

Music 254

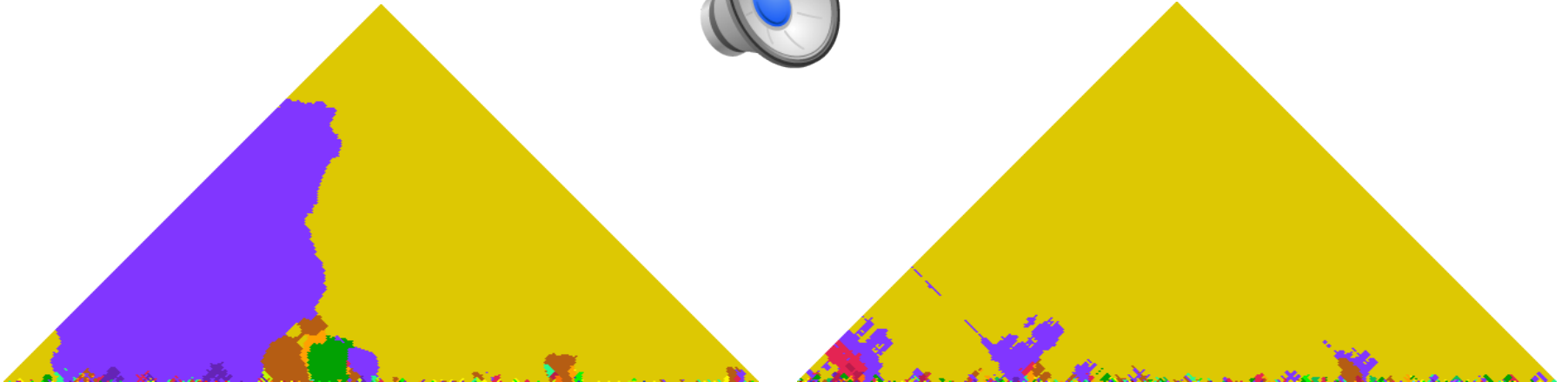
pitchmix, beat, tntype, extract,
cleave, context

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Pitchmix

```
pitchmix h://beethoven/sonatas/sonata01-1.krn | hum2mid -o xonata01-1.mid
```



```
mkeyscape h://beethoven/sonatas/sonata01-1.krn | convert - sonata01-1.png
```

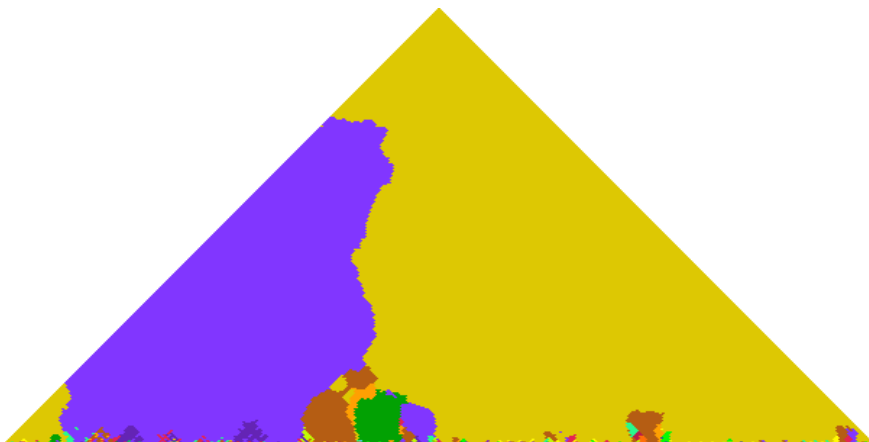
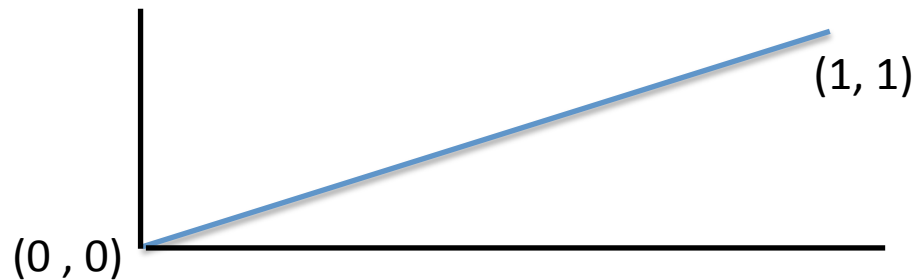
```
pitchmix h://beethoven/sonatas/sonata01-1.krn | mkeyscape | convert - xonata01-1.png
```

