

ASYMPTOTIC FLUX: SECOND STUDY IN ENTROPY

(STATIC FOXY LUMP: [II] SECOND NUDIST TYRE PONY)

for Alarm Will Sound

Written for the 4th Annual Mizzou International Composers Festival

Winner, ASCAP Morton Gould Award, 2014
Winner, Howard Hanson Orchestral Prize, 2014
Nominee, Gaudeamus Prize, 2015

by

JASON THORPE BUCHANAN



Feb. 2 - April 24, 2013; Rev. 1 - Oct. 2014
Copyright © 2013, Jason Thorpe Buchanan
All Rights Reserved

PERFORMANCE NOTES:

Many of the techniques in this work are employed explicitly to destabilize or distort the timbral qualities of each instrument, and thus require quite detailed notation. Once the performers understand the character and intent of these techniques and their context within the work, it may be possible (and preferable) to play more freely within this syntax with a more organic, or even improvisatory character. The performance should not be constrained or adhere too rigidly to what is written on the page, but rather flow fluidly and naturally.

PITCH NOTATION:

Series of quarter-tones (one semitone = 100 cents (ct), one octave = 1200 cents):

Three-quarter-flat (-150 ct)	Flat (-100 ct)	Quarter-flat (-50 ct)	Natural (0 ct)	Quarter-sharp (+50 ct)	Sharp (+100 ct)	Three-quarter-sharp (+150 ct)

Series of sixth-tones: (arrows may also be used in conjunction with quarter tones to approximate smaller inflections):

6th-tone lower (-133 ct)	6th-tone higher (-66 cents)	6th-tone lower (-33 cents)	6th-tone higher (+33 cents)	6th-tone lower (+66 cents)	6th-tone higher (+133 cents)

TEMPORAL NOTATION: Indicates a sustained tone for the duration specified.

A relatively short fermata.

* Length of fermatas are at the discretion of the conductor, but should always be silences that are ‘loaded’ with intensity and tension.

DYNAMIC & TEMPORAL INDICATIONS: All dynamic markings should be considered relative, indicating the extremes of each instrument while utilizing a given technique. For example, the maximum amplitude (dynamic level) possible with an artificial harmonic is lower than that of a normally fingered pitch. Similarly, lateral bow motion is much softer than vertical (up/down) bow motion; some multiphonics are softer than others, air tones and other extended techniques might be softer or louder, etc., so it should be understood that the dynamics indicated apply to the upper and lower dynamic range of whichever particular technique or context within which it exists. In the same way, all temporal indications, such as accel. or decel. markings (below), are completely relative to the rate of rearticulation directly preceding or succeeding the indication. If there is no rate specified, it is left up to the discretion of the performer to determine a musically appropriate interpretation.

These symbols can be applied to a variety of techniques, such as trills, multiphonic tremolos, harmonic tremolos, bisbigliandos/timbral trills, rearticulations, and event box tempi to indicate relative acceleration and deceleration. In other words, the number of beams does not indicate a precise subdivision, but rather an increase or decrease of speed.

OTHER MARKINGS: All passages inside event boxes are to be repeated ad libitum with a consistent pulse that is independent of the ensemble’s pulse. These are accompanied by additional instructions, such as accel. or decel., change of pitch, bow pressure, regularity, etc.

NOTEHEAD TYPES:

Diamond noteheads indicate harmonics (natural or artificial).

Triangular noteheads: indicate the highest possible (or practical) pitch/location that can be achieved.

Square noteheads with single or double slash marks indicate slow bow speed with lateral motion for the strings, or a soft, breathy/air tone that has very little definite pitch for the clarinet. Triangle noteheads that are open rather than closed (black), indicate a harmonic as high up the string as possible (often followed by a gliss/port.) Any type of half-filled notehead (triangular or diamond) indicates a “half-press,” the finger pressure being somewhere between that of a harmonic and a normal tone.

“X” noteheads or regular noteheads with X slashes: always indicate a noise or indefinite pitch element; a scratch or semi-scratch tone, col legno, slap tongue, etc., dependent upon the precise indication. These often occur at the end of a phrase, indicating a “dead stroke”; meaning that the bow should suddenly stop the string, or the embouchure should suddenly seal.

TRILLS/TREMOLOS/BISBIGLIANDOS:

CLARINET: Bisbigliando or timbral trill, typically on a multiphonic (fingering provided). This results in a subtle timbral change using alternative/auxiliary fingerings less than a sixth-tone difference in pitch.

STRINGS: Trill between a “normal” pitch (pictured: open string, semi-pitched, low bow speed) and a “half-press” (finger pressure between norm. and harm.), producing a multiphonic or split-tone, not necessarily on a harmonic node.

Trill between a harmonic and “half-press” by lightly changing finger pressure while remaining in the same location on the string. May also be between “normal” pressure and harmonic, or “normal” and “half-press.”

BASS CLARINET EMBOUCHURE/VOCALIZATIONS:

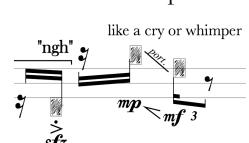
The staff above the clarinet indicates the embouchure shape as well as vocalizations and other techniques.

The embouchure shape is designated in four stages, from bottom to top: “u”, “eu”, “e”, and “i”. These changes in embouchure affect both the pitch and timbre of a normal tone, or as it is more commonly used here, a multiphonic.

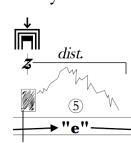
Contour lines accompanied by +/- cent indications represent the approximate shape of a pitch bend, executed by increasing or decreasing jaw pressure. These embouchure markings and pitch bends are often used in conjunction.

Often a jagged, approximate pitch contour is given, which may be freely interpreted at the discretion of the performer, keeping in mind the character of the work and using aesthetically appropriate musical gestures. In some cases it can be executed entirely using the embouchure or voice, and in others it will require a fingered glissando that can be improvised by the performer.

