Bringing metaphors back to the streets: a corpus-based study for the identification and interpretation of rhetorical figures in street art

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Abstract

Research on (verbo-) pictorial metaphors and other rhetorical figures is primarily focused on the genre of advertising, leaving other genres under-investigated. In this study, we focus on street art, a visually perceived cross-cultural medium used to address sociopolitical issues. This genre typically combines two interacting semiotic systems – language and depiction – and is thus a form of *polysemiotic* communication. Our analysis is based on a corpus of 50 street artworks addressing the financial, sociopolitical, and migrant/refugee crisis in the city of Athens (2015-2017). We present a data-driven procedure for the identification and interpretation of metaphors and other rhetorical figures in street art, informed by cognitive linguistic and semiotic models.

Quantitative analyses show that our model can be reliably applied to street art and can enable us to distinguish metaphors from other rhetorical figures within these images. At the same time, qualitative analyses show that this genre usually requires the integration of conceptual, contextual, socio-cultural, and linguistic knowledge in order to achieve successful interpretation of these images.

We discuss our findings within the theoretical framework of Cognitive Semiotics.

Keywords

(verbo-) pictorial metaphor, cognitive semiotics, street art, rhetorical figures, metaphor identification, metaphor interpretation

1. Introduction

Cognitive linguistic and semiotic accounts of metaphor have often discussed this complex phenomenon in various ways, often addressing factors such as universality and conventionality, context-sensitivity, cross-cultural variation and creativity, deliberateness and multimodality. However, for the most part, such factors are investigated in isolation, since cognitive linguistics and semiotics have been poor bedfellows and interactions between them have resulted in much cross-talk (Authors, under review).

The purpose of this paper is to investigate how metaphors and other rhetorical figures are expressed and conceptualized in a contemporary polysemiotic artistic genre, commonly used to convey sociopolitical messages of protest: street art.[1] To achieve this goal, we propose a theoretical approach, as well as a set of methods and procedures, that can be applied to analyze (verbo-) pictorial metaphors and other rhetorical figures in street art from the perspective of cognitive semiotics. We argue that this theoretical approach allows us to grasp in greater detail the structure and peculiarities of (verbo-) pictorial metaphors in street art, compared to other approaches, namely the cognitive approach and the strictly semiotic approach.

Cognitive semiotics integrates methods, models, and theories from three research fields: cognitive linguistics, cognitive science, and semiotics informed by phenomenology, the systematic study of experience (Sonesson, 2014; Zlatev, 2015). This framework, we argue, serves our analytical aims more adequately than Conceptual Metaphor Theory (*CMT*) (Kövecses, 2005; Lakoff and Johnson, 1980, 1999), for the following reasons. Firstly, CMT focuses on the conceptual nature of the cross-domain mappings, often independently from language and context variability (see criticisms to this point by Kövecses, 2015; Mussolf, 2006; Yu, 2015; Zinken, 2007; Zlatev, 2011). Secondly, cross-domain mappings are static rather than creative and dynamic processes (Müller, 2008; Sonesson, 2015). In our investigation we focus on the street art genre as an optimal candidate to exemplify the importance of a

multifaceted approach encompassing both embodied experiences and socio-cultural and context-specific knowledge (for the significance of genre-attribution see Forceville, 2016: 252–253).

Cognitive linguistic approaches to the study of (verbo-) pictorial metaphors stemming from CMT (Lakoff and Johnson, 1980) and *Blending Theory* (Fauconnier and Turner, 2002) have analyzed metaphor (and metonymy) in various visual genres. These include (but not limited to) *advertising* (e.g. Forceville, 2017), *film* (e.g. Fahlenbrach, 2016), *political cartoons* (e.g. Dominguez, 2015), *comics and manga* (e.g. Cornevin and Forceville, 2017) and *artistic paintings* (e.g. Poppi and Kravanja, 2017, 2019).

Studies employing semiotic approaches in another visual genre, namely advertising, instead, typically focus on the taxonomies of *rhetorical figures* only one of which is metaphor (e.g. McQuarrie and Mick, 1996, 2003). Sonesson (2014, 2015) has developed the model proposed by Groupe μ (1976, 1992), by relating it to the psychology and phenomenology of perception, according to which all our experiences are based on expectancies, which may be confirmed or disappointed.

