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ARTICLE

What makes an awfully good oxymoron?

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Abstract
Oxymorons combine two opposite terms in a paradoxical manner. They are closely intertwined with antonymy, since the union of antonymous items creates the paradoxical effect of the oxymoron and generates a new meaning. Compared to other forms of figurative language, oxymorons are largely underinvestigated. We explored what makes good oxymorons through a crowdsourcing task in which we asked participants to judge the acceptability, comprehensibility, effectiveness/aptness, commonness, pleasantness, and humoristic connotation of Italian adjective–noun oxymorons. We hypothesized that oxymorons featuring morphologically related antonyms (*felice infelicità* 'happy unhappiness') may be perceived to be better than oxymorons featuring morphologically unrelated antonyms (*felice tristezza* 'happy sadness') and that oxymorons constructed by complementaries (*esatta inesattezza* 'exact inexactness') may be perceived to be better than oxymorons constructed by contraries (*bella bruttezza* 'beautiful ugliness'). The results confirmed only partially our hypotheses: oxymorons with complementaries were perceived as more acceptable, comprehensible, effective/apt, common, whereas no strong trend was found for the other two dimensions. Surprisingly, our analyses revealed that oxymoronic constructions containing morphologically unrelated words were perceived as more acceptable, comprehensible, effective/apt, common, pleasant, contradicting our initial expectations.

Keywords: antonymy; crowdsourcing; figurative language; Italian; oxymoron

1. Introduction

Figurative language is a fascinating and ubiquitous form of communication in everyday communicative experiences, which has been the subject of study for many years, yet its exploration is far from exhaustive. Scholars from linguistics and psychology have examined figurative language from diverse perspectives, encompassing both pragmatic and formal aspects (Gentner & Bowdle, 2001; Gibbs, 2015; Kimmel, 2010; Zinken, 2007), as well as cognitive and neural underpinnings of these linguistic constructions (Burgess & Chiarello, 1996; Citron & Goldberg, 2014;

Levorato & Cacciari, 2002). Nevertheless, research has predominantly focused on figures such as metaphors (e.g., Bolognesi & Werkmann Horvat, 2022; Semino & Demién, 2017 for recent reviews), metonymy (Littlemore, 2015; Schumacher, 2019; Weiland-Breckle & Schumacher, 2018), and idiomatic expressions (Cacciari, 2014; Cacciari & Glucksberg, 1995; Canal et al., 2017; Citron et al., 2014; Tabossi et al., 2009), while other figurative mechanisms have been largely overlooked. Interestingly, scholars have also investigated other figures of speech, such as humor (Attardo, 1994, 1997, 2017; Attardo et al., 1994; Attardo & Raskin, 1991; Bambini et al., 2020; Bischetti et al., 2023; Canal et al., 2019; Mihalcea & Strapparava, 2005; Vrticka et al., 2013), irony (Canestrari & Bianchi, 2018; Carston, 1998; Cori et al., 2016; Gibbs & O'Brien, 1991; Spotorno et al., 2012, 2013; Spotorno & Noveck, 2014; Wilson & Sperber, 1992), hyperbole (Burgers et al., 2016; Carston & Wearing, 2011; Deamer, 2013; Deamer et al., 2010), and sarcasm (Gibbs, 1986; Riloff et al., 2013; Verma et al., 2021). One figure that is definitely underinvestigated is oxymoron, whose communicative power derives from its unique structure. The dictionary definition of oxymoron suggests that this trope is characterized by the combination of 'a pair of opposed or markedly contradictory terms […] placed in conjunction for emphasis' (OED: www.oed.com). However, in the present article, we will delve into the analysis of variables that can help us classify oxymorons based on their inner structure and their perceived quality. Instances of oxymorons are *deafening silence*, *bitter sweetness*, *lucid insanity*, and *sweet sorrow*. Linguistically, these constructions are intertwined with the semantic relation of antonymy, since it is often the combination of two antonymic items that produces the final paradoxical effect.

Oxymorons have been explored from different perspectives over the years. Rhetorical and literary studies have mainly focused on its poetic function, thereby defining it as a contradiction in terms and a paradoxical conjunction of two antithetical lexemes (Beccaria, 1994; Ching, 1975; Mortara Garavelli, 1988; Shen, 1987). Psycholinguists like Gibbs & Kearney (1994) examined how oxymorons generate new meanings by combining two conflicting terms in a constrained way and by retrieving the conceptual knowledge associated with those terms. Gibbs & Kearney (1994, p. 87) argued that oxymorons are peculiar mechanisms because 'they reflect the way that people often conceptualize of various objects, ideas, and events' and the comprehension of these figures of speech happens 'precisely because we conceptualize of incongruous events in oxymoronic terms where two concepts are combined in a constrained manner to create new meaning'.

The ability of oxymorons to produce new meanings has been experimentally tested by Molinaro et al. (2012, 2015). Noun–adjective pairs in Spanish were manipulated to create neutral (e.g., *lluvia primaveral* 'spring rain'), anomalous (e.g., *lluvia ciega* 'blind rain'), redundant (e.g., *lluvia mojada* 'wet rain'), and contrastive (e.g., *lluvia seca* 'dry rain', i.e., an oxymoron) expressions and then presented in sentences. Participants underwent electroencephalogram (EEG) recordings while silently reading the stimuli (Molinaro et al., 2012) and performed a self-paced reading task while in an fMRI test (Molinaro et al., 2015). The results of the EEG experiment (Molinaro et al., 2012, p. 3494) indicated that, compared to the other conditions, oxymorons elicit a long-lasting frontal positive effect (late positive component, occurring during the 550–750 ms time interval), indicating 'a later processing cost'. This prolonged effect was interpreted as reflecting an increased processing demand required for the additional semantic processing necessary to understand these contradictory constructions. Similarly, the fMRI findings (Molinaro et al., 2015)

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showed that oxymorons activate additional compositional processes, which were interpreted as establishing a connection between the language comprehension network and semantic memory, thereby facilitating the creation of new meanings.

Oxymoron-related resources are however scarce. Yamane & Hagiwara (2015) provide a method for the automatic generation of oxymorons using an association word corpus and a large-scale N-gram corpus. Suitability and attractiveness of the oxymorons are then assessed automatically using various formulas. Recently, La Pietra & Masini (2020) carried out a preliminary investigation of oxymorons in two large corpora of contemporary written Italian, providing an initial groundwork for the investigation of these tropes from a linguistic and an NLP-oriented perspective. Their work provides a list of common oxymorons and oxymoronic structures in Italian and opens the path to wider explorations and applications.

Our work goes in the same direction, as we aim to contribute to the scholarly debate on oxymorons, by exploring these figures of speech in Italian. Specifically, we focus on the relationship between the structural and semantic traits of oxymorons that have an effect on the speakers' judgments about their perceived quality. A secondary, more practical, goal of this study is to share our lexical resource: a dataset of balanced stimuli (oxymorons) enriched with norming data collected from Italian native speakers that can be used for future empirical and behavioral research on this figure of speech.