VOCALIZATIONS: Vocalizations in the bass clarinet part are given on a three line staff indicating the approximate vocal range of the performer. The prescribed contours and registers should be observed as accurately as possible, though much detail is left up to the discretion of the performer, keeping in mind the character of the work and musically appropriate gestures. The scratch tone symbol when it appears in the clarinet part indicates distortion of the clarinet tone by the voice and/or throat and embouchure, often accompanied by a pitch contour for the voice as well. It is important that the voice is never completely exposed, but only coloring or modulating the tone of the clarinet. When modulation with the voice occurs, do not be concerned with adhering to the notated pitch with accuracy; the distortion and sum/difference tones drastically alter the sounding pitch.



“ngh” indicates a low, guttural vocalization, like clearing your throat.

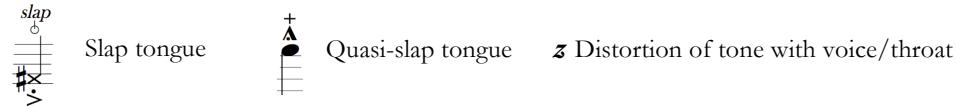


A high register vocalization, distorting the clarinet with a rising then falling contour.

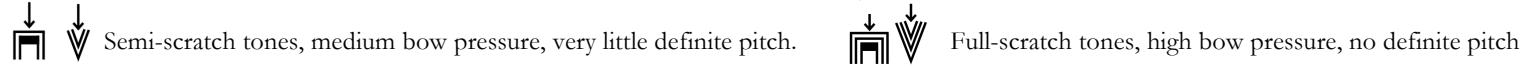
MULTIPHONICS: Nearly all of the multiphonics utilized in this work (with the exception of 84b), are taken from Harry Sparnay’s book “The Bass Clarinet” (Periferia Music, ISBN: 978-84-938845-2-9) and are numbered accordingly. The fingerings shown are the same as are given there, though the pitch material notated is a product of my own sampling and spectral analysis of each of these multiphonics. “Multiphonic Fades” begin from the fundamental and gradually add the additional pitch content before fading back, as fluidly as possible.



CLARINET ARTICULATIONS:



BOW PRESSURE/LOCATION:



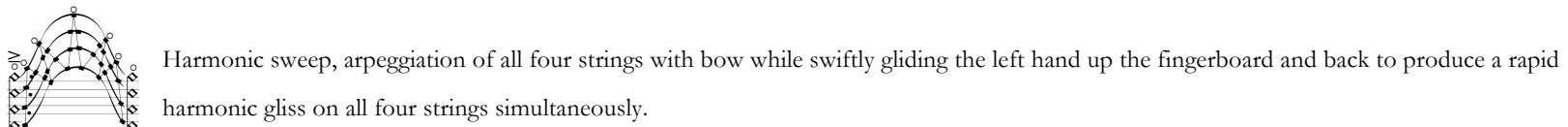
whatsoever. ————— Gradual increase of bow pressure to scratch, followed by gradual decrease of bow pressure.

An additional staff above each part indicates the lateral position of the bow on the instrument. The center line represents a normal (**ORD**) position, with the upper line representing the bridge (**ASP**) and the lower line the fingerboard (**AST**).

ASP: Alto Sul Ponticello, very close to the bridge. **SP:** Sul Ponticello **ORD:** Ordinario **ST:** Sul Tasto **AST:** Alto Sul Tasto, well above the fingerboard.
h. sul pont -- Bow near the bridge, constantly adjusting the bow position, speed, and pressure ad libitum to emphasize different harmonics and drastically alter the timbre.

DIAGONAL BOW POSITION: Nearly parallel to strings, with sufficient bow pressure to achieve a very rich and unpredictable harmonic spectrum. This is often accompanied by rotational bow motion and arpeggiation of multiple strings, notated using tablature for the location of the bow over each string.

ON BRIDGE: Bowing directly on the bridge, or bowing diagonally with the bow nearly parallel to the strings, it may be possible to bow both the bridge and strings simultaneously.



CELLO/BASS SCORDATURA & TRANSPOSITIONS:

The cello strings are tuned to the 3rd, 5th, 7th, and 11th partials of a virtual low E \sharp_0 fundamental (19.6 Hz), well below the range of the piano, approximately 58.8 Hz (B \flat), 98 Hz (G \sharp), 137.2 Hz (D \flat), and 215.6 Hz (A \flat), respectively. This tuning is employed to achieve a variety of natural harmonics over each of string as a fundamental.

The bass strings (C extension is required) are tuned to 29.4 Hz (B \flat), 55 Hz (A \flat), 68.6 Hz (D \flat), and 98 Hz (G \sharp), respectively. This tuning is employed to achieve a variety of natural harmonics over each of string as a fundamental.

The alto flute is written in G and sounds a Perfect Fourth lower than written.

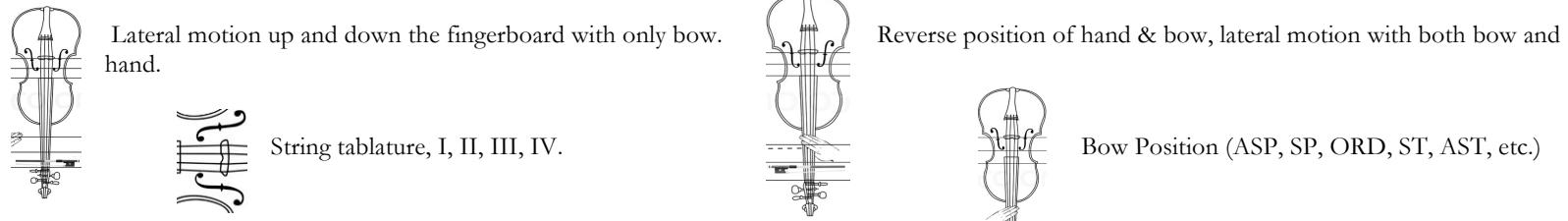
The clarinet is written in B \flat , and sounds a Major Second lower than written.