In this study we refer to *semiotic systems*, rather than to *modalities or (semiotic) modes*, as in the classic cognitive linguistic and social semiotic traditions, respectively. The term *modality* is often used in cognitive science and cognitive linguistic research to refer to the recruitment of different sensory modalities (senses), such as *vision*, *hearing*, *smell*, *touch*, and *taste* through which we perceive both the world and signs. This view has been criticized by some scholars (e.g. Bateman, 2011, 2014; Stöckl, 2004), but remains nonetheless the most commonly used terminology in the above-mentioned disciplines, to refer to sensory modalities. To avoid confusion, we thus adopt the terminology used in cognitive semiotics, thus referring to semiotic systems in which metaphors and other rhetorical figures can be expressed (Authors, under review). For example, a street artwork consisting of linguistic and pictorial signs is a form of *polysemiotic communication*, instantiated in the particular sociocultural medium of street art.

The following explanation might help the reader to grasp the differences between the notions of modality, semiotic mode, and semiotic system in various disciplines (based on Devylder, in press). *Multimodality*

is indeed a polysemous word (see Adami, 2016; Green, 2014: 7–12 for an extended review), which is tightly related to the notions of *modality*, and *(semiotic) mode* (for a discussion in this topic see also Forceville, 2016: 243–246). Moreover, the term multimodality is used in conceptually different ways across disciplines.

In the cognitive linguistic tradition, the term *modality* is used to designate the different ways a metaphor can be expressed in language, depiction, and gesture. However, because metaphors are assumed to be grounded in sensory perception, this terminological choice is mainly due to the strong link to the recruitment of different sensory modalities, such as vision, hearing, smell, touch and taste through which human beings perceive the world and attempts to ground metaphor in embodiment (Zlatev, 2009). On the other hand, within the social semiotic tradition, the form by which a metaphor is expressed is often referred to an exhaustive list of semiotic modes in broad terms (Bateman, 2011, 2014; Kress, 2009; Stöckl, 2004), such as language, image, colour, music, typography, design and other modes stressing the communicative functions of the form through which the metaphor is expressed, rather than its impact on the perceiver's senses. As Stöckl (2004: 9) writes "multimodal refers to communicative artefacts and processes which combine various sign systems (modes) and whose production and perception calls upon the communicators to semantically and formally interrelate all sign repertoires present." The term *mode* in this case is used to refer both to what we mean by semiotic system and sensory modality. However, as Forceville (2016: 257) rightly puts it "[...] if *mode* is used for any variable that contributes meaningful information in discourse instead of a technical term, the catalogue of modes will prove endless, meaning that the concept loses all discriminatory force." As a result, both traditions of cognitive linguistics and social semiotics refer to the popularly known and diverse notion of multimodality that has recently obtained excessive attention in order to explain the synergy of (a) modalities, (b) semiotic modes or (c) both (Zlatev, 2018).

However, in line with the cognitive semiotics paradigm, and in order to avoid terminological ambiguity and conceptual polysemy, we refer instead to semiotic systems in which metaphors (and other rhetorical figures) can be expressed. These semiotic systems include language, depiction and gesture, which can in general be defined as *signs with in-system specific affordances and their inter-sign relations* (Zlatev,

2018). In other words, we propose to use *multimodality* in the sense of the synergy of two or more distinct but interacting sensory modalities (vision, hearing, smell, touch, and taste) in the *act of perception* and *polysemiotic communication* in the sense of the synergy of two or more semiotic systems (language, gesture, and depiction) (Authors, under review; Zlatev, 2018).

In our study on street art, marking a terminological distinction between semiotic systems and sensory modalities helps us toward a synthetic analysis of the interaction between language and depiction, and that of language, depiction, vision, and (potentially) smelling, touching or even hearing, into a whole communicative situation. Our terminological distinction between sensory modalities (multimodality) and semiotic systems (polysemiotic communication) may lead to adequate hypotheses that in turn are workable in empirical research. For example, a work of street art, consisting of verbal text (language) and pictorial elements (depiction) is clearly a form of polysemiotic communication,[2] instantiated in the particular socio-cultural medium of street art, which may be either unimodal, if perceived only visually, or multimodal, if perceived through at least two of our sensory modalities (*vision* (if it is perceived through our eyes), *touch* (if we touch it while walking down the streets), as displayed in Figure 1a.[3]

Figure 1a, b.

a) A unisemiotic and (potentially) multimodal street artwork since it may trigger multiple senses in the viewer, such as sight and touch (image on the left).