The general research question (RQ) we intend to address is what makes a good oxymoron. To this end, we formulate two more specific RQs related to two different aspects, namely, morphological structure and type of semantic contrast. Here follow the two RQs we address:

- RQ1: How does the **morphosyntactic structure** of the oxymoron influence its perceived quality?
- RQ2: How does the type of **semantic contrast** expressed in the oxymoron influence its perceived quality?

Based on these two questions, we formulated the following two hypotheses, which are motivated in greater detail in the next section:

- Hp1: morphologically related oxymorons (*felice infelicità* 'happy unhappiness') are perceived as 'better' than morphologically unrelated oxymorons (*felice tristezza* 'happy sadness').
- Hp2: oxymorons relying on complementaries (*esatta inesattezza* 'exact inexactness') are perceived as 'better' than oxymorons relying on contraries (*bella bruttezza* 'beautiful ugliness').

We base our analysis on a list of adjective–noun oxymorons, which are rated by native speakers of Italian in terms of acceptability, comprehensibility, effectiveness/aptness,[1] commonness, pleasantness, and humor. We based the selection of response variables on previous norming studies related to figurative language, such as the

[1]The original Italian wording for this variable is 'efficace/azzeccato', which literally translates as 'effective/apt' or 'efficient/apt'. For the sake of readability, in the present article we used the label 'efficient' to indicate this variable.

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metaphor norms. In particular, we consulted metaphor norms collected by Katz et al. (1988) and replicated by Campbell & Raney (2016) (which include comprehensibility, ease of interpretation, metaphoricity, metaphor goodness, imagery of the metaphor, imagery of the subject, imagery of the predicate, familiarity, semantic relatedness, and number of alternative interpretations), the aptness and preference norms collected by Oka & Kusumi (2020), as well as the meaningfulness and appreciation norms collected by Littlemore et al. (2018). Based on these norming studies, we argue that the dimensions hereby used as response variables provide a good estimate of the perceived oxymorons' quality in the speakers' mind.

2. Theoretical background

Oxymorons can appear in a variety of **morphosyntactic structures**. As La Pietra & Masini (2020) show, in Italian, oxymorons are typically expressed by noun–adjective (e.g., *silenzio urlante* 'screaming silence', *attività passive* 'passive activities') and adjective–noun (e.g., *raggiante oscurità* 'glowing darkness', *disperata felicità* 'desperate happiness') combinations. Yet, they can also be expressed by full sentences (e.g., *l'amore è odio* 'love is hate', *il silenzio è rumore* 'the silence is noise', *il silenzio grida* 'the silence screams', *il buio illumina* 'the dark illuminates (something)'), adverb–adjective pairs (e.g., *allegramente depresso* 'cheerfully depressed', *luminosamente oscuro* 'brightly dark'), noun–preposition–noun patterns (e.g., *la tenebra della luce* 'darkness of the light'), and others. Adjective–noun and noun–adjective pairs are by far the most common structures in the authors' dataset: Noun–adjective oxymorons amount to 140 (37% of the total dataset), whereas adjective–noun oxymorons amount to 112 (30% of the total dataset). Note that the presence of adjective–noun sequences is rather relevant, considering that noun–adjective is the unmarked, neutral order in Italian. The authors link this result to the fact that the prenominal position for Italian adjectives is generally associated with affect and emphasis (Ramaglia, 2010), which are resonant with figurative language. This is the reason why we opted for this structure for our experiment. We discuss the limits of this choice and the opportunity to test more structures in Section 5.

This said, at the structural level, there is a further distinction that can be made within the adjective–noun class. Some oxymorons contain morphologically unrelated words (*silenzio urlante* 'screaming silence'), whereas others contain words that share the same root or stem (*felice infelicità* 'happy unhappiness') because the antonyms on which they rely are created by affixation (Cruse, 1986, p. 246 called them 'formally asymmetrical'): see *felice* 'happy' > *infelice* 'unhappy', where the prefix *in-* 'un-' is added to the base. We call these two types of oxymorons, respectively, 'morphologically unrelated' and 'morphologically related' (following the terminology proposed by Murphy, 2003, p. 201 for antonyms). Now, following the assumption that a 'good' pair of antonyms is more likely to produce a 'good' oxymoron, our initial hypothesis is that morphologically related oxymorons (*felice infelicità* 'happy unhappiness') are perceived as 'better' than morphologically unrelated oxymorons (*felice tristezza* 'happy sadness'). This intuition is based on observations from the literature. Speaking of what makes a 'good' opposition, Cruse (1986, p. 262) argues that binary directional opposition is a salient property, even more so if it is at least to some degree patent (rather than latent). Further aspects of a 'good' opposition are the presence of a unidimensional scale of contrast (with antonyms being symmetrically

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collocated) and the purity of the opposition (namely, if a great proportion of the meaning of the two items is exhausted by the opposition). Clearly, morphologically related antonyms are fully compliant with these properties. Along similar lines, Murphy (2003, p. 171) suggests that, in some cases, morphologically related antonyms might be better than unrelated ones since they share their stem (and register), emphasizing that the form of words (and not just their meaning) can contribute to building a contrast relation.

As for the type of **semantic contrast** expressed in the oxymoron (cf. RQ2), there are ideally several types of oppositions to investigate and compare, following the various classifications of antonymy in the literature (see, e.g., Cruse, 1986; Lyons, 1977; Murphy, 2003; Paradis, 2008). For the sake of simplicity and feasibility, we concentrated on the main and higher-level distinction that is recurrently made in lexical semantics, namely, the distinction between contraries and complementaries (or gradable and ungradable opposites, following Sapir, 1944). Contraries imply a gradable opposition, like *hot* versus *cold*, which place symmetrically at the opposite extremes of a scale that contains intermediate values. If X is hot, then it is not cold, but if X is not cold, we cannot say that it is necessarily hot (cf. Lyons, 1977, p. 272). Complementaries convey a discrete opposition, like *dead* versus *alive*, which can be defined as one the negation of the other, so that *dead* implies not being alive and *alive* implies not being dead. The latter type of opposition is conceptually more clear-cut than the former: no gradation is possible, which makes the contradiction stronger. This is why our initial hypothesis is that oxymorons constructed with complementaries (*esatta inesattezza* 'exact inexactness') are perceived as 'better' than oxymorons constructed with contraries (*bella bruttezza* 'beautiful ugliness').

