Ways of simulating sensations and emotions through language data from neuropsychiatric disorder testimonials

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Postdoc project funded by The Crafoord Foundation and The Torsten Söderberg Foundation, Sweden (2015-2017)
Research objectives

How do individuals with neurodevelopmental disorders use language to mediate their sensory and emotive experiences?
Disorders

- Attention Deficit Hyperactivity Disorder (ADHD)
- Obsessive Compulsive Disorder (OCD)
- Tourette Syndrome (TS)
ADHD

- Persistent pattern of inattention and/or hyperactivity/impulsivity
“It’s like opening 100 tabs in your browser at once and trying to do something different in each one at the same time.”

—Jennifer Arnott
OCD

• **Obsessions**: unwanted, repetitive and intrusive thoughts, feelings, sensations

• **Compulsions**: behavior triggered by obsessions to lower anxiety and counteract obsessions
Imagine trying to resist brushing off these bugs, and they won’t go away until you do it several times.
Tourette Syndrome

- **Motor tics**, e.g., blinking, shrugging shoulders
- **Vocal tics**, e.g., humming, repeating words
Holding in your tics for long periods of time is like when you have to pee but can’t find a bathroom and all you can think about is how much you have to pee. If you hold it for too long eventually you’re going to have an embarrassing accident...

www.facebook.com/TouretteSyndromeAwareness
Data

- Written testimonials online
- Manually checked for content and relevance
- The corpus 600,000 words (200’ x 3)
What is the purpose of their texts?

• to make the reader understand their experiences, and
• to bring about similar experiences in the reader
What motivated us to study this?

• A general interest in how humans conceptualize and express emotive and sensory experiences through language
• Linking the linguistics and the psychology literature
• Some say there are no/few words for sensory and emotive meanings? How then can we talk about our multisensory experiences?
A problematic assumption

- Meanings and words enjoy a stable one-to-one relation.
  - This encourages the assumption that sensory words (sweet, sour) and emotive words (happy, sad) are the primary basis of sensory/emotive meaning making.
Exploring the data

• We found that comparative construal, not least similes, is used to simulate emotional and multisensory experiences;

• The comparisons made use of two routes to simulate the sufferers’ experiences: epistemic–descriptive and deontic–directive.
They told me to stop. As if it was easy. I mean, I could try. But only for a while. Then it’s like an urge. That’s built up within me. Till I had to let it out. Like a volcano with lava spilling out (TS)
Experiential simulation

The basic premise is that language is a set of cues to the comprehender to construct an experiential simulation of the described situation. The comprehender is an immersed experiencer and comprehension is the vicarious experience of the described situation.

(Zwaan, 2004, p. 36)
Experiential simulation

understanding what many words and phrases mean requires that listeners engage in an experiential/embodied simulation of the described situation

(Gibbs 2006, p. 441; Gibbs & Matlock, 2008).
Lexical meaning as Ontologies and Construals (LOC)

The role of words is to act as cues to people’s inner worlds (perception, emotion and cognition)

“words do not have meanings; words evoke meanings when they are used in speech and writing”

(Paradis 2005, 2015)
Meaning modelling (LOC)

<table>
<thead>
<tr>
<th>Ontologies (conceptual structures)</th>
<th>Construal operations</th>
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</thead>
<tbody>
<tr>
<td><strong>Contentful pre-meaning structures</strong></td>
<td><strong>Configurational pre-meaning structures</strong></td>
</tr>
<tr>
<td>(i) CONCRETE SPATIAL MATTERS</td>
<td>BOUNDEDNESS</td>
</tr>
<tr>
<td>(ii) TEMPORAL EVENTS, PROCESSES AND STATES</td>
<td>SCALE</td>
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<tr>
<td>(iii) ABSTRACT PHENOMENA</td>
<td>PART-WHOLE</td>
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<td></td>
<td>POINT</td>
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<td>FREQUENCY</td>
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<td>PATH</td>
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<td>ORDER</td>
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<td></td>
<td>Gestalt</td>
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<td></td>
<td>Salience</td>
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<tr>
<td><strong>Comparison</strong>: e.g.</td>
<td>metaphorization, categorization, perspective</td>
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<tr>
<td><strong>Perspective</strong></td>
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Paradis 2005, 2015
So basically I have been in an endless loop of intrusive thoughts for about a year now.

The configuration (LOOP) can be found in descriptions of OCD in scientific writing as well as in the personal narratives.
Ticcing/Vomiting: Content + Configuration

BODILY EXPERIENCE ↔ BODILY EXPERIENCE (OVERALL SIMILARITY) incl. FORCE/COUNTERFORCE/PATH
Shirt/Wallpaper: Content

**Content correspondences** (resemblance)

*my shirt looks like your wallpaper*
Types of comparisons

**Analogy** (configuration):

*OCD is like a never-ending loop*

**Overall similarity** (configuration + content):

*Ticcing is like vomiting*

**Resemblance** (content):

*My shirt looks like your wallpaper*
Emotive/sensory simulation

Are the comparisons equally ‘hot’, i.e., do they have equal potential for emotive/sensory simulation?
Hot and cold

…hot analogies serve to transfer emotional tags or attitudes from the source to the target, whereas cold ones serve simply to transfer structured information without producing affect

(Thagard & Shelley 2006: 42)
<table>
<thead>
<tr>
<th>Comparison</th>
<th>Hot</th>
<th>Cold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analogy</td>
<td>OCD is like a never-ending loop</td>
<td>An atom is like the solar system</td>
</tr>
<tr>
<td>Overall similarity</td>
<td>Ticcing is like vomiting</td>
<td>My 2009 Volvo is like your 2010</td>
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<tr>
<td>Resemblance</td>
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Ticcing is like vomiting

I sound like a cat being strangled

An atom is like the solar system

My 2009 Volvo is like your 2010

My shirt looks like your wallpaper

Hartman & Paradis 2018
Two interactive routes for comparison

**Descriptive – epistemic**

TARGET *like/as if/as though* SOURCE

**Deontic – directive**

*do it/try it/imagine/picture* SOURCE (> TARGET)
Another urge which overtook me was to momentarily shake my head. It was as if I was tossing my hair back --- except that I had short hair. (OCD)
Deontic – directive

You may well know that feeling… Not enough juice, not enough neurotransmitters. Try running the appliances in your house on 58 volts instead of 120 volts. That’s how it feels. Everything is hard. Wearing. Exhausting. (ADHD)
Summing up

Two problematic premises

(i) that meanings and words are in a one-to-one relationship, e.g. emotive words (happy, sad), sensory words (sweet, sour)

(ii) sensory emotive experiences are primarily conveyed through single words.

today i am sad.
Summing up

• We argue that comparative construal in the broad sense greatly facilitates experiential simulation and enlisted empathy.

• Epistemic – descriptive & Deontic - directive

• The source domains concern very familiar phenomena such as sounds, textures, events…to target the ineffable.
Summing up

We propose a framework that accounts for comparative construal and associated emotive/sensory transfer in communication through a three-dimensional similarity space (LOC–SS), an extension of the cognitive semantic model LOC.

(Paradis 2005; Hartman & Paradis 2018)
Kitchen table discussion…

9-year-old: Water tastes gross!

12-year-old: What do you mean? It doesn’t have any taste.

9-year-old: Yeah, it tastes gross!

12-year-old: So, how does it taste then?

9-year-old: Gross!

7-year-old: You have to say that it tastes LIKE something else.