Speech and music, effability and ineffability

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

*Participants: Kristen Butchatsky, Emery Schubert, Stela Solar, 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 Stela 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. Kristen Butchatsky is the director of music performance groups at the University of New South Wales. She’s also well known as a soprano. Stela Solar is a student at the same univeristy. She’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. Stela begins to play. Kristen joins in with four notes at the end, as though improvising. Her notes are not written on the overhead version.)
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>

Stela: There are differences: what we used to call the 'rules' of harmony. In almost all styles of music, the notes that you can use are limited in some way by the context, 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...

Kristen: And the possible lengths of the notes are constrained too: in most music, they add up to make whole bars, and they work to establish a rhythm. This 'categorisation of note length' that you were talking about can only work if you have set up a rhythm: <deliberately rhythmically> To know if it's quavers or crotchets You need to establish a rhythm.

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

Kirsten: Implying that communication may be ... in-eff-a-ble. <melodic/prosodic contour as before, but pitch not categorised.>
Sprechgesang, words addressed to cello, not cellist

**S.**

(recit.) Well we asked Stela to bring her cello to demonstrate that very ineffability.

**Bsn**

(to cello) Yes we did.

**Hn**

(These notes are ‘sung’ only by the cello)

**Vc.**

(no you didn’t)

(-- baritone (spoken) --)

Well if you didn’t agree, what do you think about it?

Of course you can communicate, but in a rather different way.

Speech we use phonemes: We vary the spectrum independently of the pitch: the sounds.

So if ‘Ba’ and ‘Do’ have different meanings, even different grammatical functions.

So if ‘ba ba ba ba ba’ is one timbre and ‘do do do do do’ is another!
molto rit.

stares at the others with a wild surmise

instruments wanted to talk to us in our language. They could change the timbre on each note: it sounds like Klang-far-ben-mel-o-die!

(to audience)

perhaps Klang-far-ben-mel-o-die does have something to say to us after all!

You can show it with naturale.

Isn't the choice of notes limited?

What are probetones? Can you demonstrate?

Well.
**tempo di valse**

S., Bsn, Hn, Vc.

Hold up '8' card, 'NS (p=0.02)' card, '1' card, assorted strange expressions directed at

**Largo**

S., Bsn, Hn, Vc.

Hold up 'outlier' card

And that really cuts

**Moderato**

S., Bsn, Hn, Vc.

Muta

Down the notes you can use

So if you take a melody, with the notes in one key...

**a tempo**

S., Bsn, Hn, Vc.

Muta

That's a problem too: For music has its

And if the notes don't stretch my range too far, I'd be glad.

That's a problem too. For music
own set of rules: ev'ry note must fit in the rhythm: you can't just choose any notes that you want: they

has rules; even obligati have to fit the rhythm: you choose notes they

must fit together without a clash to make a tonal song.

You can use a scale as a motif,

then just add the words and then we'll all harmonise you can just close your eyes and listen, sing in
Then we'll sing melody-ma-a-a-a-a-a-a: that's a message.

And if you have nothing left to say, just pause.

If you do, what's that m-e-e-e-e-e-e-a-g-e?

And if the notes go up too high, we'll share them around.

That's called harmony.

For music has its genuine puzzlement.

For then you can restate the theme.

I don't know.
S. Bsn Hn Vc.

own set of rules: ev'ry note must fit in the rhythm: You have to make sure the notes will all fit, just

has rules: even obligati have to fit the rhythm You choose notes just

- You have to make sure the notes will all fit, just

BB has in.

- You choose notes just

like in a can-on, or in a fugue to make a tonal song!

like like in a can-on or in a fugue to make a to-o-na-a-al song!

Bsn Hn Vc.

rit

Ton-al-predic-ta-bili-ty is what makes written music a-syto-com press?

That's

That's

arco

S. Bsn Hn Vc.

right! You can re-peat a phrase in music music music

right! You can re-peat a phrase in music music and it's all part of

music music music
But you can't make a symphon-y just by repeating a simple phrase!

Oh no you can't

Oh yes you can!

and then invert see how it works: you can go on all day!

You can repeat

A simple phrase
You can repeat, you can repeat! With just four notes you can go on and on, on and on.

You can repeat! With just four notes you can go on and on.

Don't have to work, don't have to dream!

And if we change the colour and we make the leap a perfect fifth.

Giocoso

Watch!

It sounds completely new! Horn appears bored, then begins some other activity (eg reading) while playing the pedal n.
You can repeat just the one note over and over again.

Wake up horn, stage business.

But what if the musician doesn't have a score?

Completely straight, no swing.

I'm not singing without any music!

She's not swinging without any music!
You mean we can make our own like all of those jazz cats can do? Bee-ya, bee-ya, dap, da do-ya do-ya do!

I think she's got it, by George she's got it, Bee-ya, bee-ya, dap, da do-ya do-ya do!

Not swung

Swung

Not swung

Swung

Not swung

Swung

Not swung

Swung

Not swung

Swung

Not swung

Swung
Who cares? How did it make you feel?

If I could put it in words, I would n't need music.

Per haps...

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

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

What ever that is, we want more of that. If music is in F, if it ' s in D, we ' ll see if we can eff it a - ny.
out a song to sing! Music has it all! you can say it all.

Tell me where we be without words? Where would we find the precision to say with precision what?

You can feel it all. Ever we think? In a world without speech, all our friends would be out of reach no way.

Words and words: what can they do for you? But if words were all we had, there would be no way.

You can say what you like, but that’s just my point!

no songs to make you, no music to take you away from the world There would be no songs to
And no harmonies to bring you. There'd just be words and words and words and words and words and words and words and words.
There would be no songs to sing you la-la-la-la. There'd just be words la-la-la.

What are words for?

Five minutes left we must conclude Torun away would

No! If we stop now they'll all ask questions so...
We need some music all can sing.

Perhaps we'll get them to sing along.

I think we'll manage it's not hard to sing an ostinato, it's not very hard to sing an.

invites audience

invites audience

Repeat until male chorus is confident Last time only:

La-dies join us

La la la la, La la la la, La lady lady lady lady,
Repeat only if necessary for confidence

S. Bsn Hn Vc.

La la la, La la la, La la la, La la la, And if it is in-eff-a-ble

La la la, La la la, La la la, La la la, And if it is in-eff-a-ble

La la la, La la la, La la la, La la la, Just what that means we
take in press: the in-ex-press-a-ble

can't be sure of To take the in-ex-press-a-ble: that is

we want more of

can't be sure of To take the in-ex-press-a-ble What e-ver that is

we want more of

That If mus-ic is in-eff-in-eff-in-eff-a-ble We'll see if we can

eff it a-ny-how

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

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 la, La la la, La.