Creator: Bleeps.gr. Photo courtesy of the artist ©.

b) A polysemiotic monomodal street artwork since it triggers (arguably) the sense of sight in the viewer, but includes multiple semiotic systems (image on the right).

Creator: Unknown. Photography Author 1 © in August 2017.

In most cases examined in this paper, metaphors are not found alone in any semiotic system – language and depiction –, but in the integration of such systems. In addition, very often, indexicality in the shape of metonymies (signs based on *contiguous relations*) and synecdoches (signs based on *part-whole relations*) and symbolicity (signs based on *conventional relations*) are used to motivate metaphors (signs based on *similarity relations*).[4] In other words, (verbo-) pictorial metaphors in street art may be based on other rhetorical figures, which are supported by strong associations by contiguity (metonymies) and part-whole relations (synecdoches) and can be found at the same figurative continuum, but in various levels and degrees. In particular, (verbo-) pictorial metaphors due to their presence on the pictorial surface sometimes are more dependent on metonymies. This could be explained by the fact that in the case of metaphors, the property of iconicity is prioritized; but some indexical and symbolic nuances always survive. On the contrary, in the case of metonymies or synecdoches, the property of indexicality is predominant, but, some iconic and/or symbolic traces can also be present.

Additionally, Peircean theory has influenced the study of (verbo-) pictorial metaphors in semiotics. Interpreted from the perspective of cognitive semiotics, the *sign* can be understood as a kind of meaning-making semiotic process that requires the experiencing subject to both associate and differentiate *expression* and *content* (Daddesio, 1995; Sonesson, 2014, 2015; Zlatev, 2009). In the Peircean sense, three *semiotic grounds* underlie and constrain the link between the expression and content, namely *iconicity*, *indexicality*, and *symbolicity*. Depending on which one is predominant (Jakobson, 1965), we have *iconic signs* (icons), *indexical signs* (indices), and *symbolic signs* (symbols). The first two cases – icons and indices – are motivated, while, symbolic signs are conventional although not arbitrary, as they

almost always involve the other two grounds as well. According to Deacon (2012: 13) as cited in Zlatev (2015: 1050) "[...] one must also understand these social conventions, because nothing intrinsic to the form or its physical creation supplies this information (note: the symbol). The symbolic reference is dependent on already knowing something beyond any features embodied in this sign vehicle" [our emphasis]. Thus, symbols are not considered arbitrary themselves, but instead conventional, based on culturally shared sedimented knowledge among sign users. Street artworks, for example, construct meanings by means of similarity and/or dissimilarity, indexicality, and conventionality, while violating the norms with respect to the common-sense world of perception (Sonesson, 2014).

By illustrating the complexities around metaphor and iconicity, it may be assumed that the semiotic account of iconicity provides a framework, which should be integrated into the study of (verbo-) pictorial metaphors in street art. Here, we pinpoint that the question of similarity is a variety of iconicity in the sense of Peirce's definition of iconic reasoning. Generally speaking, Peircean theory (1974 [1931]) has influenced the study of metaphors in semiotics and its interrelations to Aristotelian approaches of metaphor back to classical antiquity, even though Peirce had no explicit theory of metaphor apart from some remarks about the topic (Hausman, 2006). For Peirce, metaphor is a representation of a similarity relation (Lance, 2006). In other words, the basis for metaphor is iconicity (similarity) in opposition to CMT, where metaphors are understood simply as static cross-domain mappings without involving a similarity-based comparison.

In this direction, the semiotic notion of iconicity is essential for the study of (verbo-) pictorial metaphors in street art. According to Peirce (1974 [1931]), there are three types of iconic signs, the so-called *hypoicons*, including *imagistic*, *diagrammatic*, and *metaphoric* iconic signs, all drawing in a relation of similarity, which in this sense relates to the definition provided by Jappy (2013). *Imagistic iconicity* could be referred to perceptual similarity, *diagrammatic iconicity* could be defined as an analogical relationship between expression (form) and content (meaning) in semiotic terms (Devylder, 2018),[5] and *metaphorical iconicity* could be defined as a relationship between two different kinds of contents. These contents correspond to the *metaphor terms* belonging to different domains, in cognitive linguistic terms. Metaphor terms can be recognized as the compared *elements* or *entities* that bear different kinds of contents.