3. Methods

The aim of this article is to examine the relationship between different types of oxymorons and their perceived quality, as measured by human judgments. Therefore, the predictors of our analyses were chosen based on the theoretical explanations provided in the previous section: morphologically related (yes/no) and type of antonymy (contrary/complementary). The response variables are human judgments on acceptability, comprehensibility, efficiency, commonness, pleasantness, and humor. Instructions used in the task are reported in the online repository on Open Science Framework, together with all the analyses and materials (url: https://osf.io/zxcae/).

To construct the oxymorons to be used as stimuli in our investigation, we started with a list of adjectives from existing Italian lexical resources. We used Tullio De Mauro's (1980) 'Vocabolario di base' (*VdB*; literally 'basic vocabulary') and its newer version (De Mauro, 2016), the 'New Vocabolario di Base' (NVdB). From these two lexical resources, we extracted the adjectives included in both datasets, which can be considered to be high-frequency and established adjectives in Italian. The list includes 945 adjectives such as *abile* 'skillful' or *felice* 'happy'. From the list of adjectives, we selected a subset for which it was possible to derive morphologically similar nouns, relying on the productive word formation processes of Italian. For instance, from *abile* we derived *abilità* 'skill'; from *felice* we derived *felicità* 'happiness'; and from *positivo* 'positive' we derived *positività* 'positivity'.

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Antonyms of the nouns were then identified using the Treccani dictionary ('Sinonimi e Contrari', lit. synonyms and antonyms) and the *ItTenTen16* corpus (Baroni & Kilgarriff, 2006; Jakubíček et al., 2013) for Italian available on SketchEngine (Jakubíček et al., 2014; Kilgarriff et al., 2014). Adjectives and noun antonyms were finally used to construct a balanced list of 204 oxymorons that cover the various types of oxymorons described in the theoretical background section, which motivated our experimental hypotheses. These are morphologically related versus unrelated oxymorons, and oxymorons based on contraries versus complementaries (see Section 2). For instance, starting from the noun *abilità* 'skill', we extracted the following antonym from the Treccani dictionary: *inabilità* 'inability'. For *felicità* 'happiness', we extracted *infelicità* 'unhappiness' and *tristezza* 'sadness'. These antonyms were then used to construct oxymorons combining the original adjectives with the antonyms of the derived nouns, such as *abile inabilità* 'skillful inability', *felice infelicità* 'happy unhappiness', and *felice tristezza* 'happy sadness'. As illustrated in the previous example, for some oxymorons, we realized that the noun selected with the aid of the dictionary and the *ItTenTen16* corpus had a synonym that could be easily used to construct alternative oxymorons on the same adjective. We used these peculiarities to construct alternative oxymorons built on the same initial adjective, by selecting a synonym of the antonymic noun, with the aid of the lexical resources listed above.

We constructed 3 lists for the data collection of the pilot experiment, in such a way that in each list, the types of oxymorons displayed were balanced, and each adjective appeared in only one oxymoron. Each list in the pilot phase contained 30 oxymorons and a control item (for a total of 93 items), all presented with a simple and pragmatically neutral sentence as a context. The context sentence was the same for all oxymorons: *Si tratta di…* 'This is about…', followed by the experimental item. The control item was a highly conventionalized oxymoron, lexicalized in the Italian language, namely, *lucida follia* 'lucid insanity', *illustre sconosciuto* 'illustrious stranger', *disperata allegria* 'desperate glee'.

The second phase of the study, following the pilot phase, consisted of 3 additional lists of 39 items each (hence, 117), for a total of 207 stimuli (including the 3 lexicalized trials used as controls in both the pilot and the second phase).

For each experimental trial, participants were asked to provide their judgments about the oxymorons, on the following dimensions: acceptability, comprehensibility, efficiency, commonness, pleasantness, and humor. The stimuli were presented in a randomized order. Judgments were elicited on a 6-point scale (from 0 to 5 included). Additionally, after each trial, participants were asked to provide their written interpretation of the oxymoron. At the end of the survey, they were finally asked to write down their own definition of oxymoron. These final, open, and optional questions included in the survey were not analyzed in the present article due to the limited number of datapoints. A qualitative analysis and interpretation will be provided in a separate venue.

Judgments were collected using the Qualtrics platform, which is compliant with the GDPR. Data were collected between July and December 2021. The participants were 316 BA students from the University of Bologna's Department of Modern Languages, Literatures, and Cultures and were asked to provide their gender ($M = 67$; $F = 237$; nonbinary = 9; rather not say = 3), age range (18–25 y.o. = 297; older than 25 y.o. = 19), and first language information (Italian = 316; no other languages reported), upon acceptance of the informed consent and information sheet

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containing the scope of the research and willingness to take part in it on a free and voluntary basis. The survey did not require formal ethical approval due to the nature of the data collected, which solely consists of nonsensitive judgments provided by adult participants. These judgments do not contain personal identifiers or any sensitive personal data as defined by the GDPR and are processed and reported in anonymous and aggregated form only.

4. Results

The analyses herein reported are organized as follows. First, in 4.1, we report the correlations among the six dimensions of oxymoron quality, namely, acceptability, comprehensibility, efficiency, commonness, pleasantness, and humor. Then, in 4.2, we use exploratory analyses to determine the most and the least preferred oxymorons for each dimension based on the average values we calculated based on the scores assigned by the participants. Finally, in 4.3, we examine the effect of two predictors – morphological relatedness (yes/no) and type of antonymy (contrary/complementary) – on the aforementioned dimensions of perceived oxymoron quality. We use Seaborn (Waskom, 2021) and Matplotlib (Barrett et al., 2005; Hunter, 2007) libraries in Python (Van Rossum, 2021; Van Rossum & Drake, 2009) to generate the figures and the ordinal package (Christensen, 2022) for R (R Core Team, 2022) to fit cumulative link models.

4.1. Correlations of oxymoron quality dimensions

Figure 1 displays the correlations between the scores for the perception of oxymorons in terms of acceptability, comprehensibility, efficiency, commonness, pleasantness, and humor.

The strong positive correlation ($r = 0.85$) between acceptability and efficiency suggests that oxymorons that are perceived as more acceptable also tend to be perceived as more efficient in conveying their intended meaning. The analysis also reveals a strong positive correlation ($r = 0.84$) between acceptability and comprehensibility, indicating that oxymorons that are rated higher in terms of acceptability also tend to be perceived as more easily understandable by the speakers. Furthermore, the dimension of comprehensibility shows a high positive correlation with efficiency ($r = 0.79$), indicating that oxymorons that are easier to understand tend to be rated as more efficient. Commonness displays a moderate positive correlation with acceptability, comprehensibility, and efficiency ($r = 0.69$, 0.69, and 0.71, respectively). Next, pleasantness shows a moderate positive correlation ($r = 0.70$) with efficiency and a relatively weaker positive correlation with acceptability and comprehensibility ($r = 0.63$, and 0.57, respectively). There is also a moderate positive correlation between pleasantness and humor ($r = 0.64$). Interestingly, humor demonstrates the weakest correlations ($r = 0.41$, 0.38, 0.47, 0.40, respectively) with the other four perceived dimensions, namely, acceptability, comprehensibility, efficiency, and commonness. A possible explanation for this result could be that the perceived humor is more subjective than the other qualities. How humor is constructed and perceived may depend on a range of linguistic, social, cultural, and idiosyncratic factors that are beyond the scope of this article. For an in-depth review of this topic, however, consult Bischetti et al. (2021).

