Johannes Quint

that word sound

für Klavier und live-generierte Zuspielung

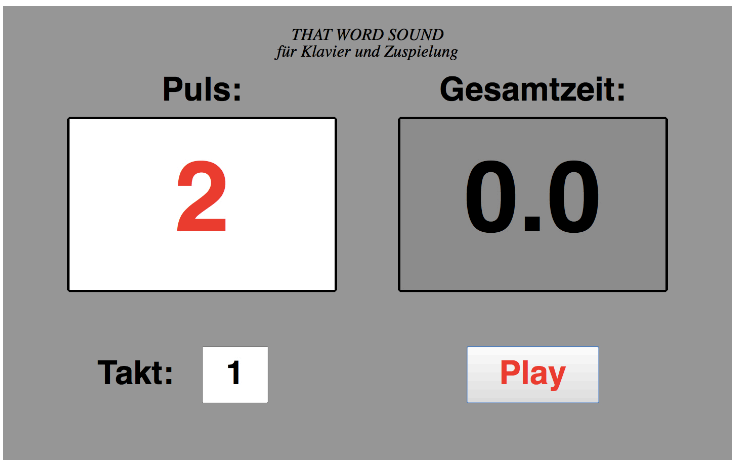
Vorwort

Für 'that word sound' wird ein Flügel und ein Laptop mit SuperCollider (http://supercollider.github.io/) sowie einer Reihe von Samples (werden auf Anfrage gerne zugeschickt: johannes.quint@web.de) benötigt.
Der Laptop muss so postiert werden, dass er vom Pianisten / von der Pianistin einsehbar ist.
Lautsprecher (Stereo) möglichst weit - und erhöht postieren:

```
                         Flügel
Lautsprecher                                  Lautsprecher

                        Pubilkum
```

Die Partitur enthält nur die Klavierstimme und (im Anhang) ein SuperCollider-Patch.
Das Patch wird in SuperCollider evaluiert und generiert dann folgende graphische Oberfläche:



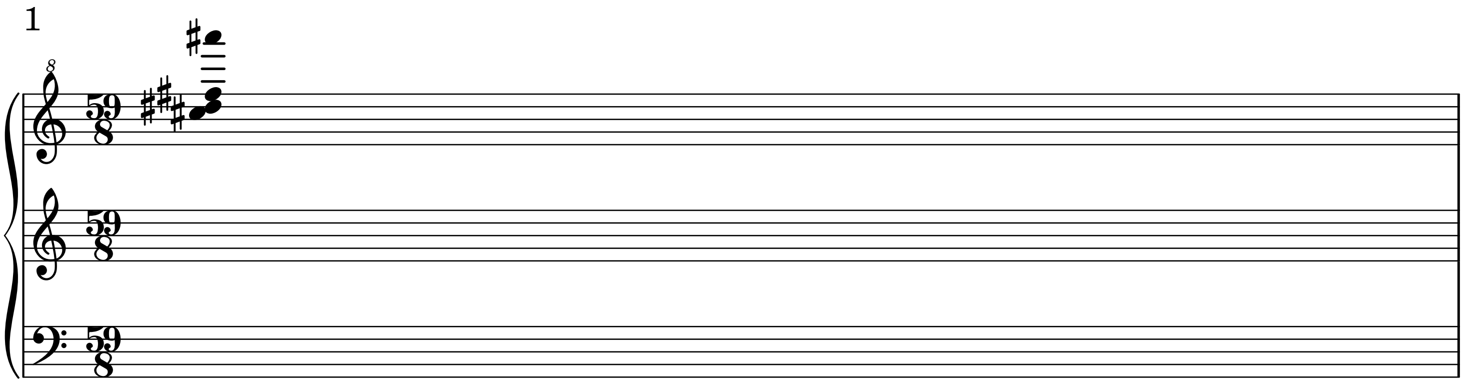
'Play' startet den Klangprozess. 'Puls' zählt den Puls der Takte (Achtel oder Viertel). Die aktuelle Taktzahl wird im Fenster neben 'Takt:' angezeigt. Man kann den Prozess durch 'Stop' stoppen und in das 'Takt'-Feld eine beliebige Zahl eingeben zu der das Patch nach 'Enter' springt.

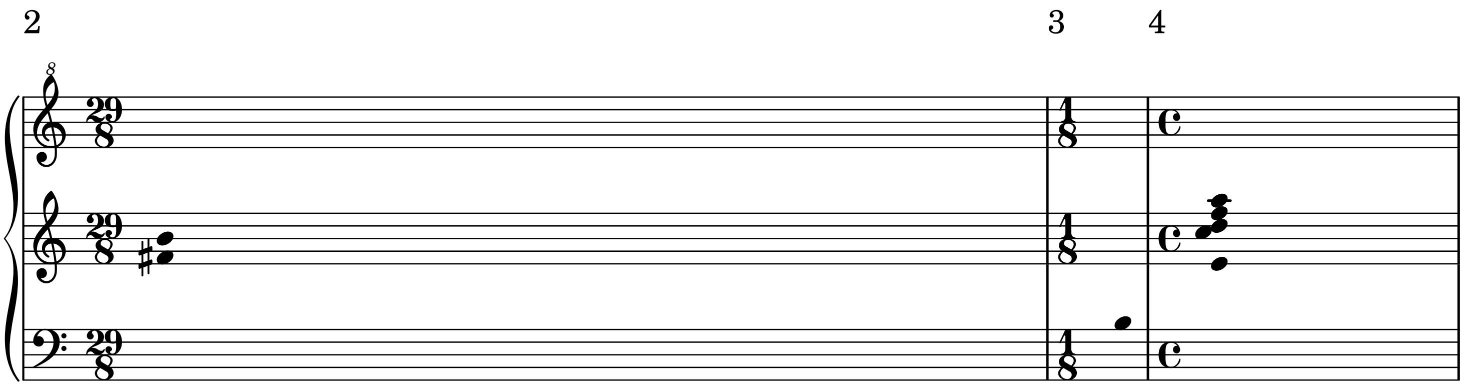
Das Klavier spielt durchgehend piano. Pedal im Prinzip durch das ganze Stück hindurch treten, ad lib können vereinzelte Klänge trocken gespielt werden. Akkorde sollen im Prinzip exakt auf der Takt-1 zusammen angeschlagen werden. Ad lib können vereinzelte Klänge arpeggiert werden. Manche Klänge *können* nicht simultan angeschlagen werden und müssen daher arpeggiert werden.

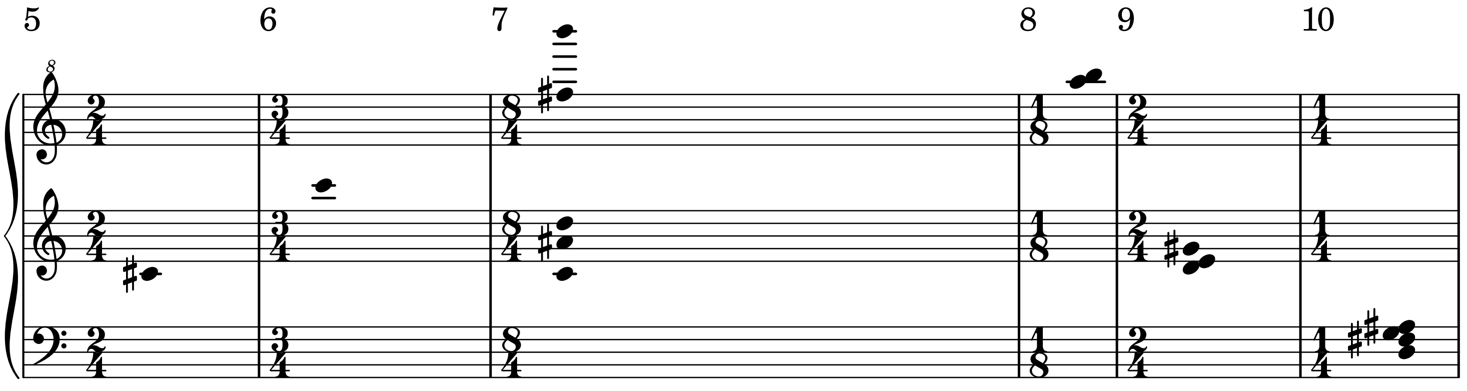
Verwendete Samples:
- Die Stimme von John Cage (Lecture 'mureau': `http://www.ubu.com/sound/cage_mureau.html`)
- Englische Zahlen: Stimme von Amy Gedgaudas: `http://www.freesound.org/people/Corsica_S/`
- Die Stimme von Hans Heinz Stuckenschmidt: Ausschnitt aus: 'Musik im technischen Zeitalter': `https://www.youtube.com/watch?v=9IAWKjvt6A4`