The bass clarinet is written in B \flat , and sounds a Major Ninth lower than written.

The horn is written in F and sounds a Perfect Fifth lower than written (same in bass clef!).

The trumpet is written in C

CHOREOGRAPHIC CLEFS (limited use in this rough draft due to time constraints!):



HARMONICS: (3) A circled number indicates a specific partial in the harmonic series and corresponds to the location of the written diamond notehead. For strings, this typically indicates a natural harmonic located at a particular node on an open string. For the bass clarinet, this number may be an approximate upper target when overblowing. Many of the passages employ arpeggiation of all four strings on natural harmonics, with these numbers indicating the position on all four strings that can be barred.

PIANO: The piano part extensively utilizes a ceramic "ramekin" which could also be substituted by a metal plate or canister, or perhaps a cigarette ash tray. Please observe that the object when used inside the piano is intended to be scraped laterally up and down a set group of strings, in other words it is not brushed across the strings. The metal plate on the higher strings could also be substituted by a plastic CD 'jewel' case.

BASSOON/OBOE MULTIPHONICS: Some specific multiphonic fingerings have been included in the score (for the bassoon), and others are left up to the performers. Please note that in some cases, it is indicated that these multiphonics be used in conjunction with vocalizations, which should be rather abrasive/loud.

PERCUSSION I: 2 Bongos, 2 Toms, Concert Bass Drum, Brake Drum, Superball, sticks, and BD beater.

PERCUSSION II: Toms, Kick, Low China and Med. Cym. mounted on 1 stand (China above, reversed), Brake Drum, 2 Cowbells, Large Tam-Tam & Large Wind Gong (or small Tam-Tam), Bow, sticks, metal canister or ash tray, Tam-Tam beater.

INSTRUMENTATION: Sinfonietta, 1.1.2.1 – 1.1.1.0 – 2 Perc, Piano – 1.1.1.1

* the work exists in versions for a single clarinetist, as well as a version for bass clarinet and soprano saxophone instead of two clarinetists.

AMPLIFICATION: In order to balance the ensemble, at a minimum the strings, bassoon, and bass clarinet should be amplified. Additional instruments may be amplified at the discretion of the conductor, ensemble, sound engineer, and/or composer.

PERFORMANCE HISTORY:

7/27/13 – Alarm Will Sound, 4th Annual Mizzou International Composers Festival
9/2015 – Gaudeamus Muziekweek 2015

Columbia, MO
Utrecht, Netherlands

HONORS AND AWARDS:

Winner, 2014 Howard Hanson Orchestral Prize, Eastman School of Music
Winner, 2014 ASCAP Morton Gould Award
Nominee, 2015 Gaudeamus Prize

There is certainly some information that has been omitted from the score, so please do not hesitate to contact me with any questions at:
jasontbuchanan@gmail.com

Asymptotic Flux: Second Study in Entropy

(Static Foxy Lump: [II] Second Nudist Tyre Pony)

Jason Thorpe Buchanan
Spring 2013
Rev. 1 - Oct. 2014

Transposed Score

Violoncello scordatura; B₃ (58.8 Hz), G₃ (98 Hz), D₃ (137.2 Hz), & A₃ (215.6 Hz)
Contrabass scordatura; B₂ (29.4 Hz), A₂ (35 Hz), D₂ (68.6 Hz), & G₂ (98 Hz)

for Alarm Will Sound
Written for the 4th Annual Mizzou International Composers Festival

Frozen Time $\text{♩} = 40$ *poco accel.*

BRIDGE

Top Nut

AST

ASP

Violin I
III IV
with bow on fingerboard, slow lateral motion towards bridge
mf left hand fingers lead closely in front of the bow, muting the strings and producing harmonics

Violin II
III IV
with bow on fingerboard, slow lateral motion towards bridge
mf left hand fingers lead closely in front of the bow, muting the strings and producing harmonics

Viola
III IV
with bow on fingerboard, slow lateral motion towards bridge
mf

Violoncello (fingered pitch)
IV
very slow bow speed
mf

Violoncello (sounding pitch)
IV
very slow bow speed
mf

Contrabass (fingered pitch)
Subharmonic should sound one octave below fingered concert E₃ (19.3Hz)
Bow position should be at the node for the 6th partial
ffffz possible!

Contrabass (sounding pitch)
ffffz possible!

Asymptotic Flux: Second Study in Entropy

Asymptotic Flux: Second Study in Entropy a τ -approx. asym

a tempo, molto accel.

= c. 69) **Asymptotic R**
a tempo, accel.

a tempo 3

Asymptotic Flux: Second Study in Entropy

Asymptotic Flux: Second Study in Entropy

$$\boxed{F} = c.63$$

6

Asymptotic Flux: Second Study in Entropy

6

A. Fl. B. Cl. Bsn. Hn. C Tpt. B. Tbn. Perc. I Perc. 2 Pno.

Ob. B. Cl. Bsn. Hn. C Tpt. B. Tbn. Perc. I Perc. 2 Pno.

B. Cl. Bsn. B. Tbn. Perc. I Perc. 2 Pno.

Bsn. B. Tbn. Perc. I Perc. 2 Pno.

Hn. C Tpt. B. Tbn. Perc. I Perc. 2 Pno.

C Tpt. B. Tbn. Perc. I Perc. 2 Pno.

B. Tbn. Perc. I Perc. 2 Pno.

Perc. I Perc. 2 Pno.

