

Speech and music, effability and ineffability

An extraordinary plenary session for the
International Conference on Music Perception and Cognition

Participants: Jane Davidson, John Napier, Emery Schubert, Joe Wolfe.

<Four participants and four seats: all is ready for a structured debate, as advertised in the programme. Obviously there will be demonstrations, because in front of John there is a cello and a music stand. Two further music stands and two further instruments are temporarily hidden from view. Joe puts up an overhead and begins speaking.>

Joe: The introduction printed in the proceedings attracted criticism of two different sorts. One is that the observations are unsupported by the evidence, speculative, foolish and wrong. The other is that they are so obvious and self-evident that they have been well known and widely accepted for many years. Encouraged by these criticisms, we shall discuss these and related ideas in this session.

Discussion of the possible utility of music is inevitably speculative, and so of limited scientific value. But it's also fun. In that spirit, the participants have been invited to be speculative and to relax the constraints that they would apply if writing for peer review. Let me introduce them. Jane Davidson studies expressive movement and social effects on learning music. She's also well known as a soprano. John Napier researches popular music, improvisation and the music of India. He's also a fine cellist. Emery Schubert, as well as being a conductor and horn player, has been studying emotional response to music.

Let me start by oversimplifying the acoustical argument: in speech, we perceive timbre categorically, and we use phonemes, which are timbre elements, to create words and thus to generate highly detailed, specific meanings. The 'text' of speech is effectively transmitted digitally via parameters corresponding to timbre in music. In music, we perceive pitch and elements of rhythm categorically. The 'text' of music—most of what is written in music—is conveyed digitally via pitch and rhythm. Music communicates, but in a much less detailed and less specific way.

<Joe puts up another overhead showing the 'cello solo and some explanatory text. The text and music have been written so that, before compression, they have approximately the same explicit information content. John begins to play. Jane joins in with four notes at the end, as though improvising. Her notes are not written on the overhead version.)

Andante

4

Vc.

11

Vc.

18

Vc.

meno mosso

22

S.

Sprechgesang

In - eff - a - ble

Vc.

pizz.

Joe: How precisely have we communicated the meaning of the two 'texts'? Some would say that this is missing the point: music communicates differently and communicates different things. Music doesn't make you know, it makes you feel. Emery has been measuring emotional responses to music, using a two dimensional space, so he can tell us: how effective is emotional communication?

Emery: The two dimensional emotion space is based on a simplified representation of two salient dimensions of emotion - arousal (the excitement versus sleepiness of emotion) and the valence. Subjects broadly agree on the coordinates, and achieve a resolution that divides the space into about 10 by 10. Time changes can be as fast as every second or so.

Joe: And that would theoretically allow emotional communication at several bytes per second—comparable with the text of speech. But that's not how we use it.

Emery: The development over time is much more important in the emotional response, rather than simple decoding of icons. People may weep if you tell a sad story. They are unlikely to weep if you just say the word 'sad'.

Joe: And they won't laugh if you just say the word 'joke'. <pause—for maybe they will>

John: The grammars of speech and music are very different too. The grammar of tonal music—or even extended tonality music like that of Messiaen—influences what notes one can use in different contexts, even over long time scales. There's nothing analogous to that in speech.

Joe: So the choice of pitch is limited by formal or aesthetic considerations...

Jane: And the choice of note length is similarly limited by rhythmic considerations. Categorisation of note length works best if you have established a rhythm:

<deliberately rhythmically>

To know if it's quavers or crotchets

You need to establish a rhythm.

John:



<imitates rhythm and prosodic contour.>

Emery: But those constraints are part of the communication, as well as being part of the ineffability.

Jane: Implying that communication may be ... in-eff-a-ble. <melodic/prosodic contour as before, but pitch not categorised.>

28 **recit.**

S. **as baritone**
 (spoken) Well we asked (to cello) Well if you did - n't a - gree, what do you think a - bout it?

Bsn John to bring his cello to demonstrate that very ineffability Yes we did

Hn

Vc. **recit.** (These notes are 'sung' only by the cello)
 (no you did - n't) (I

32

S. Of course you can com - mun - i - cate, but in a ra - ther dif - fer - ent way.

Bsn In

Hn

Vc. think I can com - mun - i - cate as well as an - y of you! (what do you mean?)

36

S. **recit**

Bsn speech we use pho nemes: We vary the spectrum and envelope independently of the pitch: 'Ba' and 'Do' have dif - frent - mean - ings, e - ven dif - frent gram - ma - tic - al

Hn

Vc.

39

S. **muta** So 'ba ba ba ba ba ba' is one tim - bre and 'do do do do do do' is a - no - ther?

Bsn func tions.