To the best of our knowledge, there are no previous corpus studies on (verbo-) pictorial metaphors in the genre of street art.[6] Therefore, the originality of this paper lies in: (1) the visual genre used for the analyses (street art), (2) the transdisciplinary approach embedded within the cognitive semiotics framework and (3) the quantitative and qualitative analyses based on a corpus of 50 street artworks collected in Athens periodically between 2015 and 2017.

The present paper addresses two main research questions, which can be summarized as follows:

- To what extent is it possible to identify the metaphorical constructions involved in street art, and distinguish them from other types of rhetorical figures? In other words: to what extent can we, as independent analysts with different linguistic and sociocultural background, *agree in distinguishing metaphorical from broadly rhetorical images* (the latter category encompassing figurative potential other than metaphor)?

- To what extent are the metaphorical constructions involved in street art analyzed and interpreted in similar ways? In other words: to what extent can we, as independent analysts with different linguistic and sociocultural background, *agree on the analysis and interpretation of metaphors* in street art, provided with the same methodological protocols to be applied to selected images?

The structure of this paper is as follows. Section 2 describes the research design and empirical material used for our analyses. Section 3 reports qualitative and quantitative analyses of a corpus of 50 street artworks, which are discussed in terms of metaphorical and/or other rhetorical figures. In section 4 we discuss our results and answer our research questions.

2. Methods

2.1. Research design

Two crucial cognitive semiotic principles are the following: the *conceptual-empirical loop* and the *methodological triangulation*.

The conceptual-empirical loop revolves around a virtuous alternation of conceptual analyses and empirical testing. We hereby apply this approach to data collected by Author 1 in Athens between 2015 and 2017. We applied the conceptual-empirical loop to our study in the following way: the artworks that constitute our corpus of data were analyzed in batches, and after each set of analyses the analysts met, improved and elaborated their theoretical understanding of the figurative construction in this genre, and then applied the newly constructed knowledge to the next batch of data. This principle implies methodological plurality, including intuition, empathy, and quantification. Schematically, this may be illustrated as in Figure 2.
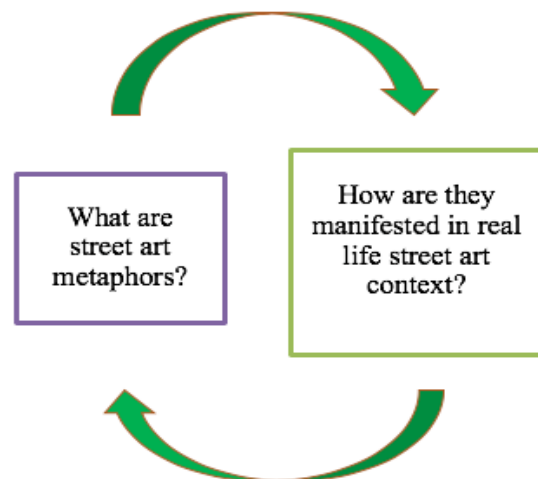

Figure 2. The conceptual-empirical loop applied to street art metaphors (adapted from Zlatev 2015: 1058).

The methodological triangulation (Sonesson, 2014; Zlatev, 2009, 2015; Zlatev et al, 2016) suggests that

three kinds of methods need to be integrated in the study of specific semiotic phenomena based on the perspective of the researcher: first-person methods (1PM) like phenomenological and intuition-based analysis; second-person methods (2PM) like intersubjective analysis and empathy (interpersonal communication between analysts, and analysts and external evaluators); and third-person methods (3PM) like quantitative analysis of well-defined variables. In this empirical study we applied this principle as follows:

1. As authors and independent analysts, we analyzed the corpus of street artworks as, using our own intuition, knowledge and expertise. Similarly, the external evaluators who analysed our analyses were making judgements using their own intuition (1PM).

2. Based on our analyses we discussed and identified the types of knowledge that might have influenced our insight and most crucially our disagreements in order to establish criteria, to instruct the evaluators and interpret instructions using "social interaction" (2PM). In other words, we involved two external evaluators, who were asked to consider the original data (the street artworks) as well as our independent analyses of the figurative constructions and determine whether the analyses were comparable (i.e., the analysts provided the same interpretation of the metaphors) or not (i.e., the analysts gave different interpretations of the metaphors in the artworks).