Vln. I Vln. II Vla. Vlc. Cb.

Vln. II Vla. Vlc. Cb.

Vla. Vlc. Cb.

Vlc. Cb.

Cb.

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

125

126

127

128

129

130

131

132

133

134

135

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

151

152

153

154

155

156

157

158

159

160

161

162

163

164

165

166

167

168

169

170

171

172

173

174

175

176

177

178

179

180

181

182

183

184

185

186

187

188

189

190

191

192

193

194

195

196

197

198

199

200

201

202

203

204

205

206

207

208

209

210

211

212

213

214

215

216

217

218

219

220

221

222

223

224

225

226

227

228

229

230

231

232

233

234

235

236

237

238

239

240

241

242

243

244

245

246

247

248

249

250

251

252

253

254

255

256

257

258

259

260

261

262

263

264

265

266

267

268

269

270

271

272

273

274

275

276

277

278

279

280

281

282

283

284

285

286

287

288

289

290

291

292

293

294

295

296

297

298

299

300

301

302

303

304

305

306

307

308

309

310

311

312

313

314

315

316

317

318

319

320

321

322

323

324

325

326

327

328

329

330

331

332

333

334

335

336

337

338

339

340

341

342

343

344

345

346

347

348

349

350

351

352

353

354

355

356

357

358

359

360

361

362

363

364

365

366

367

368

369

370

371

372

373

374

375

376

377

378

379

380

381

382

383

384

385

386

387

388

389

390

391

392

393

394

395

396

397

398

399

400

401

402

403

404

405

406

407

408

409

410

411

412

413

414

415

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

437

438

439

440

441

442

443

444

445

446

447

448

449

450

451

452

453

454

455

456

457

458

459

460

461

462

463

464

465

466

467

468

469

470

471

472

473

474

475

476

477

478

479

480

481

482

483

484

485

486

487

488

489

490

491

492

493

494

495

496

497

498

499

500

501

502

503

504

505

506

507

508

509

510

511

512

513

514

515

516

517

518

519

520

521

522

523

524

525

526

527

528

529

530

531

532

533

534

535

536

537

538

539

540

541

542

543

544

545

546

547

548

549

550

551

552

553

554

555

556

557

558

559

560

561

562

563

564

565

566

567

568

569

570

571

572

573

574

575

576

577

578

579

580

581

582

583

584

585

586

587

588

589

590

591

592

593

594

595

596

597

598

599

600

601

602

603

604

605

606

607

608

609

610

611

612

613

614

615

616

617

618

619

620

621

622

623

624

625

626

627

628

629

630

631

632

633

634

635

636

637

638

639

640

641

642

643

644

645

646

647

648

649

650

651

652

653

654

655

656

657</p

Asymptotic Flux: Second Study in Entropy

Asymptotic Flux: Second Study in Entropy

7

A. Fl.

Ob.

B. Cl.

B. Cl.

Bsn.

Hn.

C Tpt.

B. Tbn.

Perc. I

Perc. 2

Pno.

Vln. I

Vln. II

Vla.

Vlc.

Cb.

Asymptotic Flux: Second Study in Entropy

Asymptotic Flux: Second Study in Entropy

9

Asymptotic Flux: Second Study in Entropy

9

Measure 36: C. Fl., Ob., B♭ Cl., B. Cl., Bsn., Hn., C Tpt., B. Tbn., Perc. I, Perc. 2, Pno.

Measure 37: C. Fl., Ob., B♭ Cl., B. Cl., Bsn., Hn., C Tpt., B. Tbn., Perc. I, Perc. 2, Pno.

Measure 38: C. Fl., Ob., B♭ Cl., B. Cl., Bsn., Hn., C Tpt., B. Tbn., Perc. I, Perc. 2, Pno.

Measure 39: Vln. I, Vln. II, Vla., Vlc., Cb.

Measure 40: Vln. I, Vln. II, Vla., Vlc., Cb.

Textual Annotations:

- Measure 36:** "Multiphonic(s) + vocalization ad libitum; abrasive and full - pitch content approx."
- Measure 37:** "Multiphonic(s) + vocalization ad libitum; abrasive and full - pitch content approx."
- Measure 38:** "Multiphonic(s) + vocalization ad libitum; abrasive and full - pitch content approx."
- Measure 39:** "depression of strings II & III should allow for all four to be bowed simultaneously with very high pressure"
 - "Scrape ramekin from center of low strings towards tuning pegs"
 - "possible!"
 - "(half-press)"
 - "harm. gliss."
 - "rotate bow ad libitum"
 - "diagonal bow position"
- Measure 40:** "depression of strings II & III should allow for all four to be bowed simultaneously with very high pressure"
 - "possible!"
 - "(half-press)"
 - "harm. gliss."
 - "rotate bow ad libitum"
 - "diagonal bow position"
- General:** "h. sul pont. ad libitum; violent, irregular bow changes, rapidly fluctuating bow speed & dynamics"

Asymptotic Flux: Second Study in Entropy

Asymptotic Flux: Second Study in Entropy K

- 11

Asymptotic Flux: Second Study in Entropy

12

Asymptotic Flux: Second Study in Entropy

M

A. Fl. *poco accel. reart.* *8va* *pp*

Ob. *poco accel. reart.* *fffz* *ffffz*

B♭ Cl. *poco accel. reart.* *fffz* *ffffz*

B.Clt. *mf* *pp* *fffz* *ffffz*

Bsn. *sfz* *3* *8* *3* *4* *2* *3* *4* *2* *3* *4*

Hn. *sfz subp* *mf* *sfz subp* *mf* *sfz* *fffz subp* *fffz* *mp*

C Tpt. *senza sord.* *mf* *3 sfz subp* *fffz*

B. Tbn. *sfz subp* *mf* *3 sfz subp* *mf* *sfz* *fffz* *mp*

Perc. I *3*

Perc. 2 *TAM TAM w/ drinking glass* *sfz 3* *w/ large beater* *lv.* *sfz*

Pno. *sfz* *3 sfz* *sfz* *3 sfz* *8vb. sfz* *mute at coil* *pp 5 una corda* *6* *7*