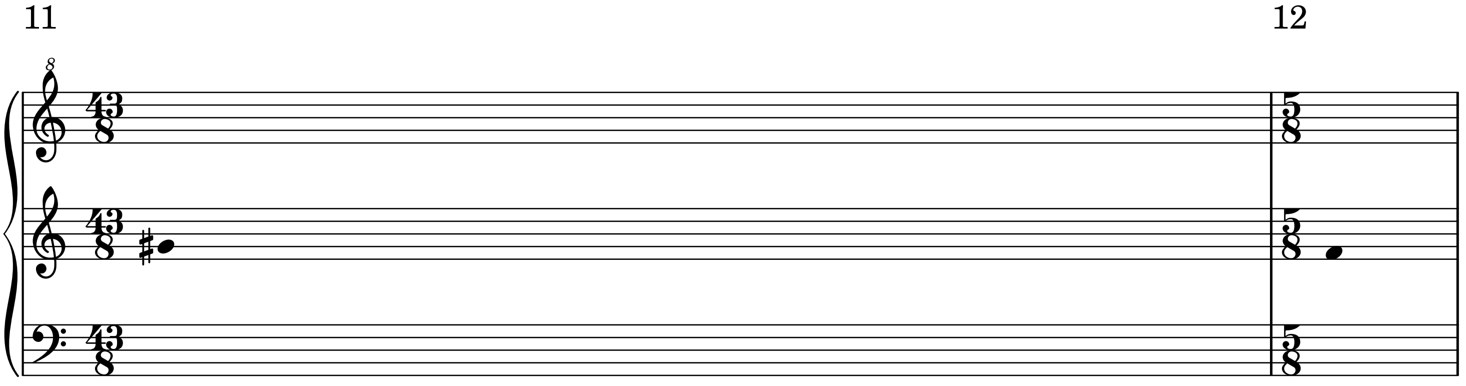
that word sound

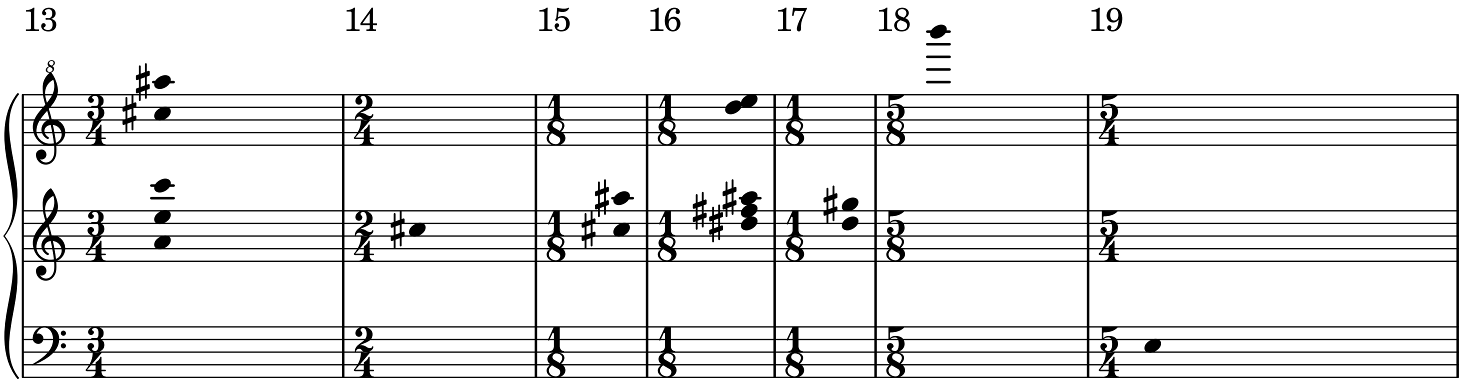
Johannes Quint 2017

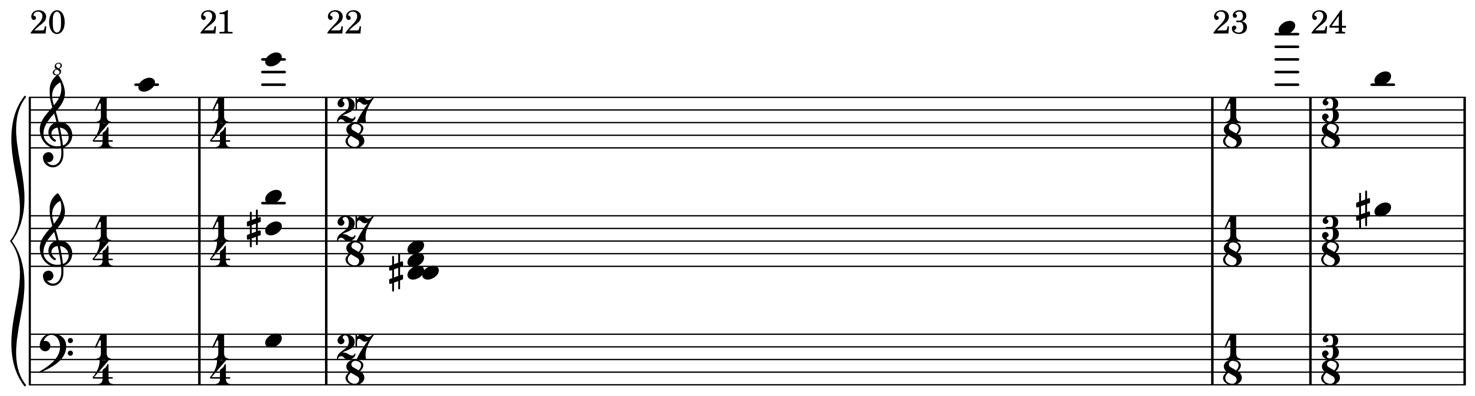








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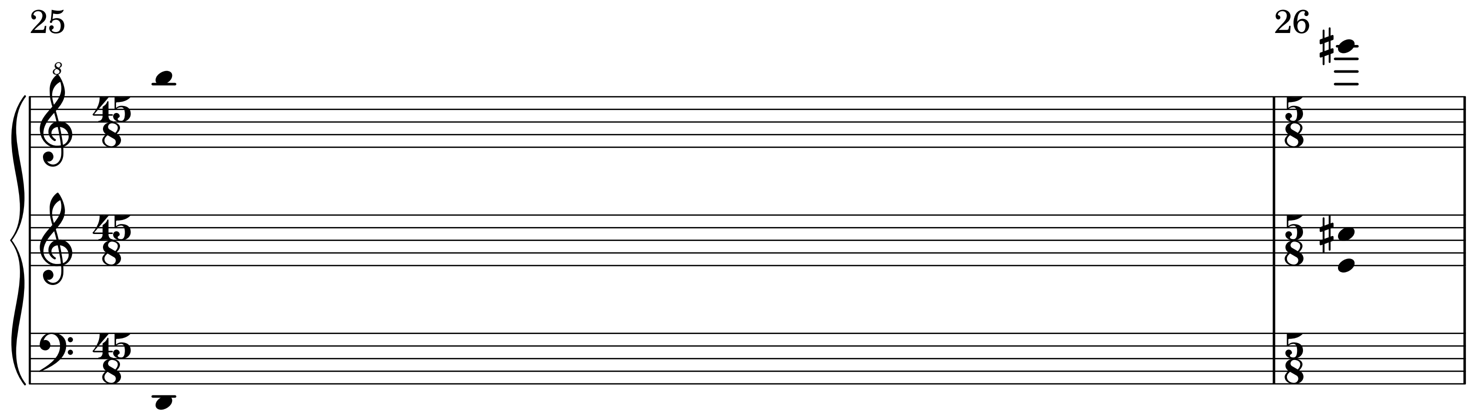
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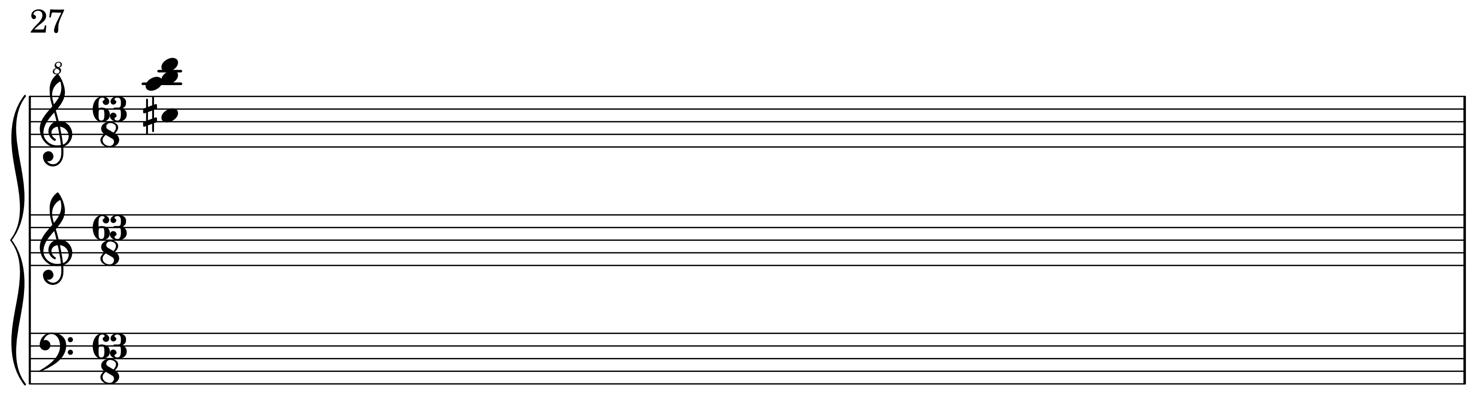
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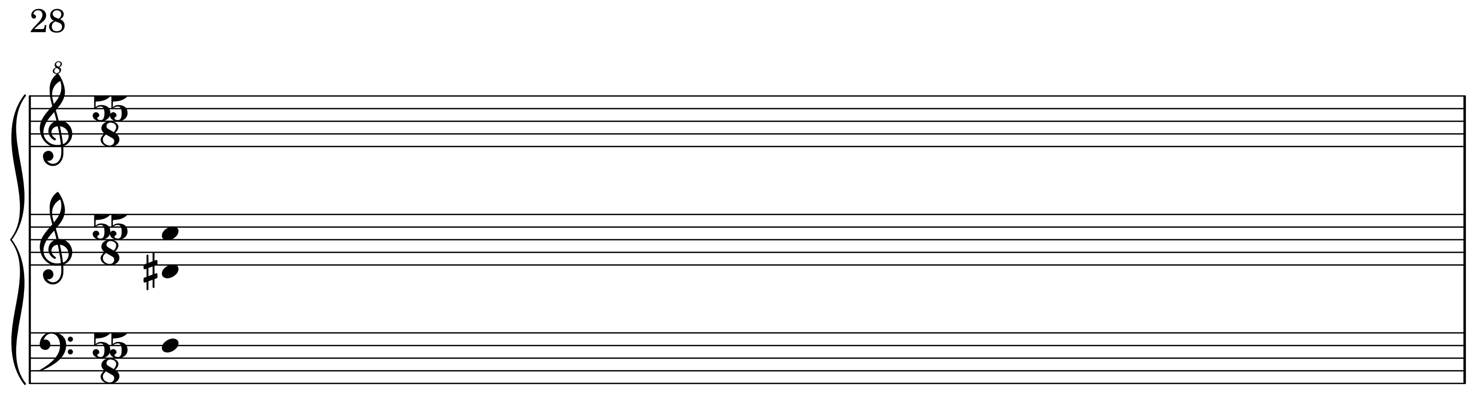
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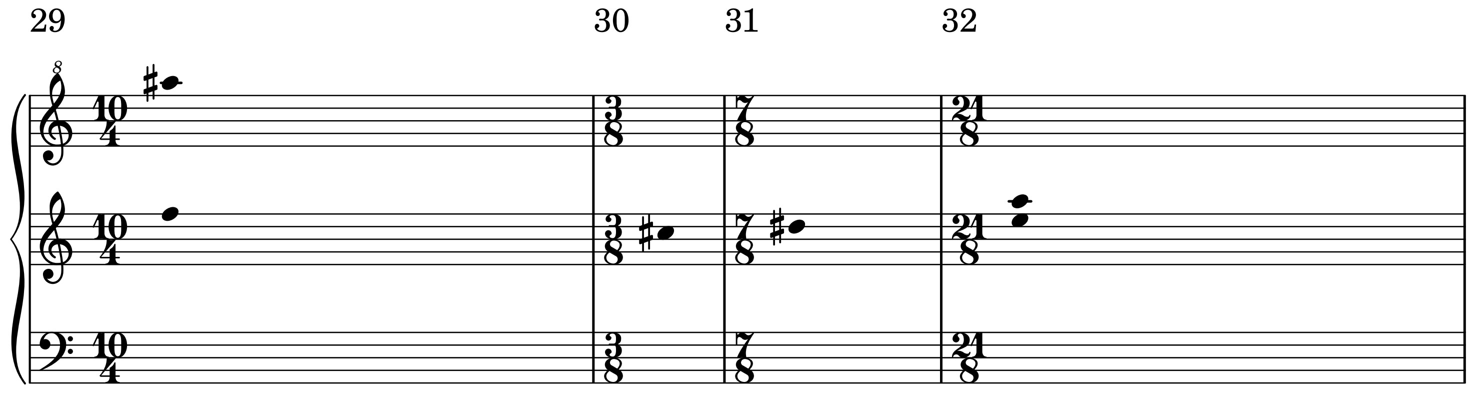
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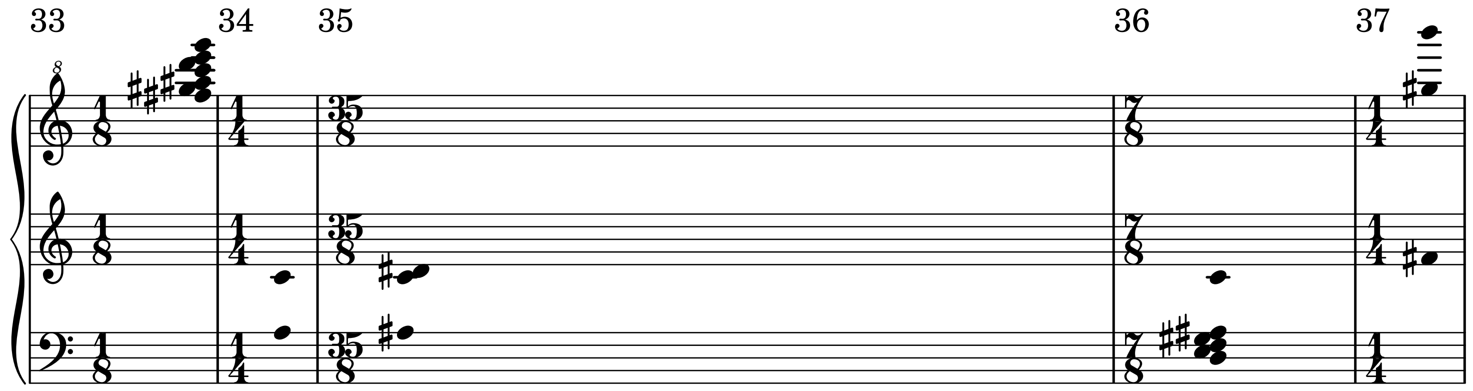
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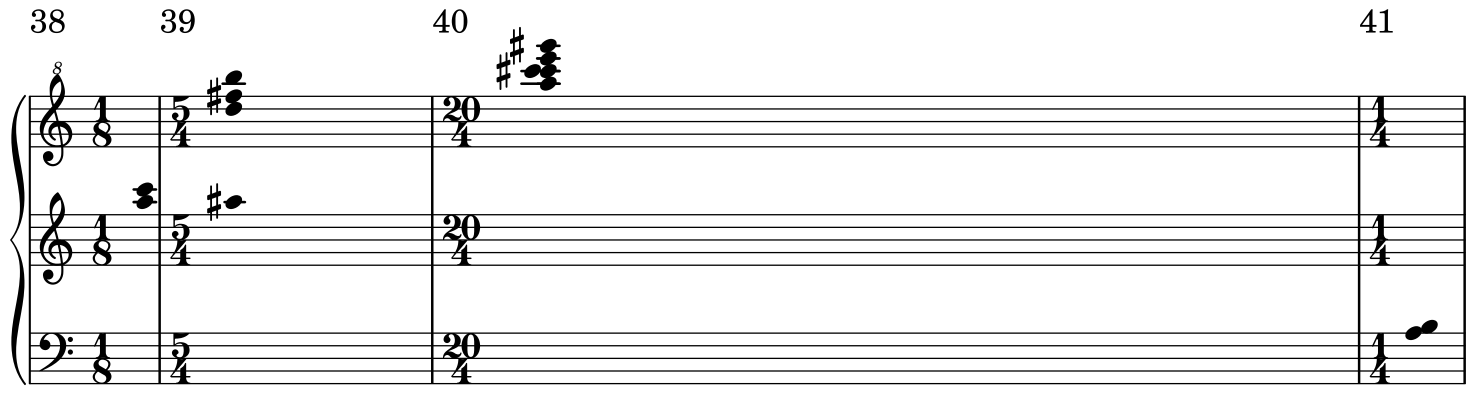