Gradually increase randomness

```
pitchmix h://beethoven/sonatas/sonata01-1.krn -d "0 0 1 1" -n | hum2mid -o xonata01-1.mid
```

-n = transpose random note to be within a 4th of original note

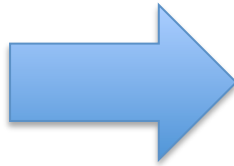
-d "0 0 1 1" = start with no randomness, then increase to 100% random by the end of the piece.



Downloading JRP data

`git clone --recursive https://github.com/josquin-research-project/jrp-scores`

`jrpscores`



Humdrum files for each
Composer in:

`jrpscores/??/kern`

Ano	Anonymous (8 works)
Agr	Alexander Agricola, ca. 1445/46–1506 (3 works)
Bru	Antoine Brumel, ca. 1460–1512 or 1513 (3 works)
Bus	Antoine Busnoys, ca. 1430–1492 (5 works)
Com	Loyset Compere, ca. 1445–1518 (25 works)
Duf	Guillaume Du Fay, ca. 1397–1474 (9 works)
Gas	Gaspar van Weerbeke, ca. 1446–ca. 1516 (1 work)
Isa	Henricus Isaac, ca. 1450–1517 (4 works)
Jap	Jean Japart, fl. ca. 1476–81 (22 works)
Jos	Josquin des Prez, ca. 1450—521 (300 works)
Rue	Pierre de la Rue, d. 1518 (78 works)
Mar	Johannes Martini, ca. 1430/40–1497 (93 works)
Mou	Jean Mouton, before 1459–1522 (11 works)
Obr	Jacob Obrecht, ca. 1457/8–1506 (7 works)
Ock	Johannes Ockeghem, d. 1497 (44 works)
Ort	Marbrianus de Orto, ca. 1460–1529 (22 works)
Pip	Matthaeus Pipelare, ca. 1450–1515 (1 work)
Reg	Johannes Regis, ca. 1425–ca. 1496 (4 works)
Tin	Johannes Tinctoris, ca. 1435/35–1511 (11 works)

Labeling metric position

```
cd jrp-scores/Agr/kern
```

```
beat Agr1001a* | less
```

List beats for each line of data. (quarter notes units)

```
beat -a Agr1001a*
```

Append analysis to input score

```
beat -p Agr1001a*
```

Prepend analysis to input score

```
**beat  **kern  **kern  **kern  **kern
=1-      =1-      =1-      =1-      =1-
1        0D      0.r      0D      [0.d
9        1F      .        1A      .
=2      =2      =2      =2      =2
1        1G      0.r      1B      1d]
5        1F      .        2.c\    0a
8        .      .        8B\L    .
8.5     .      .        8c\J    .
9        1F      .        4d\     .
10       .      .        2c\     .
12       .      .        8B/L    .
12.5    .      .        8A/J    .
=3      =3      =3      =3      =3
*_      *_      *_      *_      *_
```

Labeling composite duration

beat -p -d Agr1001a* | less

**dur	**kern	**kern	**kern	**kern
=1-	=1-	=1-	=1-	=1-
8	0D	0.r	0D	[0.d
4	1F	.	1A	.
=2	=2	=2	=2	=2
4	1G	0.r	1B	1d]
3	1F	.	2.c\ 8B\ 8c\ 4d\ 2c\ 8B/ 8A/ *_	0a *_
0.5	.	.		
0.5	.	.		
1	1F	.		
2	.	.		
0.5	.	.		
0.5	.	.		
*_	*_	*_	*_	*_

