



Rhetorical features facilitate prosodic processing while handicapping ease of semantic comprehension



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ARTICLE INFO

Article history:

Received 11 November 2014

Revised 30 April 2015

Accepted 26 May 2015

Available online 23 June 2015

Keywords:

Rhetorical features

Conceptual and perceptual

fluency/disfluency

Succinctness

Beauty

Persuasion

ABSTRACT

Studies on rhetorical features of language have reported both enhancing and adverse effects on ease of processing. We hypothesized that two explanations may account for these inconclusive findings. First, the respective gains and losses in ease of processing may apply to different dimensions of language processing (specifically, prosodic and semantic processing) and different types of fluency (perceptual vs. conceptual) and may well allow for an integration into a more comprehensive framework. Second, the effects of rhetorical features may be sensitive to interactions with other rhetorical features; employing a feature separately or in combination with others may then predict starkly different effects. We designed a series of experiments in which we expected the same rhetorical features of the very same sentences to exert adverse effects on semantic (conceptual) fluency and enhancing effects on prosodic (perceptual) fluency. We focused on proverbs that each employ three rhetorical features: rhyme, meter, and *brevitas* (i.e., artful shortness). The presence of these target features decreased ease of conceptual fluency (semantic comprehension) while enhancing perceptual fluency as reflected in beauty and succinctness ratings that were mainly driven by prosodic features. The rhetorical features also predicted choices for persuasive purposes, yet only for the sentence versions featuring all three rhetorical features; the presence of only one or two rhetorical features had an adverse effect on the choices made. We suggest that the facilitating effects of a combination of rhyme, meter, and rhetorical *brevitas* on perceptual (prosodic) fluency overcompensated for their adverse effects on conceptual (semantic) fluency, thus resulting in a total net gain both in processing ease and in choices for persuasive purposes.

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1. Introduction

Available evidence suggests that, comparable to findings in other art domains, rhetorical and poetic language enhance ease of processing in some cases (e.g., Kuchinke, Trapp, Jacobs, & Leder, 2009; McGlone & Tofiqbakhsh, 1999, 2000; Menninghaus, Bohrn, Altmann, Lubrich, & Jacobs, 2014; Reber, Schwarz, & Winkelman, 2004), while hampering it in others (e.g., Giora et al., 2004; Jakesch, Leder, & Forster, 2013; Miall & Kuiken, 1994, 1998). Roman Jakobson's (1960) model of the "poetic

function" of language stipulates that the poetic and rhetorical refinement of language tends to make it more ambiguous and hence more difficult to understand. Formalist poetics and several empirical studies similarly support the notion of higher cognitive processing demands in the context of exposure to artworks (Giora et al., 2004; Miall & Kuiken, 1994, 1998; Shklovsky, 1965/1917). We hypothesized that both the conflicting findings and the apparently contradictory hypotheses may actually not be alternatives but rather apply to different dimensions of language processing and may potentially co-occur in response to the same stimuli. To the best of our knowledge, previous research on both fluency and disfluency effects has not considered—let alone systematically studied—interactions of the two effects in responses to the very same stimuli (cf. the comprehensive theoretical reviews

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by Alter, 2013, and Alter & Oppenheimer, 2009). In the present study we therefore designed a series of experiments, in which we expected to find effects that both conform to and contradict the ease of processing hypothesis for the same set of linguistic stimuli, but on different processing dimensions. If these predicted findings materialized, an explanatory model would be called for that integrates both enhancing and adverse effects of rhetorical patterning on cognitive fluency.

Experimental research on rhetorical features of language has mostly tested the effects of single rhetorical target variables (McGlone & Tofiqbakhsh, 1999, 2000; van Peer, 1990). However, far more than just one such feature is typically found even in single sentences of poetic or rhetorical language. Caesar's famous saying, "veni vidi vici" (I came, I saw, I conquered)—to which Jakobson (1960) referred as an example without specifying its structure—features multiple layers of rhetorical parallelism: all three words are verbs, have two syllables, are rhythmically trochaic, begin with an identical consonant, end with an identical vowel, are used in the past tense and in the first person, and are asyndetically juxtaposed (i.e., the three verbs follow one another without any conjunction). Moreover, the whole utterance features three one word-sentences each of which omits expectable sentence parts (ellipsis of an expectable adverbial specification of space and/or time regarding "veni" and of a grammatical object for both "vidi" and "vici"); and the prosodic (intonational) grouping of these three short sentences is fully convergent with their syntactic grouping. Caesar's saying thus features two fundamental and frequently co-occurring types of rhetorical deviation: (1) layers of linguistically non-mandatory extra order (*hyper-regularity*) and (2) deviations from linguistic standard expectations (*hypo-regularity*).

