Corpus linguistics and clinical psychology: examining the psychosis continuum

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Overview

- Voice-hearing
- Data: Interviews with spiritualists and users of mental health services
- The ‘psychosis continuum’
- Our corpus-based approach
- Selected findings
- Summary and concluding reflections
Voice-hearing

- Hearing voices that others cannot hear
- Auditory Verbal Hallucinations (AVHs)

- Hallucinations are a primary diagnostic criterion for various psychotic disorders (notably, schizophrenia) according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5)
- AVHs are present in a range of mental health difficulties, including depression and anxiety, post-traumatic stress disorder, emotionally unstable personality disorder, and obsessive-compulsive disorder (van Os & Reininghaus, 2016).


AVHs also occur as a positive and meaningful experience for voice-hearers, in the absence of any need for clinical care (Baumeister, Sedgwick, Howes and Peters, 2017).

For example, spiritualists engage in mediumship: communication with departed spirits.
Interview

- the terms they would use to describe their experiences
- the qualities of the voice-hearing experience
- the content of the voice-hearing experience
- the voices as having their own character or personality
- the onset of voice-hearing
- changes in the experience over time
- participants’ beliefs about/understanding of the experience.
Data

For example, if I was talking to you in the context of a church, so I'm hearing someone telling me something to tell you, and I'm telling you that, so I'm having the conversation with you, but also internally in my head, I'm having a conversation with the other person.

Spiritualists
- Self-identified Spiritualists
- 27 participants
- 237,770 tokens

EIP Service Users
- < 9 months of using intervention services
- 40 participants
- 205,941 tokens

With that one, it's not talking to me or with me, it's talking at me. It's telling me you know what I've done wrong, what should have happened. It swears a lot more than I swear, it's, it's very like an aggressive voice.
The ‘psychosis continuum’

“The continuum view holds that psychotic symptoms vary along dimensions such as distress, vividness and duration in clinical and non-clinical groups” (Waters and Fernyhough, 2019: 717)
Previous work on the continuum

- Data: typically, interviews with members of different groups
- Analysis: coding for relevant phenomena and statistical comparison:
  - Statistically significant differences, or
  - Similarities, where no significant difference has been found.
- Evidence of continuity across clinical and non-clinical populations with respect to phenomenological aspects of voice-hearing, such as loudness, location and personification.
- Evidence of differences with respect to the interpretation and evaluation of voice-hearing experiences, and the voice-hearer’s degree of perceived control on the voices.
Our approach

- **Similarity/difference:**
  - Keyness analyses at the level of semantic domains:
    - Interview transcripts for one group vs. the transcripts for the other group → candidates for differences;
    - Each set of transcripts vs. oral history interviews in BNC → candidates for similarities.

- **Continuity/discontinuity:**
  - Plotting the distribution of words belonging to different groups of related semantic domains in each interview for both groups: bar charts and box plots → do we observe overlaps between the two groups?
An automated tagging process whereby each token is allocated to a semantic category
21 general semantic domains; 232 more specific sub-domains

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<tr>
<th>A</th>
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<tbody>
<tr>
<td>general and abstract terms</td>
<td>the body and the individual</td>
<td>arts and crafts</td>
<td>emotion</td>
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<td>food and farming</td>
<td>government and public</td>
<td>architecture, housing and the home</td>
<td>money and commerce in industry</td>
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<td>education</td>
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**UCREL Semantic Analysis System (USAS)**

- **E1 Emotional Actions, States and Processes**
  - E2 Liking
    - E2+ Like: like, love, liked
    - E2++ Like: prefer
    - E2+++ Like: favourite
  - E2- Dislike: hate, can_not_stand
- **E3 Calm/Violent/Angry**
- **E4 Happiness and Contentment**
- **E5 Bravery and Fear**
- **E6 Worry and Confidence**
Keyness comparison

Direct comparison:
- Highly contrastive
- 62 key ‘Spiritualist’ domains
- 44 key ‘Service User’ domains

Indirect comparison:
- Similarity and difference
- 23 shared key domains
- 20 distinct ‘Spiritualist’ domains
- 29 distinct ‘Service User’ domains

LL: 6.63+; Log Ratio: 1.0+
Similar and different

- Semantic domain could be both ‘shared’ and ‘distinct’, depending on the keyness comparison

E5- Fear/Shock

- **frightened, fear, shock, scared, terrified**

  - Shared key domain
    - Spiritualists: LL 74.69, LogR 1.42
    - Service Users: LL 341.46, LogR 2.52

  - Key ‘Service User’ domain in direct comparison: LL 61.32, LogR 1.11
(Dis)continuity?
(Dis)continuity?