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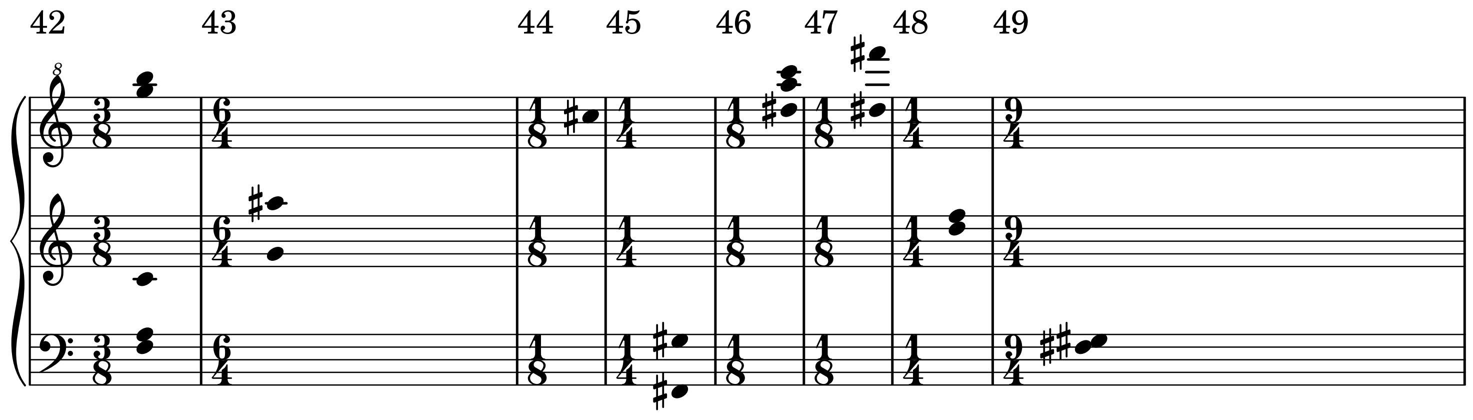
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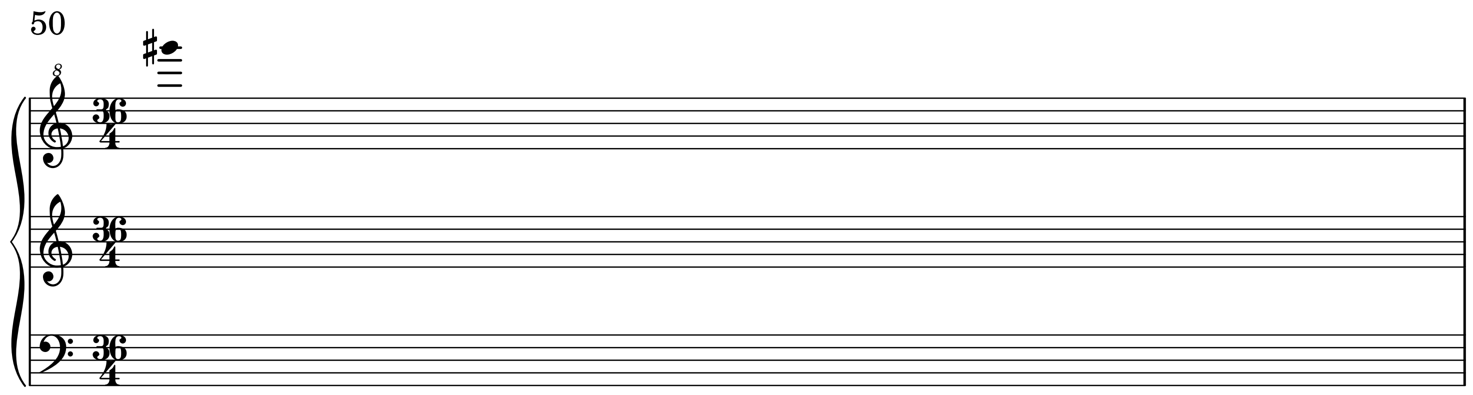
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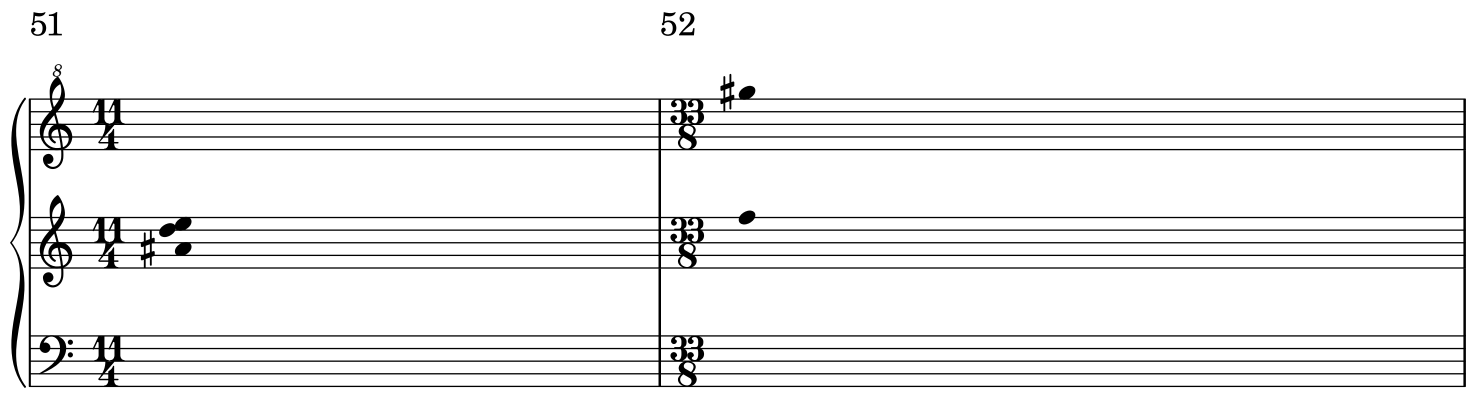
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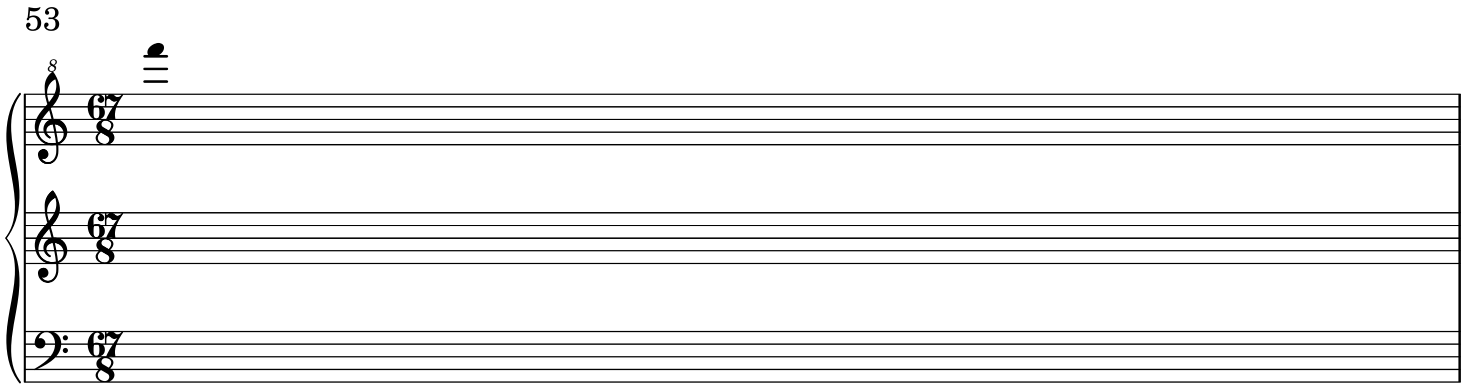
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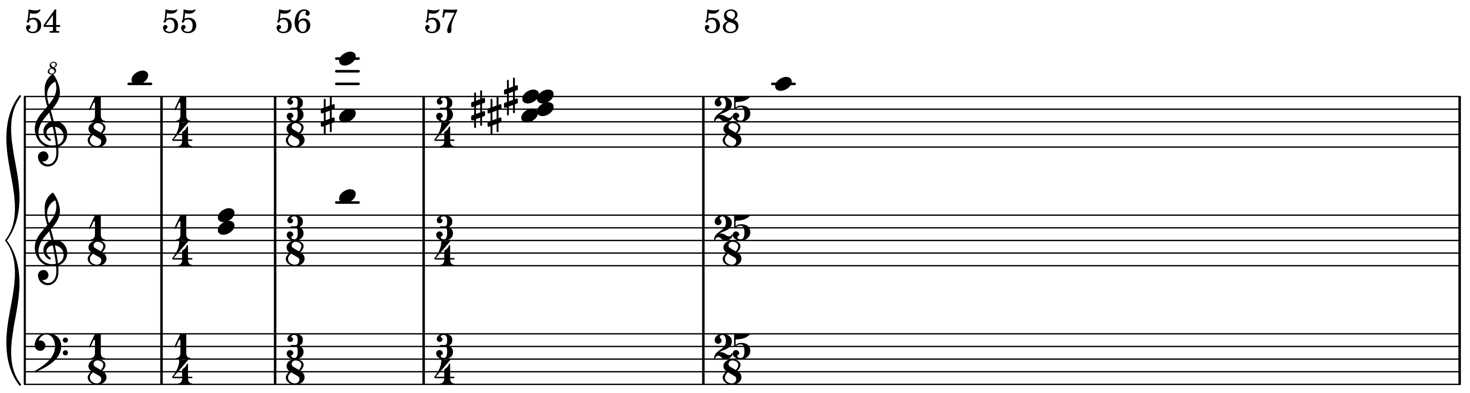
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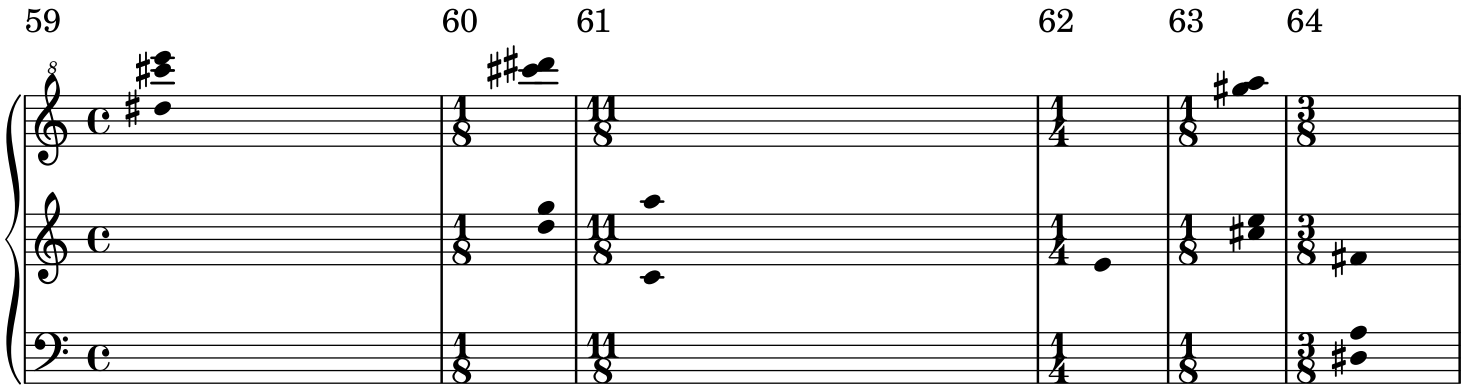
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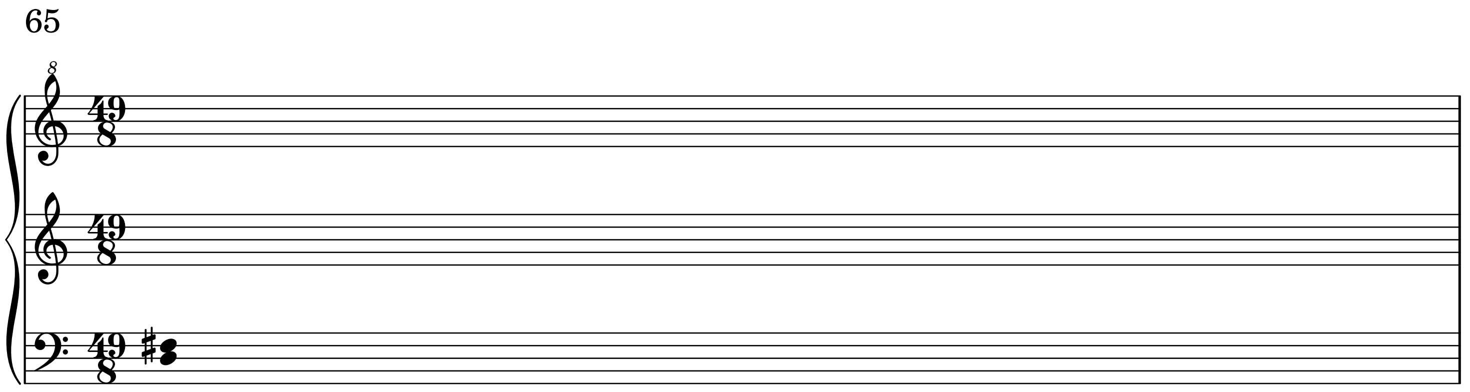