3. We ran interrater reliability tests (the quantitative analyses are explained in the Section 2.4) in order to evaluate (a) the degree of our agreement as independent analysts on whether a street artwork is metaphorical or broadly rhetorical; (b) the degree of the external evaluators' agreement on whether our independent analyses of the street artworks matched (based on the analyses we reported in written form on dedicated protocols, see step 1). The reliability tests were conducted within a formal content analysis framework (3PM) (see section 3.3).

Finally, the methodological triangulation is described in Table 1 and its application to our research design is illustrated in Figure 3.

Table 1. Methodological triangulation for the study of particular semiotic phenomena - here street art (adapted from Authors, under review).

Perspectives	Methods	Applicable on the study of metaphors in street art
1PM	Intuition	Analysts' interpretation of metaphors based on personal experiences and intuitions. External evaluators' individual judgements using their own intuition.
2PM	Empathy	Interpersonal communication and negotiation between two analysts (the authors of this paper) and second-order social interaction between two analysts and two external evaluators.
3PM	Quantification	Quantitative analysis of both analysts' interpretations and external evaluators' judgements with interrater reliability tests.

The design of these empirical analyses is visualized in Figure 3.

Case Study: research design

Step-wise Procedure
(1)..............
(2)..............
(3)..............
(4)..............

OUTPUT: YES/NO

50 Street Artworks

Do we agree on what is metaphor and what is not?

External Evaluation

Do their metaphors' **analyses** overlap?

Interrater reliability test n. 1 (analysts)

Interrater reliability test n. 2 (external evaluators)

Qualitative analyses → 1PM (intuition)
- We analyze the corpus of 50 street artworks using the procedure below.
- We identify types of knowledge that motivate identification and interpretation of metaphors.
- External evaluators' individual analyses.

Qualitative analyses → 2PM (empathy)
- We (analysts) discuss and negotiate our individual analyses together.
- We (analysts) discuss with the evaluators their individual analyses.

Quantitative analyses → 3PM (quantification)
- We determine which street artworks are identified as metaphorical (→ reliability test n.1).
- We determine to what extent we interpret the same metaphors, within the street artworks previously identified as metaphorical (→ reliability test n.2).
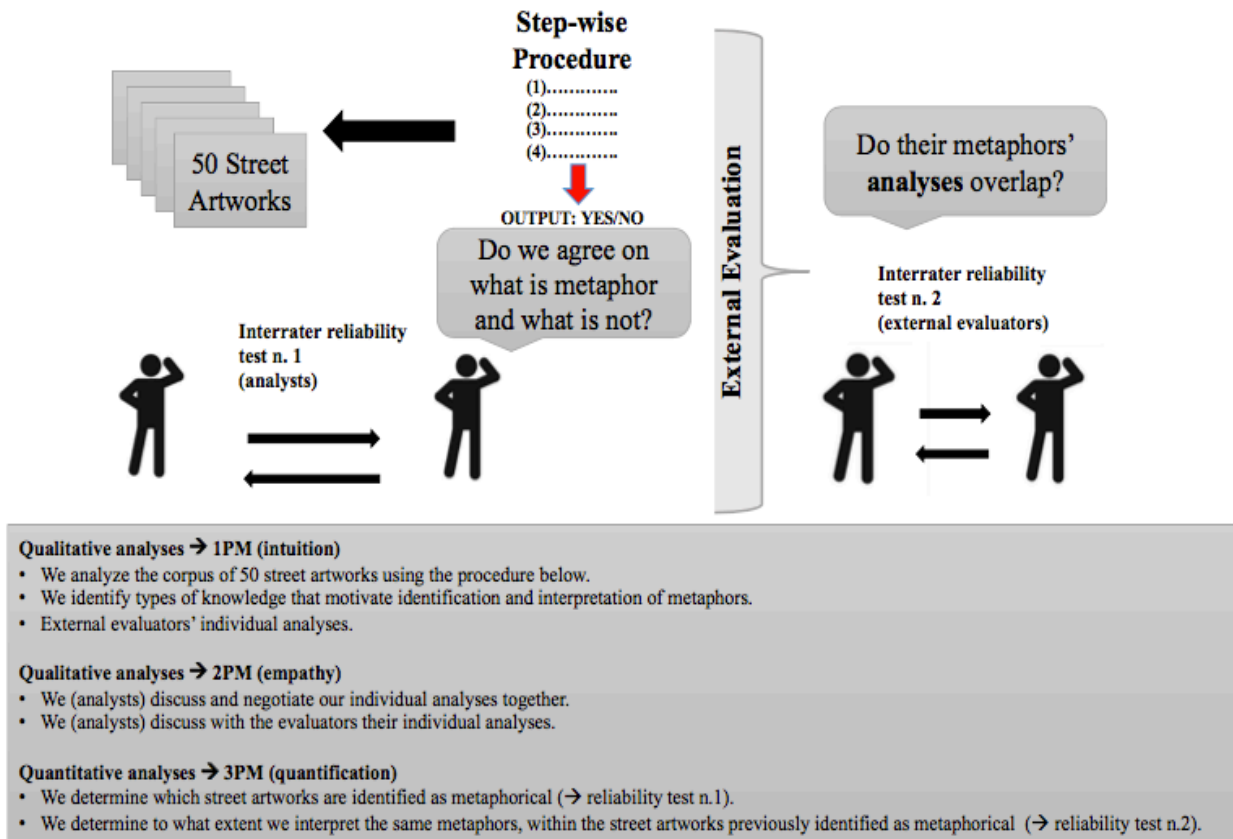
Figure 3. The research design, summarizing the steps of our empirical investigation.