Vln. I *4* *8* *3* *8* *3* *4* *3* *4* *2* *4* *61* *BRIDGE/ASP* *3* *4* *2* *4* *63*

Vln. II *port.* *8va* *poco decel.* *mf* *sfz 6* *poco decel.* *pp* *SP* *(half-press trill)* *poco decel.* *molto vib.* *8va* *subpp* *BRIDGE/ASP* *senza vib.* *SP* *(half-press trill)* *harm. gliss.*

Vla. *port.* *8va* *poco decel.* *mf* *sfz 6* *poco decel.* *pp* *SP* *molto vib.* *poco decel. vib. rate* *subpp* *BRIDGE/ASP* *senza vib.* *SP* *molto vib.* *poco decel. vib. rate* *mp* *poco cresc.*

Vlc. *pp* *3 sfiffz* *sfiffz* *subpp* *senza vib.* *IV détaché 6* *6* *détaché 6* *6*

Cb. *III 3* *sfz* *3 sfz* *sfiffz* *bow position* *sfiffz possible!* *bow position* *Subharmonic should sound one octave below fingered concert E♭ (19.5Hz)* *IV détaché 6* *6*

N

A. Fl. *port.* *mf* *5* *6* *7* *pp*

Ob. *pp* *mp*

B♭ Cl. *f 5* *5* *6* *dist.* *"u"* *"eu"*

B.Clt. *m. 84b* *m. 96* *m. 97* *6* *6*

Bsn. *fffz* *ffffz* *fffz* *ffffz* *fffz* *ffffz*

Hn. *fffz subp* *poco accel.* *fffz* *ffffz* *fffz* *ffffz*

C Tpt. *mf* *fffz* *ffffz* *fffz* *ffffz* *fffz*

B. Tbn. *fffz* *ffffz* *fffz* *ffffz* *fffz* *ffffz*

Perc. I *3*

Perc. 2 *sfz* *8va* *sfz* *8va*

Pno. *sfz* *3 sfz* *sfz* *3 sfz* *8vb. sfz* *mute at coil* *pp 5 una corda* *6* *7*

Vln. I *4* *8* *3* *8* *3* *4* *3* *4* *2* *4* *61* *BRIDGE/ASP* *3* *4* *2* *4* *63*

Vln. II *port.* *8va* *poco decel.* *mf* *sfz 6* *poco decel.* *pp* *SP* *(half-press trill)* *poco decel.* *molto vib.* *8va* *subpp* *BRIDGE/ASP* *senza vib.* *SP* *(half-press trill)* *harm. gliss.*

Vla. *port.* *8va* *poco decel.* *mf* *sfz 6* *poco decel.* *pp* *SP* *molto vib.* *poco decel. vib. rate* *subpp* *BRIDGE/ASP* *senza vib.* *SP* *molto vib.* *poco decel. vib. rate* *mp* *poco cresc.*

Vlc. *pp* *3 sfiffz* *sfiffz* *subpp* *senza vib.* *IV détaché 6* *6* *détaché 6* *6*

Cb. *III 3* *sfz* *3 sfz* *sfiffz* *bow position* *sfiffz possible!* *bow position* *Subharmonic should sound one octave below fingered concert E♭ (19.5Hz)* *IV détaché 6* *6*

Asymptotic Flux: Second Study in Entropy

64

C. Fl.

65

O 66 8va *poco accel. timb. trill*

P 68 *accel. reart.*

Ob.

B♭ Cl.

B♭ Cl.

Bsn.

dist., as gritty and dirty as possible

m. 71
m. 16
m. 8
m. 71 (bisb. w/key 14)

accel.

accel. reart.

Multiphonic + vocalization ad libitum; abrasive and full sffz

3 4 2 4 3 8 7 5 4 4

Hn.

C Tpt.

B. Tbn.

Perc. 1 *B.D. w/SUPERBALL*

TAM TAM w/ drinking glass

w/ large beater

4:3

LOW CHINA & MED. CYM. PAIR (bowed)

Perc. 2

Pno.

Scrape ramekin from center of low strings towards tuning pegs

pp

gliss.

l.v.

Scrape laterally

Scrape ramekin from center of low strings towards tuning pegs

3 4 2 4 3 8 7 8 4 4

64 h. sul pont. ad libitum; violent, irregular bow changes, rapidly fluctuating bow speed & dynamics

65

66

67

68

Vln. I

harm. gliss.

fff

AST

molto vib.

poco decel.

sp

jagged gliss/fall ad libitum

Vln. II

harm. gliss.

fff

AST

molto vib.

poco decel.

sp

jagged gliss/fall ad libitum

Vla.

port.

fff

AST

molto vib.

poco decel.

sp

jagged gliss/fall ad libitum

Vlc.

III - 6 6

II - 6 6

harm. gliss.

fff

AST

port.

fff

Vcl.

III - 6 6

II - 6 6

harm. gliss.

fff

AST

port.

fff

Cb.