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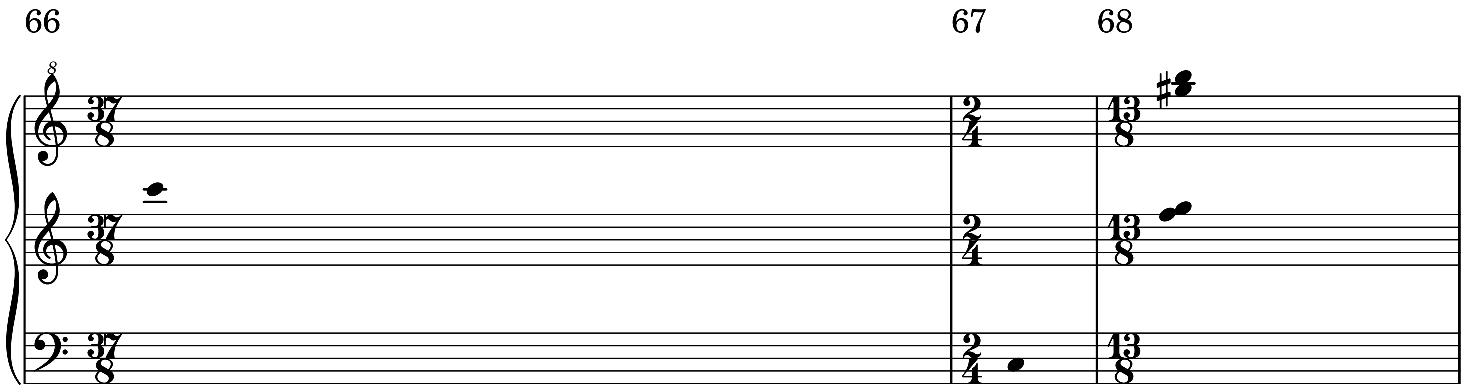
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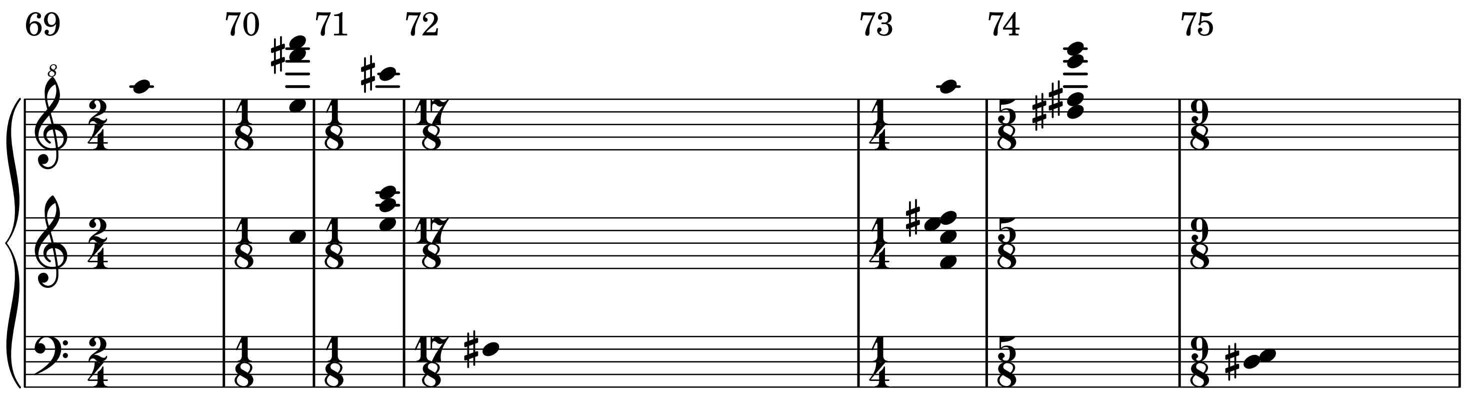
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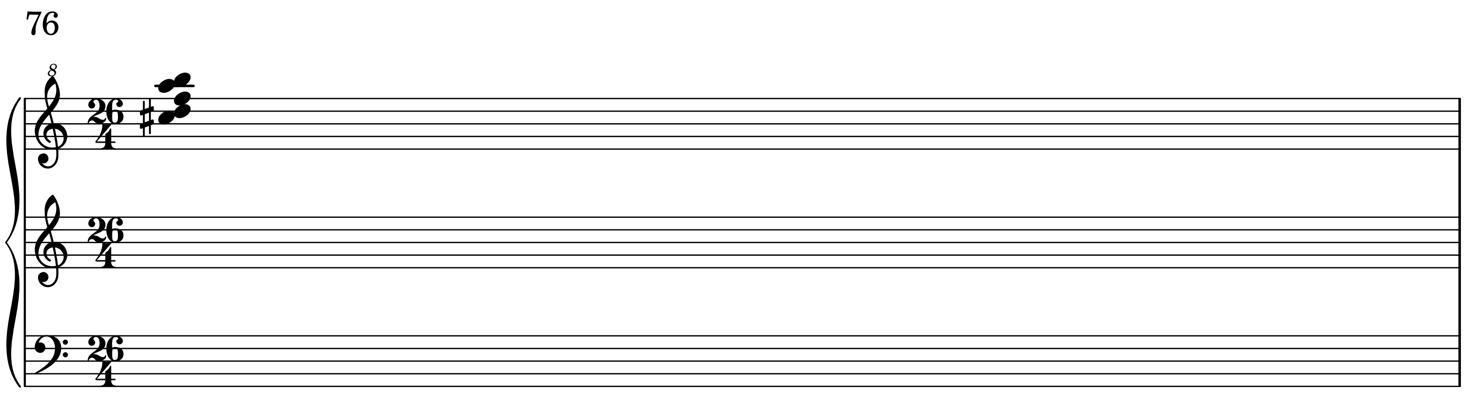
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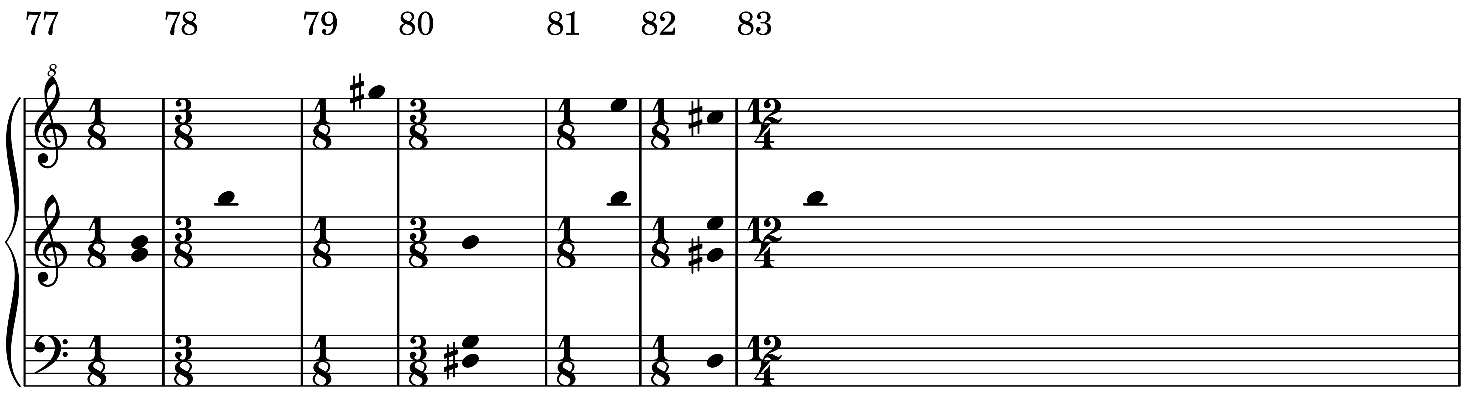
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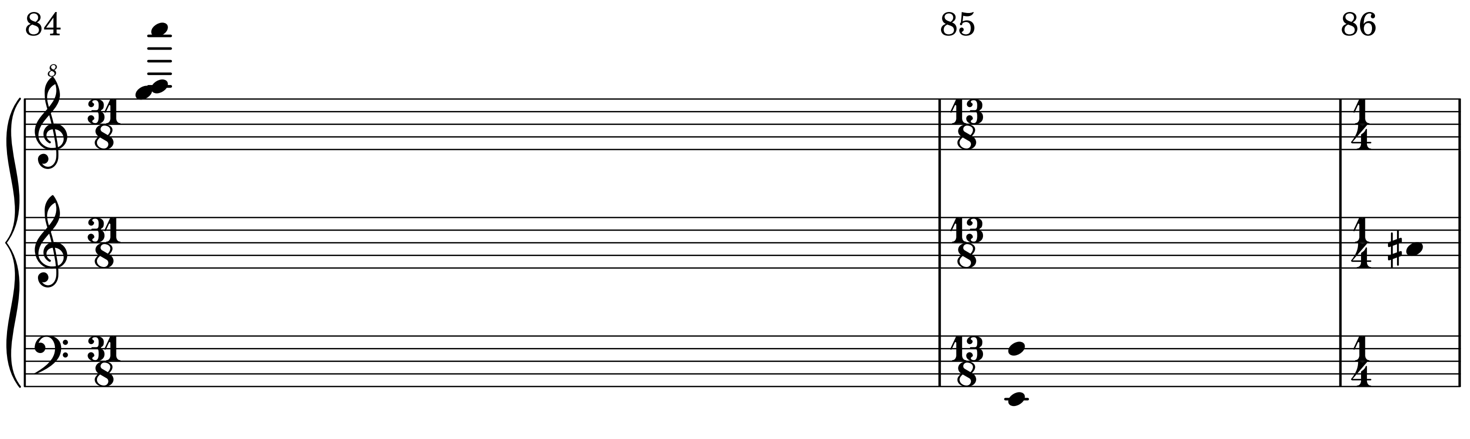
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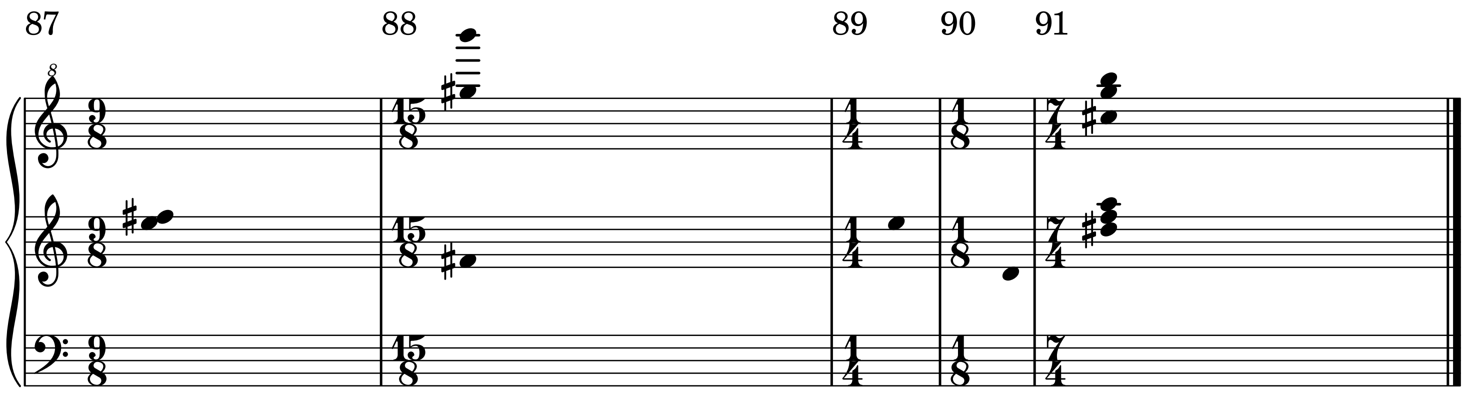
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//////////////////////////////////////////////////////////////////////////////////////////////////////////
//////////////////////////////////////////////////////////////////////////////////////////////////////////
//////////////////////////////////////////////////////////////////////////////////////////////////////////
///////////////////////////////////////////////// THAT WORD SOUND ///////////////////////////////////////////////
////////////////////////////// SUPERCOLLIDER CODE [funktioniert mit SC 3.8.0] ///////////////////////////////
//////////////////////////////////////////////////////////////////////////////////////////////////////////
//////////////////////////////////////////////////////////////////////////////////////////////////////////
//////////////////////////////////////////////////////////////////////////////////////////////////////////

