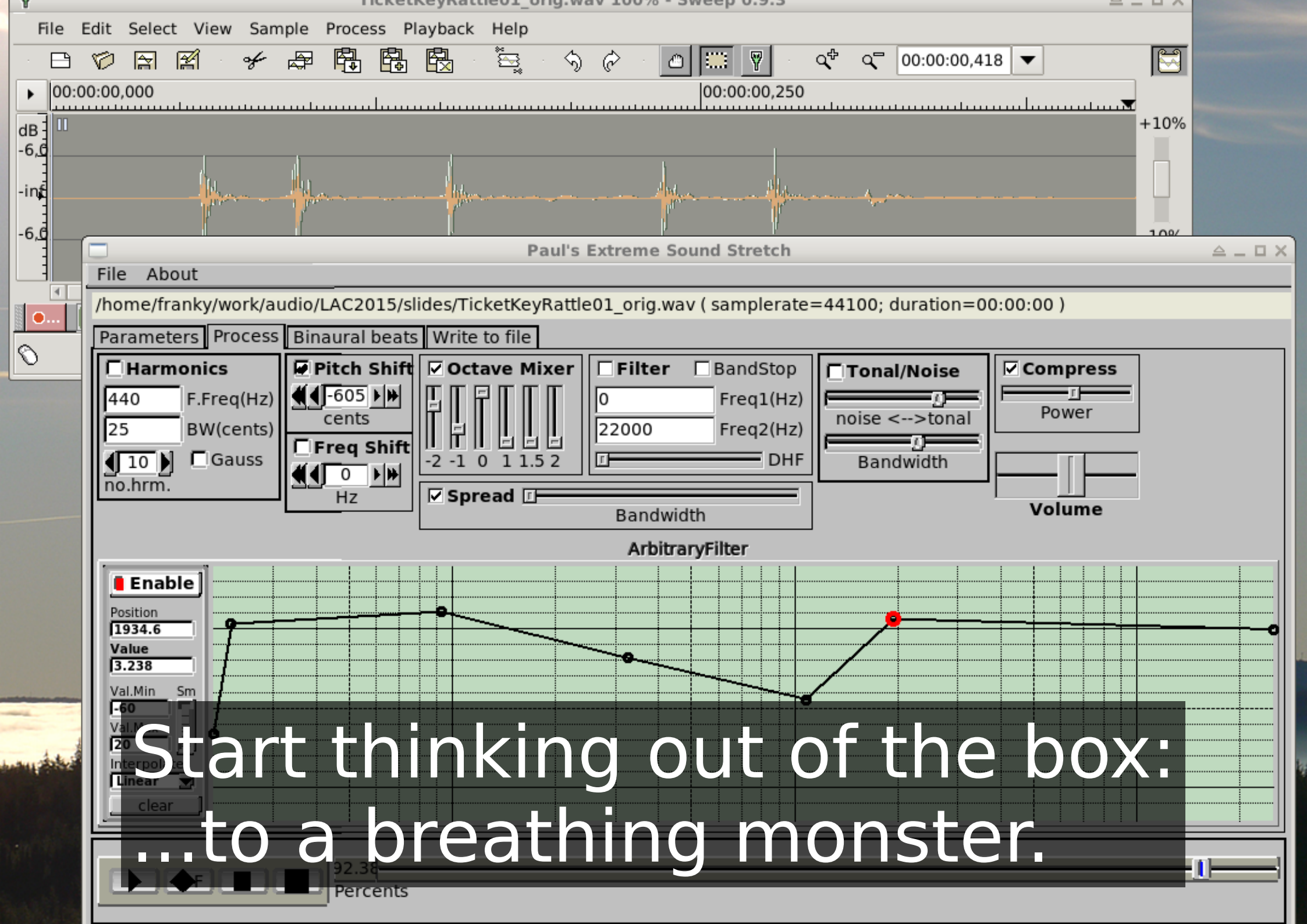
Going from stereo to mono samples:

```
mkdir mono; for i in *.wav; do
sox $i -c 1 mono/$i; done
```

Demo: Importing into Hydrogen



Start thinking out of the box:
Coming from something ordinary..



Start thinking out of the box:
...to a breathing monster.

Available **RealSoonNow** at linuxaudio.de:

- 11 different instruments
- Total of 136 individual samples
- Mono and stereo WAVs available
- .h2drumkit file for Hydrogen included

- Volunteers for other formats?
  - .sfz?
  - DrumGizmo?
  - insert your favourite sampler app here

- Thanks to the Artists!

Now, about the embarassing part.

The **demo song.**


The **demo song.**

BIG kudos to the authors of:

- JACK
- Qtractor (happy 10 year anniversary, Rui!)
- Hydrogen
- Sweep, mhwaveedit
- CALF Studio Gear
- setBFree
- zita-at1
- and perhaps countless more I forgot.

Fin

(Congrats - if you can read this, you survived!)