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Music and physics don’t mix!

What the humorous misuse of disciplinary-specific semiotic resources can tell us about disciplinary boundaries

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Overview

Interested in disciplinary boundaries

The way that *professional vision* (Goodwin, 1994) steers how we view the world around us

Wanted to do something more lighthearted

Used a bogus piece of music—a physics joke

Shown this to different groups of academics
Overview

Becoming a disciplinary insider
Research on humour
The concept of disciplinary affordance
The study
Findings
Tentative conclusions
Becoming a disciplinary insider

Becoming a member of a discipline has been described in a number of ways:
"All vision is perspectival and lodged within endogenous communities of practice. An archaeologist and a farmer see quite different phenomena in the same patch of dirt."
Becoming fluent in a disciplinary discourse

e.g. Airey & Linder (2009), Airey (2009), Northedge (2002)

University lecturers often do not fully appreciate “[…] the sociocultural groundings of meaning. Their thoughts are so deeply rooted in specialist discourse that they are unaware that meanings they take for granted are simply not construable from outside the discourse”.

Northedge (2002:256)
Becoming a disciplinary insider

Developing disciplinary literacy

Developing disciplinary literacy

e.g. Airey (2011, 2013), Geisler (1994)

Disciplinary language can “[…] afford and sustain both expert and naïve representations: the expert representation available to insiders to the academic professions and the naïve representation available to those outside”

Geisler (1994:xi-xii)
Research into humour

Humour is important in academia
e.g. see Mulkay & Gilbert (1982)

Even has its own ISI rated journal:
*Humor: The International Journal of Humor Research*

Those with the least power often use the least humour. Martin *et al.* (2006)

Men have been found to use more humour than women in science settings Hasse (2002)
What counts as funny differs from group to group, from person to person, and from situation to situation. Humor is conditional and depends on the context, the timing, the audience, and the cultural setting. (Billig, 2005)

Telling the right joke at the right time requires considerable cultural knowledge, and humor is often used to identify fellow members of a community through their appreciation (or not) of a joke (Cohen, 1999).

Can see that humour may also be used to signify disciplinary belonging
Becoming a disciplinary insider

Interested in insider jokes using specialist discourse
Becoming a disciplinary insider

Disciplinary affordance

Definition:

The potential of a given semiotic resource to provide access to disciplinary knowledge

Fredlund et al. (2012:658)

Insider jokes often function through the misappropriation of specialist semiotic resources by subverting their disciplinary affordance.
The study

Three focus groups:

– Physicists

– Musicians

– Academics not connected to physics or music (social scientists)
The study

All groups were shown the same music/physics disciplinary hybrid and asked the same question:

*What do you see in this picture?*

When discussion was exhausted direct questions were asked about selected sections of the picture.

Finally, the group was asked to speculate on the intentions of the author of the picture.
PHYSIKALISCHES LIED by Molly Kule

A study on the diatomic scale, arranged for a cyanogen band.

\[ pV = RT \quad ma\ non\ troppo \]

\[ n\lambda = 2d\ \sin\ \theta \]

O come with me, To watch the first radon, When the stars argon, As the day krypton.

\[ H\psi = E\psi\quad poco\ poco \]

And if the morn be cloudy, You won’t xenon.

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Log \( I \)

zur pumpe
S: This looks like you go backwards so to speak, you go one, two, three, four, five and then you start again, but I’m not really sure...

M: Downward movements--It’s something that you can see in graphic notation such as those arrows that go down...

P: It looks to me like when it’s going from one energy level to another in you know in an atom
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You won’t xenon.

Log I
zur pumpe

\[ 5d - 5f \]
PHYSIKALISCHES LIED BY MOLLY KULE

A study on the diatomic scale, arranged for a cyanogen band.

$pv = RT \text{ ma non troppo}$

$n\lambda = 2d \sin \theta$

O come with me, To watch the first radon, When the stars argon, As the day krypton.

$H\Psi = E\Psi \text{ poco poco}$

And if the morn be cloudy, You won’t xenon.

Log I zur pumpe
S: Five M omega… mmh

M: That’s normal to see in sheet music

P: That’s a five mega-ohm resistor
S1 What does it say? O come with me, to watch the first Radon, When the stars Argon, As the day Krypton, And if the morn be cloudy, You won’t Xenon. Sounds like physics.

M1: You get the feeling there is some sort of physics joke behind this noble gas text.

P1: Well to be honest I haven’t paid much attention to the text!

P2: Radon, argon, krypton, they are, yeah they are probably in a particular place in the atomic table.

P1: Well it rhymes so that’s clever.
Graphic notation

M1: It’s very similar to graphic notation with arrows that go downwards -- it falls and then comes up again at different stages.
Science and art

M1: It’s interesting because it mirrors the interest for natural sciences in art
PHYSIKALISCHES LIED by Molly Kule

A study on the diatomic scale, arranged for a cyanogen band.

\[ pV = RT \text{ ma non troppo} \quad n\lambda = 2d \sin \theta \]

O come with me, To watch the first radon, When the stars argon, As the day krypton.

\[ \Psi = E\Psi \text{ poco poco} \]

And if the morn be cloudy, You won't xenon.

\[ \text{Log I} \quad \text{zur pumpe} \]

\[ ^5D - ^5F \]
PHYSIKALISCHES LIED by Molly Kule

A study on the diatomic scale, arranged for a cyanogen band.

\[ pv = RT \text{ ma non troppo} \]

\[ n\lambda = 2d \sin \theta \]

O come with me, To watch the first radon, When the stars argon, As the day krypton.

\[ H\Psi = E\Psi \text{ poco poco} \]

And if the morn be cloudy, You won’t xenon.

Log \( I \)

zur pumpe
Who was this made for?

S: I think this is something made to confuse outsiders. I think it’s nonsense, but maybe there is some message in it. Perhaps it’s a really clever way to summarise a whole PhD or something, but I don’t think so.

M: I think this was made for a narrow circle of people who are physicists but who also have an interest in the music written in the fifties!

The physicists were sure this was made for them!
Who was this made for?

S1: They’re just messing about so people can’t understand
    (Laughs)
S2: Yes it’s irritating to not understand what it is

M1: As I said I associate this with the music of the fifties
M2: A very clear association I’d say!

P1: Everything we can recognize--I don’t think there’s anything
    there we can’t recognize.
P2: No, either it’s a physics symbol or it’s a mathematical
    symbol.
Results

Social scientists knew that they were outsiders.

Musicians saw clear links to their discipline and to the movement to combine natural science and art but they also realised it was a physics joke.

The physicists saw directly that this was a joke. They recognized instantly a number of misappropriated disciplinary semiotic resources.

But this limited them from interrogating the picture further.
Conclusions

Both physicists and musicians felt included by the picture.
Each could “play to their strengths”
The social scientists felt irritated and excluded.
Disciplines develop very different professional vision
Physics and music actually can mix.
References