// 'that word sound' für Klavier und live-generierte Zuspielung
//
// © Johannes Quint 2017
//
// Samples:
//
// John Cages Stimme
// [Lecture 'mureau': http://www.ubu.com/sound/cage_mureau.html]
//
// Zahlen: Amy Gedgaudas
// [http://www.freesound.org/people/Corsica_S/]
//
// Hans Heinz Stuckenschmidts Stimme [Ausschnitt aus: 'Musik im technischen Zeitalter'
// [https://www.youtube.com/watch?v=9IAWKjvt6A4]

s.waitForBoot{

   var
   start,
   concertPitch,
   keys,rhys,instr,
   cage,numbers,title,stuck,
   cageTimes,numbersTimes,pat,titleTimes,stuckTime,
   cageSched,numbersSched,titleSched,stuckSched,
   pnoAmp,arcoAmp,cageAmp,numbersAmp,titleAmp,stuckAmp,
   mainRout,
   bds,left,top,width,height,
   win,rect,titleTxt,startTxt,clockTxt,timerTxt,timeField,timer,but,clockView,time,
   count,
   timerView,timerColorPat;

   // GLOBALS

   concertPitch = 443;
   pnoAmp = 0.3;
   arcoAmp = 0.7;
   cageAmp = 2;
   numbersAmp = 1;
   titleAmp = 2;
   stuckAmp = 2;

   count = 2;

   // SYNTHDEFS
   SynthDef(\perc, {
      arg freq = 440, amp = 0.1, pan = 0, release = 0.5, out = 0;
      var   env,in,sig;
      env = EnvGen.kr(Env.perc(release*2),doneAction: 2);
      in = PinkNoise.ar(amp/4) * Decay2.kr(Impulse.kr(0), 0.01, 0.05);
      sig = Ringz.ar(in,freq,release);
      Out.ar(out, Pan2.ar(sig,pan))}).add;

   SynthDef(\sampler, {
      arg bufnum, rate = 1, pan = 0, amp = 1, start = 0, attack = 0, sustain = 2, release = 0,
      lowCut = 16, highCut = 20000, out = 0,
      curve = 1;
      var sig, filtersig,env;
      sig = PlayBuf.ar(1, bufnum, rate: rate, startPos: 44100 * start);
      filtersig = HPF.ar(LPF.ar(sig, highCut), lowCut);
      env = EnvGen.kr(Env.new([0,amp,amp,0],[attack,sustain, release], curve: [curve,1,curve * -1]),
                 doneAction: 2);
   Out.ar(out, env * Pan2.ar(filtersig, pan))}).add;

SynthDef(\arco, {
   arg
   freq = 440, // Grundfrequenz
   glissInt = 0, // Glissando
   glissDir = 1, // Auf oder Abglissando
   globalAmp = 1,
   amp = 0.1, // Amplitude
   ampVibLo = 1, // tiefer Wert des Amplitudenvibratos (relativ zu globAmp)
   ampVibFqA = 0.25, // Anfangs-/Endfrequenz des Amplitudenvibratos
   ampVibFqB = 1, // Änderungsfrequenz des Amplitudenvibratos
   ampVibAtt = 0.5, // Zeit der ersten Änderung (Anteil der Gesamtdauer -> IMMER <= 1!)
   ampVibCurve = 2, // Kurve der Änderung des Amplitudenvibratos
   attack = 0.1,sustain = 2, release = 0.1, // Gesamthüllkurve
   vib = 0, vibFq = 6, // Frequenzvibrato
   soft = 0.5, // Teiltönigkeit: je grösser soft, desto grundtöniger
   curve = 1, pan = 0; // Kurve der globalen Hüllkurve
   var gliss,dur,snd,envs,globAmp,ampVibEnv,globalAmpSin,globalEnv;
   globAmp = freq.linlin(36.midicps,84.midicps,1,0.5) * globalAmp;
   gliss = (glissDir * (XLine.kr(1,(glissInt+1),attack+sustain+release) -1)).midiratio;
   dur = attack + sustain + release;
   ampVibEnv = EnvGen.ar(
      Env(
         [ampVibFqA,ampVibFqB,ampVibFqA],
         [ampVibAtt*dur,(1-ampVibAtt)*dur],
         [ampVibCurve,ampVibCurve.neg]));
   globalAmpSin =
   SinOsc.ar(ampVibEnv,1.5pi).range(ampVibLo,globAmp);
   globalEnv = EnvGen.kr(Env.linen(attack,sustain,release,amp,[curve,1,curve.neg]),doneAction: 2);
   globalEnv = globalEnv * globalAmpSin;
   envs = 4.collect{ |i|
      var att,ampl,sus;
      sus = attack + sustain + release;
      att = sus / (20 - i);
      ampl = amp ** (i * soft + 1);
      EnvGen.ar(Env([0,ampl,ampl,0],[att,sus - att - att,att],[curve,1,curve.neg]))};
   snd = Mix(
      4.collect{
         |i|
         envs[i] * SinOsc.ar(freq * (i + 1) * SinOsc.kr(vibFq,1.5pi,0.001 * vib,1) * gliss, 0, globAmp)});
   Out.ar(0,Pan2.ar(snd,pan) * globalEnv)}).add;

SynthDef(\pizz1, {
   arg freq = 440, attack = 0.04, release = 2, curve = -4, amp = 0.1, pan = 0;
   var env = EnvGen.kr(Env.perc(attack,release,1,curve),doneAction: 2);
   Out.ar(0, Pan2.ar(SinOsc.ar(freq, 0, amp) * env, pan))}).add;

SynthDef(\pizz2, {
   arg out=0, freq=440, pan=0, percSustain=0.5, amp=0.3, sinAmpFac = 0.1,
   attack = 0.01, sustain = 0, release = 1, curve = 2, hiCut = 5000;
   var pluck, period, string, sin, env,res;
   env = EnvGen.ar(Env.new([0,1,1,0],[attack,sustain,release],[curve,curve.neg]),doneAction: 2);
   sin = SinOsc.ar(freq,0,amp*sinAmpFac);
   pluck = PinkNoise.ar(Decay.kr(Impulse.kr(0.005), 0.05));
   period = freq.reciprocal;
   string = CombL.ar(pluck, period, period, percSustain*6);
   string = LeakDC.ar(LPF.ar(Pan2.ar(string, pan), hiCut)) * amp;
   res = Mix([sin,string]);
   res = env * res;
   res = Pan2.ar(res,pan);
   Out.ar(out,res)
}).add;