III - 6 6

II - 6 6

harm. gliss.

fff

AST

port.

fff

64

65

66

67

68

Asymptotic Flux: Second Study in Entropy

Asymptotic Flux: Second Study in Entropy

18

molto rit. (♩ = c. 40)

Asymptotic Flux: Second Study in Entropy

19

This image shows a detailed musical score page, likely from a symphony or concert overture. The page is filled with musical staves for various instruments, each with its own specific notation. The instruments include C. Flute, Oboe, Bassoon, Bass Clarinet, Bassoon, Horn, Clarinet in C, Bass Trombone, Percussion 1, Percussion 2, Piano, Violin I, Violin II, Viola, and Cello. The score is divided into measures 86 through 90. Large numbers '3', '4', '2', and '3' are placed above the staves, possibly indicating different sections or performance techniques. The notation is highly detailed, with many slurs, grace notes, and dynamic markings like 'sfz' (softest dynamic) and 'fff' (fiercest dynamic). The piano part features several unique performance instructions, such as 'scrape drinking glass laterally from center of low strings towards keyboard' and 'mute at coil'. The overall complexity of the score suggests a piece designed for a large orchestra or ensemble.

Asymptotic Flux: Second Study in Entropy⁵

Asymptotic Flux: Second Study in Entropy

• 21

Asymptotic Flux: Second Study in Entropy

poco rit., molto rubato

Asymptotic Flux: Second Study in Entropy

 = c. 60

A. Fl. 108 *port.* *pp* *ff* *sffz*

Ob. *port.* *mf* *pp* *mf*

B♭ Cl. *port.* *pp* *mf* *pp* *mf* *pp* *mf* *pp* *mf* *pp* *fff*

B. Cl. *heavy dist./scream* *Vocalizations ad libitum!!* *"eu"* *m. 8b* *m. 8b*

Bsn. *mf* *pp* *ff* *pp* *ff* *pp* *ff* *pp* *mp* *pp* *mp*

3 **4**

Hn. 108 *pp* *ff* *pp* *ff* *pp* *ff* *pp* *ff*

C Tpt. *pppp* *mf* *pp* *mf* *pppp* *mf* *pp* *mf* *pp* *mf*

B. Tbn. *pp* *ff* *pp* *ff* *pp* *ff* *pp* *ff* *pp* *ff*

Perc. I *f* *mp* *f* *mp* *f* *mp* *f* *mp* *f*

Perc. 2 *port.* *ff* *port.* *ff* *port.* *ff* *port.* *ff* *port.* *ff*

Pno. *mf* *mf* *mf* *mf* *mf* *damp*

3 **4**

Vln. I 108 *h. sul pont.* *(half-press trill)* *poco port. ad libitum* *mf* *pp* *mf*

Vln. II 109 *h. sul pont.* *(half-press trill)* *poco port. ad libitum* *mf* *pp* *mf*

Vla. *mp* *fp* *mp* *fp* *mp* *fp* *mf*

Vlc. *move lh. fingers on/off & up/down neck ad libitum* *make no attempt at synchronization with other events!* *w/bow, lateral motion only!* *mf* *mp* *mf* *mp* *mf* *mp* *ff*

Vcl. *move lh. fingers on/off & up/down neck ad libitum* *make no attempt at synchronization with other events!* *w/bow, lateral motion only!* *mf* *mp* *mf* *mp* *mf* *mp* *ff*

Z *III* *timbral trill* *III* *timbral trill*

4 **4**

Hn. 109 *port.* *pp* *ff* *pp* *ff* *pp* *ff* *pp* *ff*

C Tpt. *port.* *pp* *ff* *port.* *pp* *ff* *port.* *pp* *ff*

B. Tbn. *port.* *ff* *port.* *ff* *port.* *ff* *port.* *ff*

Perc. I *l.v.* *mp* *l.v.* *mp* *l.v.* *mp* *l.v.*

Perc. 2 *mf* *mp* *mf* *mp* *mf* *mp*

Pno. *c. 60*

Vln. I 109 *h. sul pont. ad libitum; violent, irregular bow changes, rapidly fluctuating bow speed & dynamics* *(half-press ad libitum)* *fff* *fff* *p* *s* *fff*

Vln. II 110 *h. sul pont. ad libitum; violent, irregular bow changes, rapidly fluctuating bow speed & dynamics* *(half-press ad libitum)* *fff* *fff* *p* *s* *fff*

Vla. *III* *IV* *subp* *fff* *fff* *p* *s* *fff*

Vlc. *III* *IV* *subp* *fff* *fff* *p* *s* *fff*

Vcl. *III* *IV* *subp* *fff* *fff* *p* *s* *fff*

Cb. *III* *IV* *subp* *fff* *fff* *p* *s* *fff*

Asymptotic Flux: Second Study in Entropy

25

Asymptotic Flux: Second Study in Entropy

A. Fl.

116 117 118 119 120

Ob.

B♭ Cl.

Vocalizations ad libitum!!

B. Cl.

quasi-improvisatory, rhythms ad libitum m. 88-87

m. 88 m. 87

timbral trill

heavy dist. scream

m. 87

Bsn.

2 3 4 3 4 4

Hn.

116 117 118 119 120

C Tpt.

B. Tbn.

Perc. I

Perc. 2

poco accel, molto rubato

WIND GONG (bowed)

Pno.

8vb

2 4 3 4 4

Vln. I

116 117 118 119 120

move lh. fingers on/off & up/down neck ad libitum

make no attempt at synchronization with other events!

elbow, lateral motion only!

(half-press trill)

Vln. II

2 4 3 4 4

Vla.

at frog lateral motion only!

III IV high bow pressure I II

jerk lateral motion

I II

lateral motion only!

Vlc.

III grating / high friction / noise
medium bow pressure
lateral motion

(bow)

left hand fingers should lead very closely in front of the bow, muting the strings and producing harmonics

circular bowing, arpeggiation of all four strings

behind bridge

Cb.

III grating / high friction / noise
medium bow pressure
lateral motion

(bow)

left hand fingers should lead very closely in front of the bow, muting the strings and producing harmonics

circular bowing, arpeggiation of all four strings

behind bridge

Asymptotic Flux: Second Study in Entropy

a tempo (♩ = 100)

(♩=♪) **cc** ♩ = 60 (♩ = 120)

poco rit.