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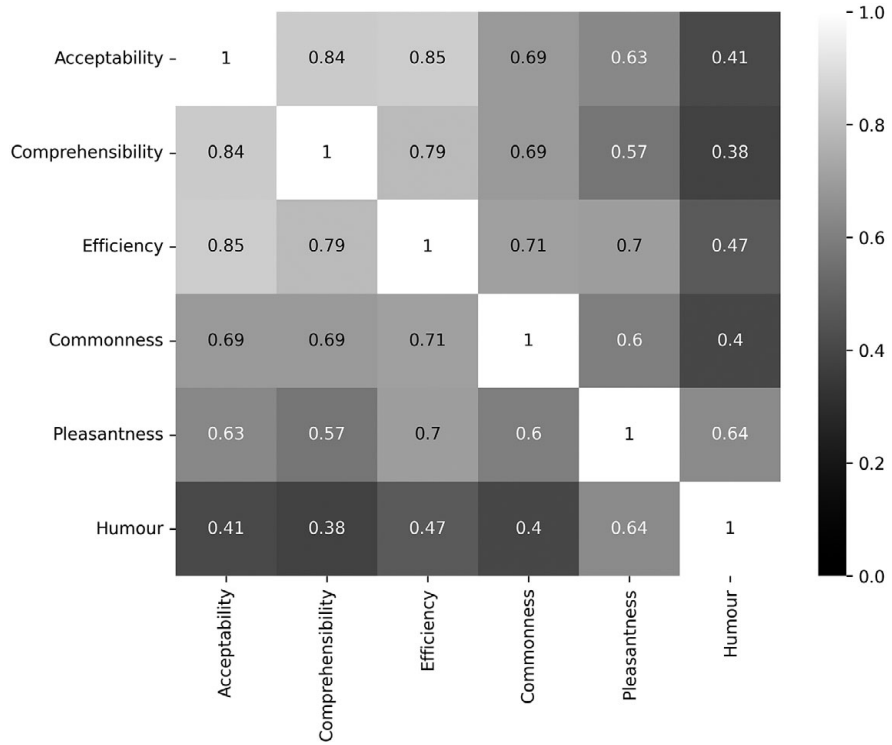

Figure 1. Correlation matrix for the six dimensions.

4.2. Most and least preferred oxymorons

To further investigate the participants' perception toward our set of 207 oxymorons, we calculate the mean scores for each stimulus in terms of their acceptability, comprehensibility, efficiency, commonness, pleasantness, and humor. Figure 2 shows the top 15 oxymorons for each of these six dimensions, along with their respective means. The oxymorons are arranged in descending order based on their mean scores, which range from 0 to 5. A higher score indicates a more favorable rating of the stimulus.

On the one hand, it appears that some oxymorons have high mean scores across multiple dimensions. For example, *perfetta imperfezione* 'perfect imperfection' is ranked first for acceptability ($M = 4.50$, $SD = 0.73$), comprehensibility ($M = 4.42$, $SD = 0.90$), efficiency ($M = 4.28$, $SD = 0.92$), and pleasantness ($M = 3.94$, $SD = 1.07$). Similarly, *falsa verità* 'false truth' is perceived as the most common oxymoron ($M = 4.08$, $SD = 1.16$), the second most comprehensive ($M = 4.29$, $SD = 1.05$) and efficient ($M = 4.15$, $SD = 1.01$), and the third most acceptable ($M = 4.27$, $SD = 1.06$).

On the other hand, some oxymorons display high mean scores in only one dimension. The complete list of items that rank in the top 15 oxymorons for only one dimension can be retrieved from the visual exploration of Figure 2. For conciseness, here we provide a limited number of examples. For instance, *acuta stupidità* 'sharp stupidity', *ubriaca sobrietà* 'inebriated sobriety', *giovane anzianità* 'young old age', and *perfetta deformità* 'perfect deformity' are ranked as the fourth ($M = 3.17$,

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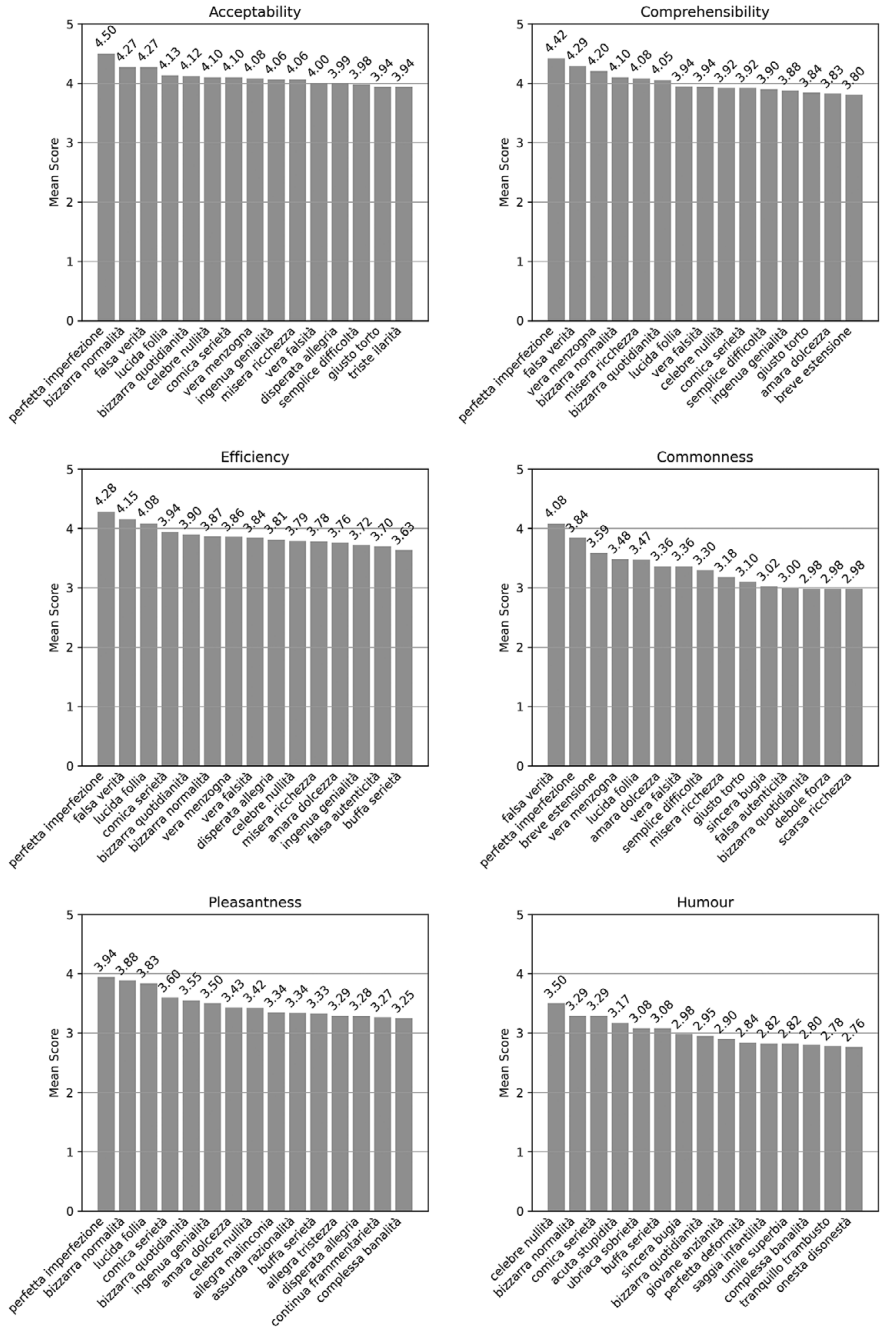