SynthDef(\glas,{
   arg freq = 440, amp = 0.7, release = 0.8, curve = -10, pan = 0;
   var env,parts,amps,sig;
   env = EnvGen.ar(Env.perc(0.001,release,amp,curve),doneAction: 2);
   parts = [1, 2.7, 5.2, 8.4, 12.2];
   amps = [0.1, 0.3, 0.3, 0.2, 0.1];
```

```
      sig = Mix(4.collect{arg i; SinOsc.ar(freq*parts[i],0,amps[i])});
      Out.ar(0,Pan2.ar(sig*env,pan))}).add;

   // DAT

   keys = [
[95.0,86.86,90.02,92.69,85.04,88.51,91.41,105.88],[65.51,68.41,70.88],[43.04,58.51,49.41,51.88],
[73.86,77.02,79.69,72.04,63.51,66.41,80.88],[82.41,60.88],[73.69,78.04,93.51,84.41,86.88],
[60.0,63.86,67.02,69.69,74.04,89.51,92.41,106.88],[77.04,92.51,95.41,97.88],
[61.02,63.69,68.04,71.51,62.41,64.88],[53.69,58.04,49.51,52.41,54.88],[67.88],[64.88],
[38.0,53.86,69.02,83.69,76.04,79.51,94.41,84.88],[73.41,99.88],[71.69,64.04,67.51,82.41,72.88],
[75.02,77.69,82.04,85.51,88.41,102.88],[73.02,75.69,80.04,83.51,74.41,88.88],[107.41,85.88],
[51.69,56.04,71.51,86.41,88.88],[92.88],[100.02,54.69,83.04,74.51,89.41,91.88],
[70.86,62.02,64.69,69.04,60.51,63.41,65.88],[93.41,107.88],[80.41,94.88],[95.41,37.88],
[64.04,103.51,94.41,72.88],[84.69,89.04,92.51,95.41,97.88],[52.86,56.02,58.69,63.04,66.51,69.41,71.88],
[76.51,91.41,93.88],[73.41,75.88],[74.88],[75.51,78.41,80.88],
[92.0,95.86,87.02,89.69,94.04,97.51,100.41,102.88],[57.41,59.88],[57.51,60.41,62.88],
[57.86,49.02,51.69,56.04,59.51,50.41,52.88],[65.51,92.41,106.88],[81.41,83.88],[81.69,86.04,89.51,92.41,94.88],
[93.02,95.69,100.04,103.51,106.41,96.88],[56.51,59.41,61.88],[53.0,56.86,60.02,74.69,91.04,94.51,97.41,99.88],
[64.51,67.41,81.88],[84.88],[41.51,56.41,58.88],[87.04,90.51,93.41,95.88],[87.41,101.88],[74.41,76.88],
[55.69,48.04,51.51,54.41,56.88],[103.88],[70.04,73.51,76.41,102.88],[77.41,91.88],[100.88],[80.41,94.88],
[74.41,76.88],[82.51,85.41,99.88],[82.86,86.02,88.69,93.04,84.51,87.41,89.88],[93.41,107.88],
[86.69,91.04,106.51,97.41,99.88],[79.0,82.86,74.02,88.69,93.04,96.51,99.41,101.88],[60.04,63.51,78.41,80.88],
[61.41,63.88],[89.86,93.02,95.69,76.04,91.51,82.41,72.88],[57.04,48.51,51.41,65.88],[50.04,53.51,56.41,58.88],
[83.88],[48.41,50.88],[78.69,95.04,74.51,77.41,91.88],[92.51,95.41,97.88],[72.04,87.51,102.41,104.88],
[65.86,81.02,83.69,76.04,103.51,106.41,96.88],[53.88],[65.02,67.69,72.04,75.51,78.41,92.88],
[87.02,89.69,94.04,85.51,100.41,102.88],[52.02,42.69,47.04,50.51,53.41,43.88],
[94.02,84.69,89.04,92.51,95.41,85.88],[66.69,71.04,74.51,89.41,103.88],[83.04,86.51,101.41,103.88],[91.88],
[50.69,55.04,70.51,73.41,75.88],[82.51,73.41,87.88],[93.86,85.02,75.69,68.04,95.51,50.41,76.88],[82.88],
[90.51,93.41,107.88],[37.02,39.69,44.04,47.51,50.41,52.88],[69.51,72.41,74.88],[75.51,78.41,80.88],
[65.51,92.41,106.88],[67.04,70.51,73.41,75.88],[65.04,68.51,71.41,61.88],
[77.0,80.86,72.02,74.69,91.04,94.51,85.41,99.88]];

   rhys = [
2,29.5,14.5,0.5,4.0,2.0,3.0,8.0,0.5,2.0,1.0,21.5,2.5,3.0,2.0,0.5,0.5,0.5,2.5,5.0,1.0,1.0,13.5,0.5,1.5,22.5,2.5,
31.5,27.5,10.0,1.5,3.5,10.5,0.5,1.0,17.5,3.5,1.0,0.5,5.0,20.0,1.0,1.5,6.0,0.5,1.0,0.5,0.5,1.0,9.0,36.0,11.0,16.
5,33.5,0.5,1.0,1.5,3.0,12.5,4.0,0.5,5.5,1.0,0.5,1.5,24.5,18.5,2.0,6.5,2.0,0.5,0.5,8.5,1.0,2.5,4.5,26.0,0.5,1.5,
0.5,1.5,0.5,0.5,12.0,15.5,6.5,1.0,4.5,7.5,1.0,0.5,7.0];

   instr = [
[1,0,0,1,0,1,1,0],[0,1,0],[1,0,1,1],[0,0,1,0,0,1,0],[1,0],[1,1,1,0,1],[0,1,1,0,0,0,1,0],[1,0,0,1],
[1,0,0,1,0,1],[0,0,0,1,0],[0],[0],[1,1,0,0,0,1,0,0],[0,1],[1,1,1,0,0],[0,0,0,0,0,1],[1,1,0,1,0,1],[0,1],
[0,1,1,1,1],[0],[0,0,0,0,1,1],[1,0,0,0,1,0,1],[1,0],[0,0],[0,0],[0,0,1,0],[0,1,0,0,0],[0,1,1,0,1,1,0],[0,1,0],
[0,1],[0],[0,1,0],[0,0,1,0,0,0,0,0],[0,0],[0,0,0],[0,1,0,0,0,0,0],[0,0,0],[0,0],[0,0,0,1,0],[0,0,0,0,1,0],
[0,0,1],[0,0,0,1,0,0,1,1],[1,0,0],[0],[0,0,1],[0,1,0,0],[0,0],[0,0],[0,1,1,0,1],[0],[0,0,0,1],[0,0],[0],[1,0],
[0,0],[0,0,0],[1,1,0,1,0,0,0],[0,1],[0,1,1,0,0],[0,1,0,1,1,0,0,1],[0,1,1,0],[1,0],[1,0,1,0,0,1,0],[0,1,0,0],
[0,0,1,1],[0],[0,1],[0,0,1,0,0],[0,1,1],[0,0,0,0],[1,0,0,0,1,1,0],[0],[0,1,0,0,0,0],[0,0,1,1,0,0],
[0,1,1,0,1,1],[1,0,0,0,0,0],[0,0,1,1,1],[0,1,1,1],[0],[0,0,0,1,1],[0,1,0],[1,0,0,0,1,0,1],[0],[0,0,0],
[1,0,1,1,1,0],[0,1,1],[0,0,1],[0,0,0],[1,1,1,0],[1,1,1,0],[0,0,1,0,0,0,0,1]];

   // SAMPLES

   cage = PathName("samples/cage/".resolveRelative).entries.collect{
            |p,n| Buffer.read(s,p.fullPath,bufnum: 200+n)};
   numbers = PathName("samples/numbers/".resolveRelative).entries.collect{
            |p,nb| Buffer.read(s,p.fullPath,bufnum: 300+nb)};
   title = Buffer.read(s,"samples/that_word_sound.wav".resolveRelative);
   stuck = Buffer.read(s,"samples/stuck.wav".resolveRelative);

   // START

   start = 1; // 1-based!

   // CAGE TIMES

   cageTimes = [(rhys.sum / (cage.size+1))];
   (rhys.sum-cageTimes[0]).segs(cage.size,1.2).scramble.do{
      |d|
      cageTimes = cageTimes ++ (cageTimes.last + d)};
   cageTimes = cageTimes[.. (cageTimes.size-2)];
```

```
// NUMBERS TIMES

numbersTimes = [(rhys.sum / 12)];
(rhys.sum-numbersTimes[0]).segs(numbers.size-1,1.2).scramble.do{
   |d|
   numbersTimes = numbersTimes ++ (numbersTimes.last + d)};
numbersTimes = numbersTimes[.. (numbersTimes.size-2)];
numbersTimes = numbersTimes ++ (rhys[.. (rhys.size - 2)].sum + 2);

// TITLE TIMES

// titleTimes = [0,rhys.sum,rhys.sum+3];
titleTimes = [0,rhys.sum];

// STUCK TIMES
stuckTime = rhys.sum * 4/5;