Meter and composite duration

beat -p Agr1001a* | beat -dp

**dur	**beat	**kern	**kern	**kern	**kern
=1-	=1-	=1-	=1-	=1-	=1-
8	1	0D	0.r	0D	[0.d
4	9	1F	.	1A	.
=2	=2	=2	=2	=2	=2
4	1	1G	0.r	1B	1d]
3	5	1F	.	2.c\ 8B\ 8c\ 4d\ 2c\ 8B/ 8A/ =3 *_	0a =3 *_
0.5	8	.	.	8B\ 8c\ 4d\ 2c\ 8B/ 8A/ =3 *_ =3 *_
0.5	8.5	.	.	8c\ 4d\ 2c\ 8B/ 8A/ =3 *_ =3 *_
1	9	1F	.	4d\ 2c\ 8B/ 8A/ =3 *_ =3 *_
2	10	.	.	2c\ 8B/ 8A/ =3 *_	. . . =3 *_
0.5	12	.	.	8B/ 8A/ =3 *_	. . =3 *_
0.5	12.5	.	.	8A/ =3 *_	. =3 *_
=3	=3	=3	=3	=3	=3
*_	*_	*_	*_	*_	*_

Remove input score

```
beat -p Agr1001a* | beat -dp | extractx -l **kern
```

**dur	**beat
=1-	=1-
8	1
4	9
=2	=2
4	1
3	5
0.5	8
0.5	8.5
1	9
2	10
0.5	12
0.5	12.5
=3	=3
*_	*_

Label composite sonorities

```
beat -a Agr1001a* | beat -da | tntype -ta | extractx -l **kern
```

**beat	**dur	**tnt
=1-	=1-	=1-
1	8	1-1T02
9	4	3-11AT02
=2	=2	=2
1	4	3-11BT07
5	3	3-11BT05
8	0.5	3-8BT05
8.5	0.5	3-11BT05
9	1	3-11AT02
10	2	3-11BT05
12	0.5	3-8BT05
12.5	0.5	2-4T05
=3	=3	=3
*-	*-	*-

Cleave

```
beat -a Agr1001a* | beat -da | tntype -ta | extractx -l **kern | \
  cleave -i '**beat,**dur,**tnt' -d ',' -o **info | grep -v ^=
```

```
**info
1,8,1-1T02
9,4,3-11AT02
1,4,3-11BT07
5,3,3-11BT05
8,0.5,3-8BT05
8.5,0.5,3-11BT05
9,1,3-11AT02
10,2,3-11BT05
12,0.5,3-8BT05
12.5,0.5,2-4T05
*_
```

Context

```
beat -a Agr1001a* | beat -da | tntype -ta | extractx -l **kern | \  
cleave -i '**beat,**dur,**tnt' -d ',' -o **info | grep -v ^= | context -n 2
```

```
**info
```

```
1,8,1-1T02
```

```
9,4,3-11AT02
```

```
1,4,3-11BT07
```

```
5,3,3-11BT05
```

```
8,0.5,3-8BT05
```

```
8.5,0.5,3-11BT05
```

```
9,1,3-11AT02
```

```
10,2,3-11BT05
```

```
12,0.5,3-8BT05
```

```
12.5,0.5,2-4T05
```

```
*_
```

```
**info
```

```
1,8,1-1T02 9,4,3-11AT02
```

```
9,4,3-11AT02 1,4,3-11BT07
```

```
1,4,3-11BT07 5,3,3-11BT05
```

```
5,3,3-11BT05 8,0.5,3-8BT05
```

```
8,0.5,3-8BT05 8.5,0.5,3-11BT05
```

```
8.5,0.5,3-11BT05 9,1,3-11AT02
```

```
9,1,3-11AT02 10,2,3-11BT05
```

```
10,2,3-11BT05 12,0.5,3-8BT05
```

```
12,0.5,3-8BT05 12.5,0.5,2-4T05
```

```
12.5,0.5,2-4T05 1,2,3-11AT04
```

```
*_
```