Hn

Vc. **muta**

43

S. So if ins - tru - ments want - ed to talk to us in our lan - guage They could change the tim - bre on

Bsn

Hn

Vc.

46 **molto rit.** stares at the others (to audience) with a wild surmise

S. *Per-haps Klang-far-ben-mel-o-die does have some-thing to*

Bsn *alt*

Hn *molto rit.*

Vc. *muta sul tasto normale tasto*

each note: it sounds like Klang-far-ben-mel-o-die!

49 (another strange look)

S. *say to us af-ter all!*

Bsn *alt*

Hn *muta*

Vc. *normale tasto normale*

E-spe-cial-ly in ton-al mu-sic: Some notes just don't

(but ex-cept for is- n't the choice of notes lim- it-ed?)

53 *naturale*

S. *You can show it with probe tones*

Bsn *muta*

Hn *muta*

Vc. *fit.*

hold up '10' card *hold up '8' card*

no pulse

60 **tempo di valse** assorted strange expressions directed at horn

S. *hold up 'NS (p=0.02)' card* *hold up 'I' card* *hold up '0' card*

Bsn *pulse*

Hn *split notes, stopped notes, random notes ad lib.*

Vc. *pulse*

72 **hold up 'outlier' card** **Largo**

S. *and that real - ly cuts*

Bsn *p*

Hn *p*

Vc.

81 **muta** **Moderato** **rit**

S. *down the notes you can use* *So if you take a mel - o - dy, with the notes in one ke - ey..*

Bsn

Hn **Moderato** **rit**

Vc. *pp pizz*

87 **a tempo**

S. *That's a prob - lem too: For mus - ic has its*

Bsn *pp* **a tempo**

Hn

Vc. **muta**

And if the notes don't stretch my range too far, I'd be glad, That's a prob - lem too. For mus - ic

92

S. *own set of rules: ev' - ry note must fit in the rhy - thm: you can't just choose an - y notes that you want: they*

Bsn

Hn

Vc. *has rules: e - ven ob - bli - ga - ti have to fit the rhy - thm You choose notes they*

95

S. must fit to - geth - er with - out a clash to make a ton al song.

Bsn

Hn

Vc. *muta* *arco*
must must fit to - geth er with out a clash to make a ton al song!

99

S. You can use a scale as a mo - tif,

Bsn

Hn

Vc.

104

S. then just add the words and then we'll all har - mo - nise you can just close your eyes and lis - ten, sing in

Bsn

Hn

Vc. and then we'll all har - mo - nise you can just close your eyes and lis - ten, sing in

108

S. thirds. Then we'll sing mel - is - ma - a - a, a a - a a a: that's a mess - age

Bsn

Hn

Vc. thirds. Then we'll sing mel - is - ma - a - a, a a - a a a: that's a mess - age

113

S. too, and if you have no-thing left to say, just pause

Bsn

Hn

Vc. *pizz* too, and if you have no-thing left to say, just pause *muta*

118

S. For then you can re-state the theme: I don't know

Bsn

Hn

Vc. *pizz* If you do, what's that me-e-e-an? And if the notes go *muta* *rit* *a tempo*

123

S. high we'll share them a-round That's called har-mo-ny For mus-ic has its

Bsn

Hn

Vc. up too share them a-round That's called har-mo-ny For mus-ic

127

S. own set of rules: ev'-ry note must fit in the rhy-thm: You have to make sure the notes will all fit, just

Bsn

Hn

Vc. has rules: e-ven ob-bli-ga-ti have to fit the rhy-thm You choose notes just

130 **rit**

S. like in a can-on, or in a fugue to make a ton al song! **muta**

Bsn

Hn

Vc. **rit**
like like in a can-on or in a fugue to make a-a to-o-o - na-a-a-al song!

134 **recit**

S. - - - - - That's

Bsn **3** **3** **3** Ton-al pre-dic-ta-bi-li-ty: is that what makes writ-ten mu-sic ea-sy to com press?

Hn **recit arco** **muta**

Vc. **muta** That's

139

S. right! You can re-peat a phrase in mu-sic mu-sic mu-sic

Bsn mu-sic

Hn

Vc. **8** right! You can re-peat a phrase in mu-sic mu-sic mu sic - - and it's all part of

143 **Lento**

S. - - - - -

Bsn **3** **3** **3** But you can't make a sym-phon-y just by re-peat-ing a sim-ple phrase **muta**

Hn **Lento**

Vc. **Lento**
mu-si-cal com-mu-ni - ca-tion!