Figure 2. Top 15 oxymorons by dimension.

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SD = 1.61), fifth (*M = 3.08*, *SD = 1.38*), ninth (*M = 2.90*, *SD = 1.54*), and tenth (*M = 2.84*, *SD = 1.47*) most humorous oxymorons, respectively, and they are not present in the list of the first 15 oxymorons for any other dimension. Similarly, other oxymorons that display high scores for only one quality are *allegra malinconia* 'cheerful melancholy' and *assurda razionalità* 'absurd rationality' that are among the most pleasant oxymorons, *debole forza* 'weak strength' that is one of the most common, and *triste ilarità* 'sad hilarity' that is one of the most acceptable.

The range of the means regarding the 15 most favored oxymorons varies greatly across the six dimensions: acceptability ratings range from *M = 4.50* (*SD = 0.73*) for *perfetta imperfezione* 'perfect imperfection' to *M = 3.94* (*SD = 1.26*) for *triste ilarità* 'sad hilarity'; the mean scores for the most comprehensible oxymorons range from *M = 4.42* (*SD = 0.90*) for *perfetta imperfezione* 'perfect imperfection' to *M = 3.80* (*SD = 1.21*) for *breve estensione* 'short extension'; perceived efficiency has a range of means from *M = 4.28* (*SD = 0.92*) for *perfetta imperfezione* 'perfect imperfection' to *M = 3.63* (*SD = 1.23*) for *buffa serietà* 'funny seriousness'; the oxymorons perceived as the most common display a range of means from *M = 4.08* (*SD = 1.16*) for *falsa verità* 'false truth' to *M = 2.98* (*SD = 1.47*) for *scarsa richezza* 'scarce wealth'; the means for the most pleasant oxymorons range from *M = 3.94* (*SD = 1.07*) for *perfetta imperfezione* 'perfect imperfection' to *M = 3.25* (*SD = 1.55*) for *complessa banalità* 'complex banality'; finally, the range of means for the top humorous oxymorons ranges from *M = 3.50* (*SD = 1.43*) for *celebre nullità* 'famous nonentity' to *M = 2.76* (*SD = 1.39*) for *onestà disonestà* 'honest dishonesty'.

Figure 2 reveals that *vera falsità* 'true falsity' and *vera menzogna* 'true lie', both meaning the same thing, appear multiple times in top positions, implying that they are highly regarded across different dimensions. It is also interesting to note the presence of the adjectives *vera* 'true', *falsa* 'false', and *bizzarra* 'bizarre' in several of the highly ranked oxymorons. This may suggest that when concepts are expressed in terms of their truth value and peculiarity, the resulting oxymoron may have a greater impact on the speaker.

Additionally, *comica serietà* 'comical seriousness' and *buffa serietà* 'funny seriousness', which convey a similar meaning, are perceived as among the most pleasant and humorous oxymorons. It is interesting to note that these two oxymorons conveying simultaneously concepts of seriousness and humor are perceived as particularly successful. Likewise, the presence of the adjective *allegra* 'cheerful' and the noun *allegria* 'glee, cheerfulness' in three of the oxymorons that are perceived as the most pleasant, namely, *allegra malinconia* 'cheerful melancholy', *allegra tristezza* 'cheerful sadness', and *disperata allegria*, 'desperate glee' seems to suggest that constructions that combine contrasting human emotions or feelings may be effective in creating appealing oxymorons.

We also explore the opposite end of the spectrum of our 207 oxymorons, reporting the two least favored items: *liscia rugosità* 'smooth coarseness' (*M = 1.42, SD = 1.24*) and *interna esternalità* 'internal externality' (*M = 1.40, SD = 1.27*) for perceived acceptability; *grassa gracilità* 'fat frailty' (*M = 1.28, SD = 1.29*) and *interna esternalità* 'internal externality' (*M = 1.20, SD = 1.16*) for perceived efficiency; *veloce tardità* 'fast tardiness' (*M = 1.42, SD = 1.19*) and *interna esternalità* 'internal externality' (*M = 1.22, SD = 1.09*) for perceived comprehensibility; *liscia rugosità* 'smooth coarseness' (*M = 0.74, SD = 0.80*) and *degna indegnità* 'worthy unworthiness' (*M = 0.71, SD = 0.91*) for perceived commonness; *grassa gracilità* 'fat frailty' (*M = 1.14, SD = 1.03*) and *veloce tardità* 'fast tardiness' (*M = 1.02, SD = 1.05*) for

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perceived pleasantness; and *rapida tardività* 'rapid tardiness' ($M = 0.98$, $SD = 1.09$) and *interna esternalità* 'internal externality' ($M = 0.94$, $SD = 1.09$) for perceived humor. Across the six qualities, *interna esternalità* is consistently rated as one of the least favored oxymorons, scoring low in perceived acceptability, efficiency, comprehensibility, commonness, and humor. In addition, *liscia rugosità* is perceived as one of the least acceptable and common oxymorons, while *grassa gracilità* and *veloce tardità* score low in perceived efficiency, comprehensibility, pleasantness, and humor.