Asymptotic Flux: Second Study in Entropy

29

Asymptotic Flux: Second Study in Entropy

30

EE

132 flatt. (scaled embouchure) a tempo, accel.

C. Fl. 133 sffz subp Multiphonic + vocalization ad libitum; abrasive and full

Ob. slap tongue 5 5 5

B♭ Cl. flatt. poco accel. reart. fff mp

B. Cl. guttural, indefinite pitch vocalization like a cry or whimper m.9 (bass. w/key 5) timbral trill timbral trill poco decel. bisb. dist. break

Bsn. 4 mf subp sffz 3 4 132 5 5 5 5 133 sffffz subp fff

Hn. 4 ff pp 3 4 134 port. 2 135 3 8 hall-stopped

C Tpt. h (voiceless) pp mf sffffz mf sffz 7 3 sffffz 7 port. mf pp

B. Tbn. 5 5 5 5 pp sffz w/ sticks 3 7 sffffz 7 3 sffffz mp

Perc. I 5 5 5 k mf k mp k p sffz LOW CHINA & MED. CYM. PAIR (bowed) f lv. 134 sffz TAM TAM w/large beater

Perc. 2 5 k p sffz lv. 135 sffz mfp minute!

Pno. Scrape ramekin from center of low strings towards tuning pegs scrape laterally mf fff

4 4 a tempo, poco accel. 132 h. sul pont 3 sffz 133 a tempo, accel. 4 rit. 134 BRIDGE/ASP 4 at tip diagonal bow angle, nearly parallel to strings rotate bow ad libitum 3 8 135 depression of strings II & III should allow for all four to be bowed simultaneously with very high pressure

Vln. I 5 port. p ff p sffz 15ma molto vib. poco decel. vib. rate senza vib. subpp 3 (half-press) harm. gliss. II III IV

Vln. II 5 port. p ff p sffz 15ma molto vib. poco decel. vib. rate senza vib. subpp 3 (half-press) harm. gliss. II III IV

Vla. 5 port. p ff p sffz 15ma molto vib. poco decel. vib. rate senza vib. subpp 3 (half-press) harm. gliss. II III IV

Vcl. slow bow speed AST AST AST SP molto vib. poco decel. vib. rate senza vib. subpp 3 (half-press) rotate bow ad libitum diagonal bow position III IV

Cb. slow bow speed AST AST AST SP molto vib. poco decel. vib. rate senza vib. subpp 3 (half-press) rotate bow ad libitum diagonal bow position III IV

Asymptotic Flux: Second Study in Entropy

31

Asymptotic Flux: Second Study in Entropy (Static Foxy Lump: [II] Second Nudist Tyre Pony) was written between February and April of 2013 for Alarm Will Sound as the second work in a cycle utilizing shared musical objects and compositional devices, and awarded both an ASCAP Morton Gould Young Composer Award (2014), and the Howard Hanson Orchestral Prize (2014) by the Eastman School of Music. The first, for amplified bass clarinet, violin, viola, and cello, was composed over a three-month period while traveling and hitchhiking throughout Europe, surrounding time spent in Paris and Darmstadt. The experience of frantically seeking opportunities to compose while on the move proved challenging, mostly due to the awkward, impromptu workspaces available to me such as cafes, restaurants, hostels, and the apartments of my various hosts. These were typically quite busy, noisy, and chaotic spaces, influencing the character of the music, as well as the title.

Asymptotic Flux describes an arguably conceptual device: the low E-flat that simultaneously pervades the work and is non-existent. In the quartet, I imagined that the ensemble is always reaching towards this E-flat as a point of centricity, but never quite arriving, analogous to an asymptote as it approaches infinity. In this *Second Study*, the low E-flat is finally provided by a contrabass subharmonic that both initiates and concludes the work, scarcely audible as a definite pitch, completely unstable, and on the lower threshold of human hearing. The parenthetical subtitle, an anagram of the title proper, alludes to the structural design of the work, borrowing musical snapshots from the quartet while fragmenting and re-contextualizing them throughout stages proportionally related to the 19.6 Hz E-flat in both temporal and harmonic centricity.

Originally, I had set out to explore the timbral possibilities of the bass clarinet, utilizing a variety of techniques to produce rich, complex soundscapes and microtonal sonorities that would provide germinal material for the work while unifying the ensemble. This second work is an extension of that same process of exploration. In addition to spectral analysis of bass clarinet multiphonics in various states, additional pitch content is generated through an acoustic analogue to a process known in electronic music as “single-sideband modulation,” resulting in a series of combination tones with intervals that grow exponentially (a shape inverse to that of the harmonic series). Many instrumental techniques in this work are employed explicitly to destabilize or distort the timbral qualities of each instrument; the use of vocalizations, scratch tones, and other techniques color the sound to modulate or destabilize the written pitch material, leaving it quite disfigured.

The last element regarding organization of pitch material revolves around the scordatura tuning of the cello to the 3rd, 5th, 7th, and 11th partials of a virtual low E-flat fundamental (19.6 Hz, slightly sharp), which is now extended to the contrabass by halving the 3rd and 7th partials while maintaining the same open G as the cello. This allows the execution of unique sonorities very rapidly and with a great deal of precision through the use of natural harmonics. These three verticality types are often superimposed upon one another, with resultant voicings sometimes similar to an “E-type” symmetrical hexachord possessing interval content that I’ve become partial to (no pun intended).

Entropy can be described as the “measure of the disorder or randomness in a closed system,” the “loss of information in a transmitted message,” the “tendency for all matter and energy in the universe to evolve toward a state of inert uniformity,” or the “inevitable and steady deterioration of a system or society” – taking poetic liberties in reducing the thermodynamic property of “entropy” to simply a unit of measurement for chaos, one might say that this work conveys a state of high entropy in music, thus reflecting the compositional process, the result of the technical demands made on the performers, as well as my state of mind throughout the creation of these works.