// CAGE SCHEDULER

cageSched = {arg start = 1;
   var cTimes,shadow,lo,hi;
   if(start > 1){cTimes = cageTimes - (rhys[..start-1].sum)}{cTimes = cageTimes};
   cTimes.do{
      |tme,i|
      if(tme.isPositive)
      {
         SystemClock.sched(tme,{
            var buf,sus,tms;
            buf = cage[i];
            sus = buf.numFrames / buf.sampleRate;
            tms = rrand(2,4);
            Routine{
               tms.do{
                  |index|
                  Synth(\sampler, [\bufnum,buf,\amp,cageAmp/(1.7**index),\pan,[-1,1,0][index%3],
                                   \sustain,sus]);
                  rrand(0.01,0.1).wait
               }
            }.play;
            shadow = cage.choose;
            lo = rrand(100,300);
            hi = rrand(lo,2000);
            Synth(\sampler, [
               \bufnum,shadow,\amp,cageAmp,\pan,[-1,1,0].choose,\sustain,shadow.numFrames/shadow.sampleRate,
            \lowCut,lo,\highCut,hi]);
         })
}}};

// NUMBERS SCHEDULER

numbersSched = {
   arg start = 1;
   var nTimes;
   if(start > 1){nTimes = numbersTimes - (rhys[..start-1].sum)}{nTimes = numbersTimes};
   nTimes.do{
      |tme,i|
      if(tme.isPositive)
      {
         SystemClock.sched(tme,{
            var indices,bufs,sus,pan,amps;
            indices = (i.rand .. i).scramble;
            bufs = indices.collect{|n| numbers[n]};
            pan = bufs.size.collect{rrand(-1,1.0)};
            amps = indices.collect{|in| if(in == i){1}{rrand(0.2,0.4)}};
            amps = amps * numbersAmp;
            Routine{
               bufs.do{
                  |bf,index|
                  sus = bf.numFrames / bf.sampleRate;
```

```
                    // Synth(\sampler, [\bufnum,buf,\amp,numbersAmp/(1.2**index),\sustain,sus,\pan,pn])
                    Synth(\sampler, [\bufnum,bf,\rate,0.97,\amp,amps[index],\sustain,sus,\pan,pan[index]]);
                    0.2.rand.wait
                };
            }.play}
        )
}}};

// TITLE SCHEDULER

titleSched = {arg start = 1;
    var tTimes;
    if(start > 1){tTimes = titleTimes - (rhys[..start-1].sum)}{tTimes = titleTimes};
    tTimes.do{
        |tme,i|
        var buf,amp;
        buf = title;
        amp = titleAmp;
        if(tme.isPositive)
        {
            SystemClock.sched(tme,{
                var sus,pan;
                sus = buf.numFrames / buf.sampleRate;
                pan = [-1,0,1].scramble;
                Routine{
                    pan.do{
                        |pn,index|
                        Synth(\sampler, [\bufnum,buf,\amp,amp/(1.25**index),\sustain,sus,\pan,pn]);
                        rrand(0.01,0.05).wait
                    }
                }.play}
            )

}}};

// STUCK SCHEDULER

stuckSched = {arg start = 1;
    var sTime;
    if(start > 1){sTime = stuckTime - (rhys[..start-1].sum)}{sTime = stuckTime};
    if(sTime.isPositive)
    {SystemClock.sched(sTime,{
        Synth(\sampler,[\bufnum,stuck,\amp,stuckAmp,\pan,-1,\sustain,stuck.numFrames/stuck.sampleRate,
                     \lowCut,300])
})}};

// MAIN ROUTINE

mainRout = {
    arg start = 1;

    var ks,rs,is;
    ks = if(start == 1){keys[(start-1)..]}{keys[start..]};
    rs = if(start == 1){rhys[(start-1)..]}{rhys[start..]};
    is = if(start == 1){instr[(start-1)..]}{instr[start..]};

    Routine{
        ks.do{
            arg chd,i;
            var r,locR;
            (start+i).postln;
            r = rs[i];
            locR = [0,1,2].choose;
            if(chd.isNil.not)
            {chd.do{
                arg k,index;
                Routine{
                    var inst,att,rel,ky;
                    inst = is[i][index];
                    att = r * rrand(1/3,1/2) * (1 - exprand(1/8,1));
                    rel = r - att * (1 - exprand(1/8,1));
                    ky = if(inst == 0){k.round}{k};
                    [0,rrand(0.03,0.1)].choose.wait;
                    [
                        nil,
                        [
                           {Synth(\pizz2,[\freq,ky.midicps,\amp,0.2,\sustain,rrand(0.3,1)])},
                           {Synth(\pizz1,[\freq,ky.midicps,\amp,0.2,\sustain,rrand(0.3,1)])},
                           {
                              var rl = rrand(0.3,1);
                              Synth(\pizz2,[\freq,ky.midicps,\amp,0.1,\sustain,rl]);
                              Synth(\pizz1,[\freq,ky.midicps,\amp,0.25,\sustain,rl])}
                        ].choose
                    ][inst].value;
                    if(0.3.coin)
                    {
                        {
                           0.3.rand.wait;
                           [
                              {Synth(\perc,[\freq,((ky%12)+60).midicps,\amp,0.3,\release,rrand(0.2,0.4)])},
                              {Synth(\glas,[\freq,((ky%12)+[60,72,84].choose).midicps,\amp,rrand(0.2,0.5),
                                 \release,rrand(0.3,1)])}
                           ].choose.value
                        }.fork
                    };
                    if(1.coin)
                    {
                        {Synth(\arco,[\freq,ky.midicps,\attack,att,\sustain,0,\release,rel,
                           \amp,rrand(0.2,0.3) * arcoAmp,
                           \ampVibLo,rrand(0.2,1),
                           \ampVibFqA,rrand(0.125,0.25),
                           \ampVibFqB,rrand(0.5,2),
                           \ampVibAtt,rrand(0.2,0.6),
                           \soft,rrand(1.5,3)])}.value};
                }.play
            }};
            r.wait}}.play;
};

// GUI

bds = Window.screenBounds;
left = bds.left;
top = bds.top;
width = bds.width / 11;
height = bds.height / 8;

win = Window.new.fullScreen;
win.background = Color.grey(0.6);

timerColorPat = Pseq([Color.blue,Color.green(0.5)],inf).asStream;

rect = Rect(width,height*2,width*4,height*3);
timerView = StaticText(win,rect);
timerView.align = \center;
timerView.background = Color.white;
timerView.font = Font("Monaco",width*1.2,true);
timerView.stringColor = Color.red;
timerView.string = count.asString;

rect = Rect(width*6,height*2,width*4,height*3);
clockView = StaticText(win,rect);
clockView.align = \center;
clockView.background = Color.grey(0.55);
clockView.font = Font("Monaco",width*1.2,true);
clockView.string = "0.0";
time = 0;

titleTxt = StaticText(win,Rect(width*3,20,width*5,height));
titleTxt.align = \center;
titleTxt.font = Font("Times",width/4,false,true);
titleTxt.string = "THAT WORD SOUND\nfür Klavier und Zuspielung";

startTxt = StaticText(win,Rect(width,height*6,width*2,height));
startTxt.align = \center;
startTxt.font = Font("Times",width / 2,true);
startTxt.string = "Takt:";

clockTxt = StaticText(win,Rect(width*6,height,width*4,height));
clockTxt.align = \center;
clockTxt.font = Font("Times",width / 2,true);
clockTxt.string = "Gesamtzeit:";

timerTxt = StaticText(win,Rect(width*1,height,width*4,height));
timerTxt.align = \center;
timerTxt.font = Font("Times",width / 2,true);
timerTxt.string = "Puls:";

timeField = NumberBox(win,Rect(width*3,height*6,width,height));
timeField.align = \center;
timeField.font = Font("Monaco",width / 2,true);
timeField.clipLo = 1;
timeField.clipHi = keys.size;

timeField.action = {
   arg val;
   var index;
   index = val.value.asInteger;
   start = index;
   time = if(start == 1){0}{rhys[..(start-1)].sum};
   timerView.stringColor = Color.red;
   clockView.string = time.asString;
   timerView.string = count;
};

// TIMER: SCHLAEGE/TAKT, GESAMTZEIT

timer = {arg start;
   var strt,cnt;
   strt = if(start == 1){0}{start};
   cnt = start;
   Routine{
      rhys[strt..].do{
         |rh,ct|
         {
            timerView.stringColor = timerColorPat.next; timerView.string = "1";
            timeField.string = cnt.asString
         }.defer;
         if( (rh%1) == 0.5)
         {
            Routine{
               (rh*2).asInteger.do{
                  |n|
                  {
                     timerView.string = (n+1).asString;
                     clockView.string = (time.asString ++ if((time % 1) == 0)
                     {".0"}{""})}.defer;
                  0.5.wait;
                  time = time + 0.5;
            }}.play
         }
         {
            Routine{
               rh.asInteger.do{
                  |n|
                  {
                     timerView.string = (n+1).asString;
                     clockView.string = (time.asString ++ if((time % 1) == 0)
                     {".0"}{""})}.defer;
                  1.wait;
```

```
                    time = time + 1;
          }}.play};
          if(start == 1){if(ct > 1){cnt = cnt + 1}}{if(ct > 0){cnt = cnt + 1}};
          rh.wait;
   }}.play};

   but = Button(win,Rect(width*7,height*6,width*2,height));
   but.font = Font("Times",width / 2,true);
   but.states = [["Play",Color.red],["Stop",Color.green(0.5)]];
   but.action = {
      arg val;
      if(val.value == 1)
      {
         Routine{
            (count+1).do{
               |i|
               {timerView.string = (count - i).asString}.defer;
               1.wait}}.play;
         Routine{
            count.wait;
            mainRout.(start);
            cageSched.(start);
            numbersSched.(start);
            titleSched.(start);
            stuckSched.(start);
            timer.(start)
         }.play
      }
      {
         CmdPeriod.run
      }

   };
   but.focus;

   win.drawFunc = {
      Pen.width = 10;
      Pen.addRect(clockView.bounds);
      Pen.stroke;
      Pen.width = 10;
      Pen.addRect(timerView.bounds);
      Pen.stroke;
   };


   win.onClose = {CmdPeriod.run};
   win.front;
}
```