2.2.   Materials

We analyzed street artworks related to the sociopolitical, financial, and austerity crisis within Greece and the EU since 2008 and the migrant crisis since 2015 in the city of Athens. Here, street art is understood as a predominantly visually perceived (un)sanctioned cross-cultural medium addressing sociopolitical issues (Author 1, 2016). Street art is to a large extent spatiotemporally oriented and cross-cultural, but also a socioculturally conventionalized phenomenon. The Athenian walls with the encrypted messages of street artworks and interventions, as an urban representation of intense sociopolitical upheavals,

constitute a rich source for polysemiotic rhetorical figuration.

The materials were collected by the first author during the period of extensive ethnographic research undertaken in Athens at different periods between 2015 and 2017 and archival research. On this basis, we built up a corpus of 50 street artworks.

2.3.   A Step-wise Procedure

We first analyzed the sample of 50 street artworks by applying a step-wise procedure to each image. Such procedure relies on Steen's (2008, 2011) three-dimensional model of metaphor, according to which metaphors are phenomena that involve the dimensions of *expression*, *conceptualization,* and *communication*. Applied to the semiotic system of depiction this model predicts that metaphors express a *denotative* meaning within the pictorial representation (what objects are depicted in the image), a *connotative* meaning in which abstract concepts and comparisons between elements' contents belonging to different domains emerge (what are the associations the image creates), and a *pragmatic* meaning within the communicative dimension, in which our interpretation of the standpoint of the artist emerges in relation to the topic treated in the artwork (what is implied by the image in the specific context).[7] This three-dimensional model has inspired the development of the VisMip procedure, specifically for the *identification* of visual metaphors in images (Šorm and Steen, 2018).

VisMip has been derived from the sister-procedure MipVU for the identification of linguistic metaphors (Steen et al., 2010). In MipVU, words are marked for metaphoricity in the context in which they are used. The metaphoricity is determined by a procedure in which the contextual meaning of a word (derived from dictionary entries) is in contrast with the more basic and concrete meaning of that word (also derived from dictionary entries).[8] In VisMip images are marked as metaphorical if they display incongruous elements that need to be mentally replaced with other elements to restore the expected visual, in our case (verbo-) pictorial, scenario. If the incongruous elements and their replacement belong to different domains and the context suggests that they need to be compared, then the image is marked as

metaphorical. However, both MipVU and VisMip are developed as *identification* procedures, rather than as procedures that can be used to *analyze* and *interpret* metaphors in language and images. That is, the output of these procedures is a YES/NO verdict on whether a given word in a certain context, or a given image is to be regarded as metaphorical or not. The scope of our analysis is to analyze and interpret (verbo-) pictorial metaphors and other rhetorical figures in street art, and for this reason we opted for developing our own *data-driven* procedure. The procedure presented is therefore only informed by VisMip, but it incorporates theoretical and methodological aspects of the cognitive semiotics framework.