4.3. Factors influencing perceived oxymoron quality

To gain a deeper understanding of how oxymorons are perceived and to answer RQ1 regarding morphosyntactic structure and RQ2 regarding semantic contrast, we analyze the data with stacked bar charts and cumulative link models from the ordinal package (Christensen, 2022). We estimate the effects of two predictors, namely, morphological relatedness (yes/no) and type of antonymy (contrary/complementary), on the six dimensions of oxymoron quality (0–5 scale), namely, acceptability, comprehensibility, efficiency, commonness, pleasantness, and humor. Based on the nature of the RQs and the structure of the data at hand, the models include exclusively a random intercept for each participant to account for individual variability. Laplace approximation is used for model fitting. Contrast coding for the morphological relatedness and type of antonymy is performed using the treatment contrast coding, namely, the default coding method provided by the clmm function in ordinal package for R. The mean class is reported, and in the context of the cumulative link models, it refers to the estimated mean of the response variable for specific groupings defined by the predictors in the analysis.

Figure 3 displays how acceptability ratings vary among the four types of oxymorons – determined by the two variables (i.e., morphological relatedness and type of antonymy). Some preliminary trends seem to emerge from this plot, namely, that oxymorons conveying complementary antonymy tend to be rated with higher acceptability scores.

Moreover, the results of the cumulative link model show that both the morphological relatedness ($estimate = -0.247$, $SE = 0.056$, $z = -4.351$, $p < 0.001$) and the type of antonymy ($estimate = -0.128$, $SE = 0.040$, $z = -3.178$, $p = 0.001$) have a significant effect on the perceived acceptability of oxymorons. Specifically, in contrast to our Hp1, the odds of rating an oxymoron as more acceptable are lower when it is formed with an adjective and a noun that are morphologically related (same stem) compared to when the two words are not morphologically related (different stems). Therefore, antonym pairs that are not morphologically related, such as *mobile fermezza* 'mobile firmness', are perceived as more acceptable than morphologically related pairs, such as *mobile immobilità* 'mobile immobility'. Our Hp2 is confirmed, instead, as the odds of rating an oxymoron as more acceptable are lower when the oxymoron displays a contrary type of antonymy compared to when it displays complementariness. Thus, complementary oxymorons, such as *vera falsità* 'true falsity', are perceived as more acceptable than contrary oxymorons, such as *larga strettezza* 'wide narrowness'. The analysis of contrasts and the estimated mean values indicate that oxymorons that are not formed by morphologically related words and that simultaneously entail a complementary type of antonymy, such as *falsa verità* 'false truth', are perceived as

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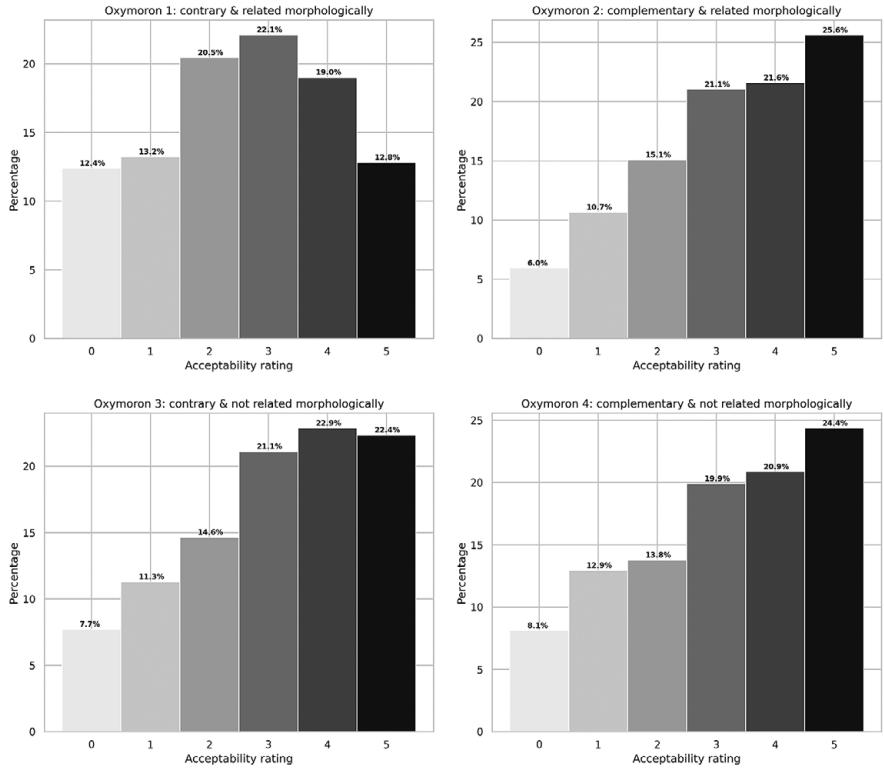

Figure 3. Acceptability ratings for each type of oxymoron.

the most acceptable (*mean class = 4.19*, *SE = 0.050*), while oxymorons that are morphologically related and entail a contrary type of antonymy, such as *sacra dissacralità* 'sacred desecration', are perceived as the least acceptable (*mean class = 3.88*, *SE = 0.063*).

The high correlation between the speakers' ratings for perceived acceptability, comprehensibility, and efficiency, discussed at the beginning of this section, anticipates that the results for these three dimensions are similar.

The morphological relatedness of the antonyms has, in fact, a significant effect on the oxymorons' perceived comprehensibility (*estimate = −0.209*, *SE = 0.056*, *z = −3.679*, *p < 0.001*) and efficiency (*estimate = −0.210*, *SE = 0.056*, *z = −3.700*, *p < 0.001*). Our Hp1 is contradicted, since the results indicate that the perceived comprehensibility and efficiency of oxymorons decrease when they are formed with morphologically related adjective–noun pairs, such as *facile difficoltà* 'facile difficulty' or *nobile ignobiltà* 'noble ignobility'. Conversely, morphologically unrelated oxymoronic constructions, such as *nobile plebeo* 'noble plebeian' or *facile complicazione* 'facile complication', tend to receive higher ratings for comprehensibility and efficiency. Next, the type of antonymy has a significant effect on the oxymorons' perceived comprehensibility (*estimate = −0.091*, *SE = 0.040*, *z = −2.265*, *p = 0.02*) and efficiency (*estimate = −0.142*, *SE = 0.040*, *z = −3.533*, *p < 0.001*). The results confirm our Hp2, with contrary oxymorons, such as *alta bassezza* 'high lowness' or

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aspra amabilità 'rugged amiability', being perceived as less comprehensible and less efficient than complementary oxymorons, such as *continua frammentarietà* 'continuous fragmentation' or *cieca visione* 'blind vision'. In general, oxymorons that are generated from morphologically unrelated antonyms and that, simultaneously, exhibit complementary antonymy, such as *vera falsità* 'true falsity', are perceived as the most comprehensible (*mean class = 4.10*, *SE = 0.051*), while contrary oxymoronic constructions sharing the same stem, such as *delicata indelicatezza* 'delicate indelicacy', seem to be perceived as the most difficult to understand (*mean class = 3.86*, *SE = 0.063*). Similarly, oxymorons that display complementariness and no morphological relatedness, such as *vera menzogna* 'true lie', are perceived as the most efficient (*mean class = 3.96*, *SE = 0.052*), while oxymorons that display contraries and morphological relatedness, such as *degna indegnità* 'worthy unworthiness', are perceived as the least efficient (*mean class = 3.68*, *SE = 0.064*).