Jason Thorpe Buchanan is an American composer of operatic, orchestral, chamber, and electroacoustic music. His works have been described as “an unearthly collage of sounds”, “sharply-edged”, and “free jazz gone wrong”, commissioned and performed internationally by conductors and ensembles such as Brad Lubman, Alan Pierson, Jean-Philippe Wurtz, Marc Lowenstein, Alarm Will Sound, Ensemble Interface (Germany), Ensemble Nikel (Israel), Ensemble Linea (France), Nonsemble 6, Iktus Percussion, the [Switch~ Ensemble], The Industry, wild Up, OSSIA, ensemble39, Brevard Music Center Orchestra, Fati 5 (Italy), Sound ExChange Orchestra, Eastman Musica Nova Ensemble, BlueWater Chamber Orchestra, TAD Wind Symphony (Japan), among others. Nominated for the 2015 Gaudeamus Prize, his works will be presented by Insomnio, Nadar Ensemble, and Slagwerk Den Haag at Gaudeamus Muziekweek in September 2015.

Scenes from his Multimedia Opera *Hunger* have received performances at the Darmstadt Contemporary Opera Workshop (2014) with Ensemble Interface, The Industry’s FIRST TAKE Opera Workshop in Los Angeles (2015) with wild Up, and the MATA Interval 8 Series in New York City (2015) with the [Switch~ Ensemble] on a concert of new works for Ensemble & Multimedia curated by the composer. *Los Angeles Times* critic Mark Swed writes: “Jason Thorpe Buchanan’s Hunger is a kind of training session in mental disintegration... An ungodly opera needs ugly music, singers who produce primal sounds, an electric guitar that sounds scraped raw, a [sic] wailing orchestral effects, cuts the ear like a knife. Buchanan delivers.”

Awarded a Fulbright Fellowship (2010-11) at the Hochschule für Musik und Theater in Hamburg (Germany) as a visiting scholar, he was recently selected as Artist-in-Residence by USF Verftet and the City Council of Bergen, Norway to complete work on *Hunger* in late 2015, with a grant from the American-Scandinavian Foundation. Additional honors and awards include the ASCAP Morton Gould Award (2014) & Howard Hanson Orchestral Prize (2014) for *Asymptotic Flux: Second Study in Entropy* (2013) commissioned by the Mizzou International Composers Festival for Alarm Will Sound, a commission from the International Horn Society & ASCAP Morton Gould Award (2015) for *Double Concerto* (2014) with soloists Jeff Nelsen, Mike Walker, and the Eastman Musica Nova Ensemble with conductor Brad Lubman, *antistasis* (2014) for the Tzil Meudcan Festival (Tel Aviv) with Ensemble Nikel, *oggetti 1* (2014) as composer-in-residence for Chamber Music Campania (Italy), both winner of the newEar 4th Annual Composer’s Competition (2013), and selection at the NYC Electroacoustic Music Festival (2014) for *Asymptotic Flux: First Study in Entropy* co-commissioned by the [Switch~ Ensemble] & OSSIA, 2nd place in the American Prize composition competition (2012) for *Berlin Songs*, commissioned by the German/American Fulbright-Kommission and premiered at the Akademie der Künste (Berlin) during the European Fulbright Conference, and winner of the 2014 International Iron Composer 5-hour composition competition in Cleveland. He has studied composition with R.Zohn-Muldoon, C.Sánchez-Gutiérrez, R.Morris, A.Schindler, D.Liptak, V.Baley, P.Michael Hamel, J.V.Grossmann, P.Furman, M.Stahnke, B.Lubman, G.Aperghis, B.Ferneyhough, R.Cendo, C.Czernowin, A.Read Thomas, H.Abrahamsen, P.Leroux, C.Gadenstätter, J.María Sánchez-Verdú, and P.Billone, among others.

He is coordinator of the VIPA Festival’s Composition & Contemporary Music Program (Spain), from 2007-2012 served as founder and director of Melos Music, a composer’s consortium and concert series in Chicago, San Francisco, and Philadelphia. He has served as assistant conductor for Eastman’s Musica Nova Ensemble with conductor Brad Lubman and Graduate Teaching Assistant/Course Instructor for the Eastman Computer Music Center, as well as board member of Ossia and co-founder, conductor, and artistic director of the ECMC’s ensemble-in-residence, the [Switch~ Ensemble] as a Ph.D. candidate at the Eastman School of Music. Degrees in Composition and Music Technology from San José State University and the University of Nevada, Las Vegas, where he taught courses in composition and theory (2008-2010), with highest honors from both institutions.

Current projects include *Hunger*, a multimedia opera with libretto by award-winning poet Darcie Dennigan, a work for Andrew J. Allen (saxophone), electronics, and video (World Saxophone Congress, Strasbourg, 2015), a work for Peter Ferry (percussion) and electronics (Chicago, 2016), a commission from the New York Virtuoso Singers (NYC, 2015), a commission for the Blue Water Chamber Orchestra as winner of Iron Composer 2014 (Cleveland, May 2015), and a commission for Slagwerk Den Haag to be premiered at Gaudeamus Muziekweek (Netherlands, Sept. 2015).

For more information or to contact the composer, please visit
www.jasonthorpebuchanan.com



ASYMPTOTIC FLUX: SECOND STUDY IN ENTROPY
(STATIC FOXY LUMP: [II] SECOND NUDIST TYRE PONY)

Feb. 2 - April 24, 2013; Rev. 1 - Oct. 2014
Copyright © 2013, Jason Thorpe Buchanan
All Rights Reserved