The procedure that we developed revolves around two critical initial points. First, for each image it is possible to identify a core topic, about which the image predicates a standpoint. Second, any rhetorical image displays incongruities, i.e., creative divergences as apprehended from the point of view of the sociocultural *lifeworld*, which trigger the viewers' attention and stimulate them to stop in their track and start working on the disentanglement of such incongruities, which eventually leads to the analysis and interpretation of the intended message.[9]

Our step-wise procedure is structured as follows:

1. Topic:

Determine the topic treated by the image, taking into account genre-related knowledge. This is an important first step, which is based on our cross-cultural world knowledge-based expectancy but constrained by genre information (e.g. the sociopolitical issues addressed by the artworks).

2. Dimension: Expression

    a. Identify the element or entity that is incongruous when contrasted to the topic outlined in Step 1 by pointing to the (diagrammatic) iconic ground (see note 5, a pan-human experiential process of analogy-making).

b. Retrieve the replacing element(s) that would restore the expected (verbo-) pictorial scenario. The replacement has to be explicit – for instance X replaces Y (and vice versa).

c. Formalize the denotative meaning of the comparison(s) at the dimension of expression, by aligning the outputs of a. and b. (there is no directionality yet). If contents listed in a. and contents listed in b. belong to different domains, the image has a chance to be metaphorical at the dimension of conceptualization (*candidate metaphors* – see Step 3).

3. <u>Dimension: Conceptualization</u>

Determine whether the contents of the elements identified in steps 2a and 2b stand for more abstract concepts and reformulate the metaphor(s) in order for abstract concepts and sociocultural domains to be activated. At this level indexicality and symbolicity usually motivate the constructions of metaphors, even though the semiotic ground of iconicity is always predominant (see Section 1). If the comparison is across different domains, then the rhetorical figure can be identified as a metaphor.

4. <u>Dimension: Communication</u>

Formulate the pragmatic message which unravels the overall interpretation of the street artwork in the particular context and summarizes the interpretation of the metaphor.

Figure 4 displays a rather simple metaphorical street artwork that we may use to exemplify the procedure outlined above.

Figure 4. Greek flag and a toilet paper. Creator: Unknown.
Photography Author 1 © in July 2015.

Our procedure applied to the street artwork in Figure 4, works as follows:

1. Topic:
Greek flag (analyst 1)
Greece (analyst 2)

2. Expression:
a) Incongruity: Identify element or entity that is incongruous when contrasted to the topic outlined in step 1
Toilet paper (incongruous element)
a) Replacement: Greek flag on a flag stand or a normal toilet paper without Greek flag, X replaces Y (and vice versa)
b) Toilet paper is Greek flag (no directionality)

3. Conceptualization:
Greek flag stands for Greece (a corrupt country relying on indexical world knowledge). Toilet paper may stand for the more inclusive category of 'crap' and 'dirtiness'. Metaphor: Greece is crap.

4. Communication:
Greece in general, and its political situation and socioeconomic issues in particular, is in a very negative, dirty, and informally speaking 'crappy' condition.

Figure 5. Exemplification of our procedure.

In Figure 4 the diagrammatic iconicity between the toilet paper and Greek flag, as two categorically distinct elements or entities is the primary motivating factor for the metaphor construction. Both (Greek flag and toilet paper) share a flat surface, (dimension of expression). The iconic relation between the two entities triggers more abstract concepts related to the two entities, such as the Greek nation, evoked by the flag. At this level, conceptual mappings such as *dirtiness* (of the toilet paper) which becomes *corruption* (in relation to Greece) emerge. In other words, the concrete dirtiness involved in this operation is metaphorically compared to the moral dirtiness (i.e., corruption) that characterizes the Greek

government, represented by the Greek flag. Thus, the communicative dimension of this pictorial metaphor suggests that Greece is a corrupted nation and both analysts agreed, working independently, on this interpretation.