The analyses also show that morphological relatedness and the type of antonymy have a significant effect on the perceived commonness of the oxymoron. In contrast to our Hp1, the odds of perceiving an oxymoron as more common decrease (*estimate = −0.288*, *SE = 0.057*, *z = −5.068*, *p < 0.001*) when the construction consists of a pair of morphologically related words, such as *uguale diseguaglianza* 'equal inequality', compared to when the words in the pair have different stems, such as *uguale differenza* 'equal difference'. Our Hp2 is supported by the results since contrary oxymorons, such as *acuta ottusità* 'acute obtuseness', are perceived as less common (*estimate = −0.133*, *SE = 0.040*, *z = −3.300*, *p = 0.001*) than complementary oxymorons, such as *sincera bugia* 'sincere lie'. The estimated mean values for each combination of the two predictors indicate that complementary oxymorons formed with morphologically unrelated antonyms, such as *falsa verità* 'false truth', are perceived as the most common (*mean class = 3.12*, *SE = 0.055*), while contrary oxymorons formed with morphologically related antonyms, such as *comoda scomodità* 'comfortable uncomfortableness', are perceived as the least common (*mean class = 2.79*, *SE = 0.062*).

Next, upon visual inspection of Figure 4, the relationship between perceived pleasantness and the combination of morphological relatedness and antonymy type appears to be intricate with no discernible trends emerging solely from the plot. The output of the cumulative link model, however, reveals that morphological relatedness has a significant negative effect on the perceived pleasantness of the oxymoron (*estimate = −0.201*, *SE = 0.056*, *z = −3.559*, *p < 0.001*). In contradiction to our Hp1, oxymoronic constructions consisting of morphologically related words, such as *opportuna inopportunità* (which can be roughly translated as 'opportune inopportuneness'), are perceived as less pleasant than those consisting of morphologically unrelated words, such as *opportuna sconvenienza* 'opportune inconvenience'. Our Hp2 also remains unconfirmed since the type of antonymy does not have a significant effect on the oxymorons' perceived pleasantness (*estimate = −0.024*, *SE = 0.040*, *z = −0.600*, *p = 0.548*), implying that this quality cannot be explained in terms of the distinction between contrary and complementary antonyms.

The sixth quality under investigation is perceived humor. The results of the cumulative link model indicate that neither morphological relatedness (*estimate = −0.001*, *SE = 0.057*, *z = −0.022*, *p = 0.983*) nor the type of antonymy (*estimate = −0.022*, *SE = 0.040*, *z = −0.550*, *p = 0.583*) has a significant effect on the perceived humor of the oxymoron. The estimated mean scores of perceived humor for the four combinations of the two predictors are relatively similar (with

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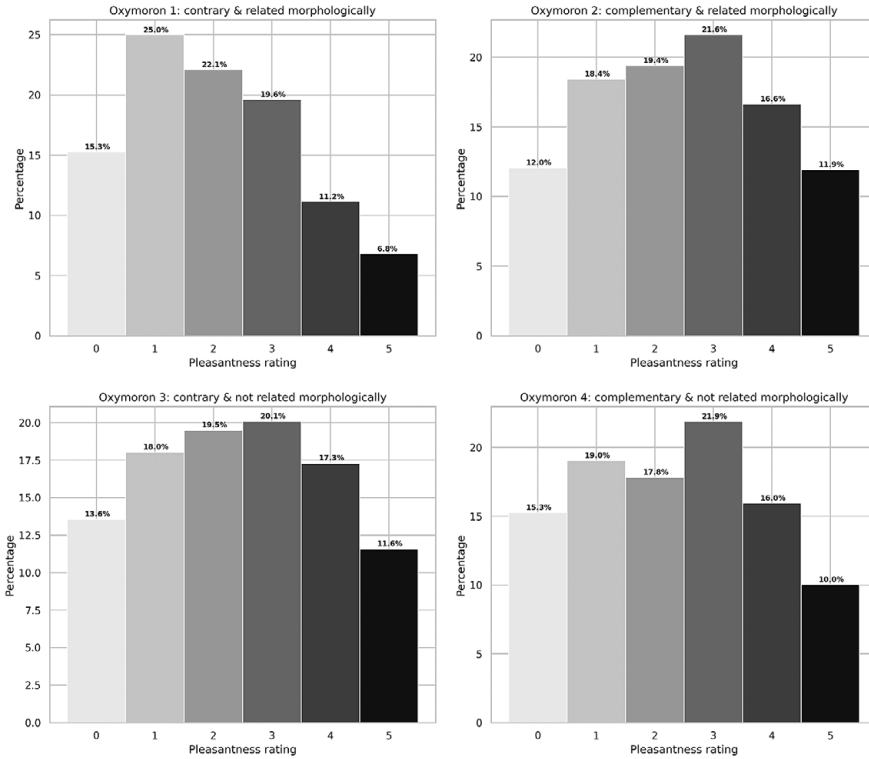

Figure 4. Pleasantness ratings for each type of oxymoron.

values ranging from 2.83 to 2.85) and not statistically significant ($p > 0.05$). Thus, the results regarding perceived humor do not confirm either Hp1 or Hp2.

Overall, our analyses show that both antonymy type and morphological relatedness have a significant effect on determining the perceived acceptability, comprehensibility, efficiency, and commonness of adjective–noun oxymorons in Italian. Our findings, however, confirm only Hp2, indicating that oxymoronic constructions featuring complementary antonyms are perceived as more acceptable, comprehensible, efficient, and common than those featuring contrary antonyms.

In contrast to our Hp1, the oxymorons formed with words that are morphologically related tend to receive lower ratings for acceptability, comprehensibility, efficiency, commonness, and pleasantness.

Interestingly, and in contrast to Hp2, the perceived pleasantness of oxymorons cannot be explained in terms of the type of antonymy featured in the construction. Likewise, the results regarding the analysis of perceived humor do not support either Hp1 or Hp2.

5. Discussion and conclusion

The present study aimed to investigate various dimensions related to the perception of the quality of a dataset of Italian oxymorons. We hypothesized that the

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morphological structure and the semantic contrast within the oxymorons would be good predictors of their perceived quality.