149

Poco vivace

S. Oh yes you can! Oh yes you can Oh yes you

Bsn. Oh yes you can! Oh no you can't Oh no you can't

Hn. Oh yes you can! Oh yes you can Oh yes you can

Vc. Oh yes you can! Oh yes you can Oh yes you can

muta

Poco vivace

159

S. can and then in-vert see how it works: you can go on all day! *seriously long!*

Bsn. and then in-vert see how it works: on all day!

Hn. you can go on all day!

Vc. Change just one note you can re-peat you can go on all day!

muta

muta

muta

168

S. You can re-peat A sim-ple phrase

Bsn. *ff* *p* *p*

Hn. *ff* *p* *p*

Vc. *ff* *p* *p*

178

S. You can re-peat, you can re-peat! With just four notes you can go o-on on and o-on, on and

Bsn.

Hn.

Vc. *p*

S. o-on, on and o-on on and o-on, on and on: with just four notes you can cre-ate a lit-tle mo-tif or a theme. Don't have to

Bsn.

Hn.

Vc.

S. work, don't have to think, Don't have to sweat don't have to dream! And if we change the co-lour and we make the leap a per-fect

Bsn.

Hn.

Vc.

Giocoso

S. fifth Watch!

Bsn.

Hn. solo

Vc. *muta*

Watch! It sounds com-plete - ly new!

S. You can o-ver a-

Bsn.

Hn. Horn appears bored, then begins some other activity (eg reading) while playing the pedal note.

Vc.

Sim-pler than that, you can re-peat just the one note o-ver a - gain o-ver a - gain, o-ver a-

12

228

repeat and fade

Wake up horn,
stage business.

Recit

S. gain o-verand o-verand o-verand o-ver a-gain

Bsn

Hn

Vc. gain o-verand o-verand o-verand o-ver and o-ver a-gain But what if the mu-si-cian does-n't have a

237

Easy swing

S. Im-pro- vise some- thing? You mean make it up?

Bsn

Hn (to soprano) gesture to sop. We could ne- ver do that.

Vc. muta score? Easy swing pizz.

242

Completely straight,
no swing

S. I'm not sing- ing with- out an- y mu- sic!

Bsn swung

Hn She's not swing ing with- out an- y

Vc.

247

S.

Bsn mu- sic! You mean we can make our own like all of those jazz cats can do?

Hn

Vc.

252

S. Bee-ya, bee-ya, dap dap, da do-ya do-ya do!

Bsn

Hn

Vc.

Not swung

Not swung

Not swung

Swung

257

S. Bee-ya, bee-ya, dap dap, da do-ya do-ya do!

Bsn

Hn

Vc.

261

S. Bi a di-ya da di-ya da di-ya da di-ya da di-yi-ya da-ya-da!

Bsn

Hn

Vc.

snap fingers

snap fingers

Not swung

265

S. Bi a di-ya da do-wap, ba do-ya da-ya da Do-ya, do-ya Di-yap da do-ya do-ya-do!

Bsn

Hn

Vc.

14 8bsa ad lib

269

S. Ba - da da - ya - da do - yap, do - yap di - ya dow, ba - ya da - yap, Dap! Da do - ya do - ya - do.

Bsn Ba - da da - ya - da do - yap, do - yap di - ya dow, ba - ya da - yap, Dap! Da do - ya do - ya - do.

Hn

Vc.

273

S. Ba do - ya, do - ya di - ya dow. Ba do - ya Ba - ya - do wow wow, Ba - ya do wow wow,

Bsn Ba do - ya, do - ya di - ya dow. Ba do - ya Ba - ya - do wow wow, Ba - ya do wow wow,

Hn

Vc.

278

S. Bo - ya do - y do - ya? Ba - ya, da - ya do wow. snap fingers

Bsn Bo - ya do - y do - ya? Ba - ya, da - ya do wow. snap fingers We could ne - ver do that.

Hn snap fingers

Vc.

283 loco

S. We could ne - ver do that. Do wah. Recit Who cares? How did it make you

Bsn Do wah. What did that mean? muta

Hn

Vc. arco Recit

288

S. feel? Per-haps... alt. in-

Bsn

Hn

Vc. *muta*

If I could put it in-to words I would -n't need mu- sic. Per haps it is

295 **Moderato**

S. eff - a - ble... in - eff - a - ble... And if it is in - eff - a - ble

Bsn

Hn con luce

Vc. *pizz.* *muta* **Moderato**

303

S. To take the in - ex - press - a - ble

Bsn

Hn

Vc.