The example shows just how much complexity of rhetorical patterning can already be studied within the confines of a three-word utterance. Given the typical concerns of experimental control and how little is known about the effects of rhetorical features, we chose a single-sentence paradigm. Our search for a larger set of comparable single sentences soon converged on proverbs, as proverbs, too, not only frequently include multiple rhetorical features, but, moreover, the very same combination of such features. This allowed for a systematic experimental modification of a whole set of rhetorical text properties across a broad range of different sentences. Analyzing a corpus of several hundred proverbs revealed that three rhetorical features are often jointly employed in proverbs (amidst an even broader range of rhetorical features used in a less consistent fashion): rhyme, meter, and rhetorical brevity (for a detailed description of these features, see the section "Materials" for Study 1, Experiment 1a). We considered these three features to represent a critical minimum of complexity that would allow us measuring interaction effects of rhetorical patterning that are likely to be routinely found in sentences featuring multiple rhetorical features (cf. Fechner's concepts of threshold level and interaction, 1876). Given that the selected target features are both phonological (prosodic) and syntagmatic in nature, the present study departs not only from single-feature designs in experimental research on rhetoric, but also from the prevailing focus on semantic figures, and specifically on metaphor, in cognitive research on rhetorical and poetic language.

For the dependent variables hypothetically affected by the experimental manipulation of the three rhetorical target features, we ended up choosing *ease of comprehension*, *succinctness* (or *praegnantz*), *beauty*, and *choice for persuasive purposes*. We included *ease of comprehension* as a dependent variable because it is known to affect the processing of figurative language (Forgacs et al., 2012; Gibbs & Beitel, 1995; Kemper, 1981; Thoma & Daum, 2006) and of artworks in general (Leder, Gerger, Dressler, & Schabmann, 2012), and, furthermore, it bears directly on the ease of processing. We

included *succinctness* (or *praegnantz*), because we anticipated that rhetorical brevity should enhance succinctness ratings and thus reflect an important perceptual effect dimension of our stimuli. We included *beauty* because beauty scales are most frequently used for evaluating aesthetic appeal (Jacobsen, Buchta, Köhler, & Schröger, 2004), and beauty has been shown to frequently enhance ease of processing (Reber et al., 2004; Winkielman, Halberstadt, Fazendeiro, & Catty, 2006; Winkielman, Schwarz, Fazendeiro, & Reber, 2003). Finally, we included *choice for persuasive purposes* because higher persuasive power is a typical goal of rhetorical message enhancement and proverbial sentences are mostly used for purposes of admonishment and instruction.

We addressed the following issues: How do individual rhetorical features and their interaction affect perceived ease of comprehension, *praegnantz*, and beauty? How do the objective linguistic features (the rhetorical target features), the cognitive ease of semantic comprehension, and the perceptual as well as aesthetically evaluative dimensions of *praegnantz* and beauty influence which versions of the sentences are chosen for persuasive purposes? Can the same linguistic stimuli simultaneously enhance and reduce processing ease on different dimensions of language processing? If so, which theoretical options may integrate these contrary effects into a coherent account of processing rhetorical message features?

2. Hypotheses

Following Jakobson (1960), we hypothesized that the poetic and rhetorical treatment of language often places higher cognitive demands on semantic understanding, thereby exerting an adverse effect on ease of processing. We call this the *cognitive handicap hypothesis*. In accordance with this hypothesis (though lacking a special focus on features of rhetorical diction), lay beliefs tend to attribute lower levels of "ideal" fluency to poems—which prototypically feature the most poetic treatment of language—when compared to novels and short stories, and to the latter when compared to magazines and newspapers (Galak & Nelson, 2011). At the same time, the *cognitive fluency* hypothesis of aesthetic processing (Reber & Schwarz, 1999; Reber, Winkielman, & Schwarz, 1998; Reber et al., 2004) suggests that poetic and rhetorical language use is considered beautiful and pleasurable insofar as it enhances ease of processing. Cognitive fluency theorists have explicitly defined the "ease of mental operations concerned with stimulus meaning and its relation to semantic knowledge structures" as a "conceptual" rather than "perceptual" type of cognitive fluency (Alter & Oppenheimer, 2009; Reber et al., 2004). Here we measured the ease or difficulty of understanding the meaning of sentences through ratings for ease of comprehension. Measurement of reading times was not an option, because by definition, the experimental modification of our rhetorical target feature *brevitas* required us to alter the total length of the sentences. The rhetorical target features investigated in the present study all have a potential to reduce ease of comprehension. Rhetorical *brevitas* routinely entails the omission of typically expectable or even mandatory sentence parts; accordingly, rhetorical theory has acknowledged a potential conflict between making a message particularly short (through a high degree of *brevitas*) and maintaining ease of semantic comprehension (cf. Quintilian, 1953: IV 2, 46). Something similar holds for meter and rhyme. Both features limit word choice and often lead to artfully altered word morphology and unusual syntactic order. We therefore predicted that the rhetorical target features should negatively impact ease of semantic comprehension. This prediction differs from Jakobson's, however, in that we did not specifically predict greater ambiguity, as ambiguity poses but one specific type of greater cognitive challenge. Rather, we only predicted a general trend towards a greater

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