The role of literary metaphors in aesthetic appreciation

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Theories of aesthetic perception - *beauty evoked by artwork*

Processing fluency (PF) is the ease with which information flows through the cognitive system, at the perceptual and conceptual levels: ***fluent* if processing is fast & easy**, *dysfluent* if slow & difficult. **Predictions:** higher processing fluency will be experienced if (1) the artwork is familiar/known to the perceiver, and (2) possesses certain properties, e.g., symmetry, rounded vs. edgy shape, common words/phrases in literary texts (Reber, Schwarz & Winkielmann, 2004; supported by, e.g., Jacobsen et al., 2006; Bar & Neta, 2006; Zajonc, 1968).

However, empirical research in **cognitive poetics shows contradicting results**: poems deprived of stylistic devices (rhyme, meter) were perceived as easier to process *but less beautiful* than the original poems (Menninghaus et al., 2015; 2017).

These results, and aesthetic perception in literary appreciation more generally, can be better explained by the **Optimal Innovation Hypothesis** (Giora 2004; Giora et al., 2017) and the **Relevance Theory** (Sperber & Wilson, 1995). These predict that a moderate level of stimulus' *innovation* or *complexity* will lead to highest beauty ratings, whereas non-innovative or simple stimuli as well as extremely novel and complex stimuli will both lead to lower beauty ratings.

Aim: What is the role of metaphor in aesthetic perception? Little to no research (except Citron & Zervos, 2018; Jacobs & Kinder, 2017; Littlemore et al., 2018; Rasse, Onysko & Citron, 2020).

Research questions

① Will increasingly more metaphorical poetic phrases be rated as more beautiful?
② Will they lead to longer reading times (i.e., cognitive load)?
③ Will increasing reading effort lead to higher beauty ratings?

Method

- 22 young adults (18-30 years), native speakers of English
- 92 poetic phrases extracted from classic poems or created by the experimenters, either literal or metaphorical, with different levels of metaphor novelty
- Measures: Beauty ratings (from 1 'not at all' to 7 'extremely beautiful') and reading Times during silent reading task
- Other measures: Metaphoricity, Familiarity and Imageability ratings from independent participant group (1 'not at all' 7 'extremely')
- Phrase length, mean word frequency (HAL frequency per million from English Lexicon Project (Balota et al., 2007)

Literal phrase	You gave me life for I am your daughter (Kaur, 2015)	I am not a bad person, I am kind
Dead metaphor	She walked away and left everything behind	I'm bored of your superficial reaction
Conventional metaphor	A wave of relief passed over me	She brought joy with her bubbly personality
Novel metaphor	Love will hold you (Kaur, 2015)	A broken heart is a shattered mirror, reflecting life in pieces (Byron, 1905)
Extremely novel metaphor	He brings the sun to its knees every night (Kaur, 2015)	I am not street-meat, I am homemade jam (Kaur, 2015)

Results

- Principal Component Analysis (PCA) extracted 3 orthogonal factors for metaphoricity, imageability and familiarity used for analyses (variables highly correlated *rs* > +/-.66)
- Stepwise multiple regression for all 3 hypotheses, with relevant predictors in first step, target predictor (linear only or linear + quadratic) in second step

1) Metaphoricity predicts Beauty: Length in letters explained 20% of variance, followed by familiarity (additional 4%) and metaphoricity (additional 13%)
2) Metaphoricity predicts Reading Times: Length in letters predicts 58%, followed by familiarity (10%), imageability (3%), and metaphoricity (2%)
3) Reading effort predicts Beauty: Length in letters predicts 20%, followed by metaphorcity (13%), familiarity (4%) and Reading Times (3%)

- No quadratic predictors significant, familiarity better predictor than mean word frequency

Discussion

1) **Increasingly more novel, creative metaphors in poetry evoke increasingly stronger aesthetic responses** (higher beauty ratings), above and beyond familiarity (the more novel the more beautiful). Although extremely novel metaphors show a small decrease in beauty ratings, no inverted U-shaped function is apparent (as the Optimal Innovation Hypothesis would predict)
2) Reading times mainly predicted by other psycholinguistic variables, with very minor contribution of metaphoricity
3) Longer, increasingly more metaphorical, less familiar and faster-read metaphors lead to higher beauty ratings (only minor contribution or reading effort, no U-shape)

➢ **In literary appreciation, higher stimulus complexity and cognitive effort lead to greater aesthetic pleasure**, with little detriment in case of extreme complexity/effort

➢ More work needed: elderly participants may show inverted U-shaped relationship