E5- Fear/Shock
Key themes

➢ The direct and indirect keyness approach identified 122 key domains
➢ We grouped domains into themes:
  ▪ Affect
  ▪ Control
  ▪ Meaning-making
  ▪ Sensory input
➢ The groupings correspond with aspect of voice-hearing that have previously been indicative of similarities/differences in the experiences of clinical/non-clinical populations (Baumeister et al., 2017)
➢ These groupings account for 36 of the key domains (29.5%)

Groupings

- **Affect:** Negative emotions, Positive emotions, Negative evaluations of self
- **Control:** Disengagement, Command over, Development (of skills)
- **Meaning-making**
- **Sensory Input:** Loudness, Strength, Other senses, Cognition

- We plotted the dispersion of the relative frequency values for terms in these groupings
- This allowed to examine different realisations of ‘(dis)continuity’
Affect

- Negative emotions
- Positive emotions
- Negative evaluations of Self

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<tr>
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<tbody>
<tr>
<td>Service Users</td>
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<table>
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<tr>
<th>Affect</th>
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</table>
| E2- | Dislike | hate, hates, hated, hatred..
| E4.1- | Sad | upset, grief, cry, depressed..
| E5- | Fear/Shock | scared, scary, panic, fear, frightened..
| E6- | Worry | anxiety, stress, distressing, worry.. |
Negative emotions

E2 - Dislike
E4.1 - Sad
E5 - Fear/Shock
E6 - Worry

Overlap
Affect

- Negative emotions

Fran: when I feel **anxious** or I’m **feeling down** or **upset**, the voice comes out stronger.

Fran: I **hate** being in the house being by myself. […] Like I should be like enjoying it, you know, have the house to myself like one night! But I can’t do that because I feel too **scared** to you know.
Control

- Disengagement
  - clinical voice-hearers are more likely to try to actively ignore voices (Kråkvik et al. 2015)
  - Increasing number of ‘relational’ therapeutic approaches

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| A1.9 | Avoiding | leave_alone, avoid.. |
| Q2.1- | Speech: Not communicating | shut_up, keep_quiet.. |
| X5.1- | Inattentive | ignore, distract.. |

Control

- Disengagement

Xander: if I tell him to shut up, he won’t listen, he’ll get worse!
  it would be nice if [...] he would just sort of leave me alone

however I don’t want them to just disappear [...] I have a connection with them now

Zara: yesterday I heard it, it made us jump and look around, and then obviously I listened and I thought, just go away, leave us alone, then it went away. So it’s [...] in the past I listened, used to listen to the voice [...] When it first started happening, and I was doing as I was told. But I’m not let- letting it win this time.

102HC: I was saying to her, ‘please leave me alone, God bless you, go on your way and leave me alone’, because I had to get to sleep.
(Dis)continuity

- Continuity between Spiritualists and Service Users with a clinical sub-group
  - **Affect:** Negative emotions, Positive emotions, Negative evaluations of self
  - **Control:** Disengagement, Command over, Development (of skills)
  - **Meaning-making**
  - **Sensory Input:** Loudness, Strength, Other senses, Cognition
Meaning-making

Research has identified differences in the way clinical and non-clinical populations interpret their AVHs (Daalman et al., 2011)

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<tr>
<td>A1.2+ Suitable</td>
<td>relevant, appropriate</td>
</tr>
<tr>
<td>A1.6 Concrete/Abstract</td>
<td>philosophical, practical</td>
</tr>
<tr>
<td>A11.1+ Important</td>
<td>important, main</td>
</tr>
<tr>
<td>A5.2+ Evaluation: True</td>
<td>evidence, prove</td>
</tr>
<tr>
<td>Q1.1 Linguistic Actions, States..</td>
<td>message, means</td>
</tr>
</tbody>
</table>
A1.2+ Suitable  A1.6 Concrete/Abstract  A11.1+ Important  Meaning-making
A5.2+ Evaluation: True  Q1.1 Linguistic Actions, States and Process: Communication
Sensory Input

**Strength**

103TT: When I say a volume, I mean a strength of impression. Rather than sound volume.

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<tr>
<td>S1.2.5+</td>
<td>Tough/Strong</td>
<td>strong, strengths</td>
<td>Spiritualists</td>
</tr>
<tr>
<td>S1.2.5++</td>
<td>Tough/Strong</td>
<td>stronger</td>
<td>Spiritualists</td>
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Researchers have questioned whether this reflects differences in the phenomenology of the experience or a particular vocabulary associated with mediumship (Luhrmann, 2017).

26/40 Service Users (65%)
Sensory Input

- **Strength**

  **Ryan:** *strength of feeling, strength of character, physical strength*

  **Fran:** when I feel anxious or I’m feeling down or upset, the voice comes out **stronger** [...] and then as I’m hearing it more, and it’s coming **stronger** and **stronger** and like it’s …I can’t get used to it.

  **Anthony:** when [the voice] comes, it’s really kind of **strong**
Identifying (dis)continuity

- Keyness analysis pointed to areas of similarity/difference
- Dispersion revealed (dis)continuities

- In most cases, we observed continuity between Spiritualists and Service Users, with ‘discontinuity’ to a (clinical) sub-group
  - Negative emotions
  - Negative evaluations of self
  - Disengagement
  - Loudness *
  - Other senses

- Continuity in references to ‘meaning-making’ *
Identifying (dis)continuity

➢ Need to consider both quantitative and qualitative (dis)similarities

❖ Method allows us to consider degrees of (dis)similarity

❖ We can also consider ‘degrees’ of continuity (i.e. overlap)

❖ Statistical basis for ‘discontinuity’

❖ ‘Breaks’ can help us to develop personalised clinical interventions.
Thank you