We hypothesized that oxymorons featuring morphologically related antonyms (*felice infelicità* 'happy unhappiness') may be perceived to be better than oxymorons featuring morphologically unrelated antonyms (*felice tristezza* 'happy sadness') and that oxymorons constructed by complementaries (*esatta inesattezza* 'exact inexactness') may be perceived to be better than oxymorons constructed by contraries (*bella bruttezza* 'beautiful ugliness'). To operationalize the perceived quality of oxymorons (response variable), we collected human judgments on Likert scales, about oxymorons' perceived acceptability, comprehensibility, efficiency, commonness, pleasantness, and humoristic connotation.

Statistical modeling indicated that both the morphological structure and the semantic type of antonymy had significant effects on perceived acceptability, comprehensibility, efficiency, and commonness. The semantic type of antonymy influenced perception, with complementary antonym constructions being perceived as more efficient than contrary antonym constructions, in line with our predictions (Cf. Hp2). Conversely, oxymorons formed with morphologically unrelated words were perceived as the most acceptable, comprehensible, efficient, and common. This finding was unexpected, compared to our predictions (Cf. Hp1).

The possible reasons why oxymorons with morphologically related antonyms are perceived to be 'worse' (in terms of their quality) than oxymorons with morphologically unrelated antonyms are discussed in what follows.

First, Italian conventionalized oxymorons, which are more frequent and entrenched (e.g., *lucida follia* 'lucid insanity'), happen not to have a morphologically related antonym: this may have an impact on the representation speakers have of 'good' (or prototypical) oxymorons.

Second, the repetition of the same syllables may be perceived as phonetically unpleasant or cacophonic. While cognitive poetics (Aryani et al., 2016; Jacobs, 2015; Tsur, 1992, 2012) has extensively studied phonosymbolism and literary devices that create repetitive auditory effects (e.g., alliteration, assonance, cacophony, etc.) and how they affect the reader's response, no study has specifically investigated the effect of these phenomena on the evaluation and processing of oxymoronic expressions. We believe that syllable repetitions, like those found in oxymorons where the two antonyms share the same stem, such as *esatta inesattezza* 'exact inexactness', may induce monotony and boredom. When encountering this type of oxymoron, readers/listeners may become overly focused on its form, hindering eventually their capacity to comprehend and process the construction. This can result in a reduction of the surprise and paradoxical effect of the oxymoron.

Third, it may be the case that the redundancy produced by the fact that the two words of the oxymoron share the same root/stem may end up 'strengthening' the conceptual domain the oxymoron wants to mine, thus 'weakening' the contradiction that should emerge from the (sole) negation prefix. In this sense, a morphologically unrelated item would be more effective. This is related to Murphy's (2003, pp. 201–202) observation that languages, despite having productive morphological means to create antonyms, support and sometimes prefer morphologically unrelated antonyms, especially when they are common words used for semantically basic meanings (think of pairs such as *high/low*, *big/small*, and *good/bad*). As Murphy (2003, p. 202) claims, '[b]y Zipf's Principle of Least Effort (1949), we expect the most frequently used concepts to be encoded by shorter and simpler words […]. Some

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items with morphologically simple antonyms, like *high/low*, do not allow morphologically derived antonyms in English (**unhigh*, **unlow*), which might be explained in terms of avoidance of synonymy'.

Another piece of the puzzle that adds to the discussion comes from studies on negation and its processing: although the focus in these studies is on syntactically negated items like *not narrow* (in relation to *wide*), we think the discussion can be extended to the morphologically negated items that are relevant for our current purposes. As Jones et al. (2012, pp. 96–97) report, research in this domain has produced two main hypotheses: (i) the *suppression hypothesis* (the original view), which 'holds that the negator is a signal to the addressee to suppress what is in the scope of the negator (e.g., Kaup, 2001; Kaup & Zwaan, 2003; MacDonald & Just, 1989; Mayo et al., 2004)' (Jones et al., 2012, p. 96), and (ii) the *retention hypothesis*, an alternative theory 'which predicts that the concept in the scope of the negator may be retained but there is no automatic suppression' (Jones et al., 2012, p. 96). Whereas the suppression hypothesis 'predicts that the negator is always interpreted as a logical operator of opposition' irrespective of the context, according to the retention hypothesis 'the negator may function as either a logical operator or a mitigator depending on its role in a given situation in a given construction in a given context (Giora, 2006)' (Jones et al. 2012, p. 96). Overall, our results support the retention hypothesis, which was originally proposed by Giora (2006) and is gaining more and more consensus (e.g., Becker, 2015): the fact that oxymorons with morphologically related antonyms perform worse may be due to the lower effectiveness of morphologically related antonyms, where the prefix *in-* (our negator) does not necessarily and invariably suppress the meaning of the base (its scope).

It should be said that our work has some limitations. First, we analyzed only one syntactic pattern, namely, adjective–noun combinations, whereas oxymoronic structures extend beyond this pattern (as mentioned in Section 2). We also considered only one of two possible orders, namely, adjective–noun, excluding noun–adjective, which is more common and unmarked. Secondly, all the morphologically related antonyms we constructed (see Section 3) contain one prefix (*in-*), although this is not the only option (see, for instance, *a-* or *dis-*). We opted for prefix *in-* because it is the most productive, allowing a lot of adjectival bases, but other prefixes are also worth investigating, considering in addition that different prefixes may convey different kinds of opposition (Iacobini, 2004, pp. 142–147). Thirdly, we analyzed oxymorons with no context since the stimuli were inserted into a minimal presentative sentence with the only function of introducing the noun phrase. This was intentionally done, because our explanatory variables were oxymoron-internal and we wanted to avoid variation, but it may have caused the speakers some troubles in the interpretation.

Together with the limits comes the potential of our study. Further perspectives certainly include the extension of this kind of experiment to other possible oxymoronic patterns. A comparison between our results and the opposite order (noun–adjective) would be especially desirable to unveil the role (if any) of word order in the perception of oxymorons: Is *triste allegria* 'sad glee' better or worse than *allegria triste* (lit. glee sad)? Another research direction would be a more detailed analysis of the possible kinds of meanings created by oxymorons, whose creative potential is far from being fully grasped. Finally, analyzing oxymorons in naturalistic contexts will be beneficial, because context may drive the interpretation but also because the

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reasons for oxymorons' quality may well be *outside* the oxymoron, not necessarily *inside*.

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Author contribution. This study is a product of a collective endeavor, as the conceptualization and the experimental design were conceived by all authors. The stimuli were also prepared by all authors, led by C.R.C. and M.B. All authors are responsible for disseminating the surveys, for data collection. C.R.C. ran all the analyses. Although all the authors are equally responsible for the contents of the article, for the purposes of Italian academia, we specify what follows: M.L.P. and M.B. wrote Section 1, M.B. wrote Section 3, F.M. wrote Section 2, F.M. and C.R.C. wrote Section 5, and C.R.C. wrote Section 4. All authors revised and edited the final version of the article before submission and dealt with the revisions.

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Competing interest. The authors declare no conflict of interest.

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