Repertory analysis

```
beat -a * | beat -da | tntype -ta | extractx -l **kern | \  
  cleave -i '**beat,**dur,**tnt' -d ',' -o **info | grep -v ^= | context -n 2 | \  
  humcat | ridx -H | sortcount -ph | head -n 20
```

```
**pcent  **data  
0.21     5,2,2-2T00    7,2,2-3T11  
0.14     5,2,3-11AT02  7,2,3-11AT02  
0.14     5,2,3-9T05    7,2,3-11BT00  
0.12     5,2,3-9T02    7,2,3-11BT09  
0.12     5,2,3-9T00    7,2,3-11BT07  
0.1       7,1,2-5T02    8,1,2-3T02  
0.1       5,2,3-9T07    7,2,3-11BT02  
0.1       5,2,3-11BT00  7,2,3-11BT00  
0.1       5,2,3-9T09    7,2,3-11BT04  
0.1       5,2,2-4T07    7,2,2-3T09  
0.09     1,2,3-11AT02  3,2,3-11AT02  
0.09     7,4,2-3T09    2-3T09  
0.09     3,2,2-4T00    5,2,2-2T00  
0.08     1,2,3-11BT00  3,2,3-11BT00  
0.08     5,2,2-2T05    7,2,2-3T04  
0.08     7,1,2-4T00    8,1,3-6T00  
0.08     5,2,2-2T02    7,2,2-3T01  
0.08     3,1,3-11BT07  4,1,3-9T07  
0.08     1,2,2-4T07    3,2,1-1T09
```

Repertory analysis

```
beat -a Jos/kern/* | beat -da | tntype -ta | extractx -l **kern | \  
cleave -i '**beat,**dur,**tnt' -d ',' -o **info | grep -v ^= | context -n 2 | \  
humcat | ridx -H | sortcount -ph | head -n 20
```

```
**pcent  **data  
0.22     5,2,3-11AT02  7,2,3-11AT02  
0.19     1,2,3-11AT02  3,2,3-11AT02  
0.18     5,2,3-9T07    7,2,3-11BT02  
0.18     5,2,3-11BT00  7,2,3-11BT00  
0.15     1,2,3-11BT00  3,2,3-11BT00  
0.14     5,2,3-11AT09  7,2,3-11AT09  
0.13     1,2,3-11BT05  3,2,3-11BT05  
0.12     1,2,3-11AT09  3,2,3-11AT09  
0.12     5,2,3-11AT07  7,2,3-11AT07  
0.12     5,2,3-11BT05  7,2,3-11BT05  
0.11     5,2,3-11BT07  7,2,3-11BT07  
0.1      1,2,3-11AT07  3,2,3-11AT07  
0.1      5,2,3-9T02    7,2,3-11BT09  
0.1      5,2,3-9T05    7,2,3-11BT00  
0.09     1,2,3-11BT07  3,2,3-11BT07  
0.09     3,2,3-11AT02  5,2,3-11AT02  
0.09     5,2,2-2T07    7,2,2-3T06  
0.09     5,2,3-9T00    7,2,3-11BT07  
0.09     5,2,3-9T09    7,2,3-11BT04
```

Transitions from 5,2,3-11AT02

half note D minor triad on beat 3

```
beat -a Jos/kern/* | beat -da | tntype -ta | extractx -l **kern | \  
cleave -i '**beat,**dur,**tnt' -d ',' -o **info | grep -v ^= | context -n 2 | \  
humcat | ridx -H | grep '^5,2,3-11AT02' | sortcount -ph | head -n 20
```

**pcent	**data
27.49	5,2,3-11AT02 7,2,3-11AT02
5.44	5,2,3-11AT02 7,1,3-11AT02
3.97	5,2,3-11AT02 7,2,3-11AT07
3.7	5,2,3-11AT02 7,2,3-11AT09
3.65	5,2,3-11AT02 7,2,3-10T11
3.54	5,2,3-11AT02 7,2,3-11BT10
2.99	5,2,3-11AT02 7,2,3-11BT05
2.72	5,2,3-11AT02 7,2,2-3T02
2.61	5,2,3-11AT02 7,2,2-5T09
2.56	5,2,3-11AT02 7,1,4-14AT02
2.4	5,2,3-11AT02 7,2,3-11BT07
1.8	5,2,3-11AT02 7,1,3-9T02
1.47	5,2,3-11AT02 7,2,2-3T04
1.31	5,2,3-11AT02 7,2,4-26T09
1.25	5,2,3-11AT02 7,2,4-14AT02
1.25	5,2,3-11AT02 7,1,3-11BT05
1.2	5,2,3-11AT02 7,2,3-11BT00
1.14	5,2,3-11AT02 7,2,4-22BT02
1.09	5,2,3-11AT02 7,1,3-11AT09