Just what that means we can't be sure of yet Whate-ver that is we want more of

309 **A piacere**

S. If mus-ic is in - eff - a - ble We'll see if we can eff it a - ny how. And if it is in -

Bsn

Hn

Vc. **A piacere**

that. If mus-ic is in - F If it's in D, We'll see if we can eff it a - ny how.

In -

315 // **Andante**

S. eff - a - ble, in - eff - a - ble, in - eff - a - ble... But if words were all we had...

Bsn

Hn *p*

Vc. *p* // **Andante**
 eff - a - ble, in - eff - a - ble, in - eff - a - ble... But if words were all we

322

S. There would be no I C M P C, No trips to Syd - ney: we'd have to find a no - ther job:

Bsn

Hn

Vc. had... be no I C M P C, No trips to Syd - ney we'd Have to find a job, we would

329

S. What could we do with - out mus - ic? No Shep herd tones, no ring tones on phones

Bsn

Hn

Vc. have to find a job, There'd be no Shep herd tones, no ring tones on phones: hey that seems to be a good i-

335

S. Oh what a world! What a world, with - out a song to sing!

Bsn

Hn

Vc. dea: i - mag - ine such a world! But tell me where would we be with - out words? Where would we

341

S. Mu-sic has it all! you can say it all, you can feel it all

Bsn

Hn

Vc. find the pre-cis-ion to say with con-cis-ion what-ev-er we think? In a world with-out

348

S. Words and words; what can they do for you?

Bsn

Hn

Vc. speech, all our friends would be out of reach - - no way. You can say what you like,

354

S. But if words were all we had, there would be no songs to make you, no mu-sic to take you a -

Bsn

Hn

Vc. *muta* pizz arco but that's just my point!

361

S. way from the world And no har-mo-nies to bring you

Bsn

Hn

Vc. *muta* There would be no songs to sing you And no har-mo-nies to bring you, There'd just be

367

S. *Just be words and words and words and*

Bsn *muta*

Hn *muta*

Vc. *Just be words, words, words, words, words, words,*

words and words and words and words and words and words and words and words and words and

371

S. *words words and words and words and words and words there'd just be words*

Bsn *muta*

Hn *muta*

Vc. *muta arco*

words and words and words and words: There'd just be words words words words words there'd just be words there'd

376

S. *But if words were all we had (vocalise)*

Bsn

Hn

Vc. *pizz arco*

382

S. *There would be no songs to*

Bsn

Hn

Vc.

389

S. sing you (vocalise) There'd just be words.... (vocalise)

Bsn

Hn (8va ad lib) solo tutti

Vc.

395

S.

Bsn

Hn

Vc.

402

S. What are words for? Five min-utes left we

Bsn

Hn

Vc. Moderato

409

S. must con-clude To run a-way would just seem rude

Bsn No! If we stop now they'll all ask ques-tions so... con luce

Hn

Vc.

414

S. We need some mus - ic all can sing

Bsn. Per haps we'll get them all to sing a - long I think we'll man - age

Hn.

Vc.

419 **accelerando**

S.

Bsn. it's not hard to sing an os - tin - a - to, it's not ver - y hard to sing an os - tin - a - to:

Hn. **muta**

Vc. **accelerando**

427

S. invites audience

Bsn. Gen - tle - men please join us: La la la la la la la la la la La la la la

Hn. La la la la

Vc. La la la la

Repeat until male chorus is confident

434

S. invites audience Last time only: La - dies join us La la la la la, La la la la la, La la la la la, La la la.

Bsn. la la la la la la la la

Hn. la la la la la la la la

Vc.

Repeat only if necessary for confidence

440

S. La la la la la, La la la la la, La la la la la, La la la. La la la la la, La la la la la,

Bsn. Gen - tle - men sing: La la la la

Hn. Repeat only if necessary for confidence La la la la

Vc.

446

S. La la la la la, La la la. And if it is in - eff - a - ble Just what that means we can't be sure of

Bsn. la la la la la la la La la la la la, La la la la la, La la la la la, La la la.

Hn. la la la La la la la la la la la la

Vc. And if it is in - eff - a - ble Just what that means we can't be sure of

452

S. To take the in - ex - press - a - ble What e - ver that is we want more of

Bsn. To take the in - ex - press - a - ble What e - ver that is we want more of

Hn. La la la la la la la

Vc. To take the in - ex - press: the in - ex - press - a - ble, that is we want more of

456

S. that. If mus - ic is in - eff - a - ble We'll see if we can eff it a - ny - how

Bsn. that. If mus - ic is in - eff - a - ble We'll see if we can eff it a - ny - how

Hn. La la la la la la la

Vc. that. If mus - ic is in - eff - in - eff - in - eff - a - ble we can eff it a - ny - how

Rit **Fine**