The output of this procedure has to be interpreted as follows: in order to be classified as metaphorical, an image needs to invite the viewer to construct metaphors at the dimension of conceptualization (Step 3). This is where the identification and analysis of the compared metaphor terms takes place. Images may still display (verbo-) pictorial incongruities involving several indexical and symbolic elements that stimulate the viewer to construct rhetorical meanings, based on the analysis of the dimension of expression (Step 2), but not necessarily metaphorical as far as Step 3 (Conceptualization) is concerned. Finally, the interpretation of the metaphor is then elaborated at the dimension of communication (Step 4).

2.4. Empirical procedure

We analyzed independently the 50 street artworks included in the corpus, divided into batches of 12-15 items, using the procedure outlined above on the spreadsheets displayed in Figure 6. After each batch we met and discussed the analyses, before proceeding further.

Picture ID	Step 1: Topic What the picture is about	Step 2: Expression What objects are depicted in the picture – incongruous when contrasted to the Topic (Step 1)	Step 3: Conceptualization What are the associations the picture creates (Metaphors)	Step 4: Communication What is implied by the picture in the specific context
Picture 1				
Picture 2				
Picture 3				

Figure 6. Protocols used to report the analyses based on the procedure, performed by us (as independent analysts).

Sections 3.1 and 3.2 report our qualitative observations, and section 4 summarizes the classification of the types of knowledge that contribute to the construction of metaphors in street art, based on qualitative analysis of the application of the procedure to our empirical data.

Once the 50 images were analyzed, a first interrater agreement test was performed to measure the degree of agreement between us on which street artworks were metaphorical and which were not (see Section 3.3.1).[10] Interrater reliability tests are statistical tests used to measure the degree of agreement among independent ratters. Typically, when dealing with corpus data, and therefore with linguistic (or pictorial) texts, the data needs to be analyzed in relation to its semantic content, classified and put into categories by analysts, in procedures that are usually called (semantic) content analyses (e.g. Author 2 et al., 2017). Such analyses require the analysts to share beforehand a common procedure, as well as a detailed coding scheme, which they can then apply to the data independently from one another, in order to avoid biasing each other. The degree of agreement between independent analysts is then measured with statistical tests that generate scores ranging from 0 to 1 (usually called Kappa scores, referring to the specific measure

named Cohen's Kappa, indicated with κ). The higher the score, the more the analyses are deemed to be reliable, and therefore replicable. By convention, scores above 0.7 indicate strong agreement, while scores between 0.5 and 0.7 indicate moderate agreement. For a detailed explanation of this measure and related measures used in content analysis, please refer to Author 2 (2017).

Following this, our interpretations of the images were compared. In order to measure to what extent, we agreed on the interpretation of the metaphorical structures of the street artworks, two external evaluators were recruited for this study: a native speaker of English and a native speaker of Greek. Both evaluators, without having any contact with each other, could be assumed to share at least some cross-cultural experiences living in Europe. The protocols with the analyses were administered to both evaluators. They could access the corpus of street artworks, and they were informed about the procedure that we used to analyze the images. They were asked to indicate, for each variable (i.e. for each cell in the spreadsheet reported in Figure 6) whether we provided the same type of information or not. For example, with respect to the street artwork displayed in Figure 4, one of us indicated that the Topic is "Greek flag", while the other indicated that the Topic is "Greece". This innovative procedure was performed because from a methodological point of view, it is not possible to use these strings as variables to calculate directly our interrater agreement. Reliability tests function on matching strings. Yet, human judgements in this type of analysis are inevitably subject to interpersonal variation in the way these issues are verbalized, lexically and grammatically. We therefore opted for the additional step outlined above: collecting binary judgments ("YES" or "NO") on the type of information we identified during our analyses and interpretations of the street artworks (Figure 7). We then calculated the interrater agreement on the binary judgments provided by the external evaluators. Therefore, the second quantitative analysis and the related kappa scores are informative about the degree we provided the same (or highly comparable) information, in relation to each variable involved in the procedure, for each of the images that were interpreted as metaphorical by both of us. Section 3.3.2. reports this part of the analysis.

Picture ID – Consultants' responses	Analysts, External consultants	Topic (what is the picture about)	Expression (what looks strange and what we expect to see instead as replacement)	Conceptualization (what is the metaphor)	Communication (message of the street artwork)
Picture 12	Analyst 1	Greek flag	toilet paper roll as Greek flag, Replacement: just Greek flag	Greece is crap	Greece (probably politics, or economics) is crap, dirty, etc.
Picture 12	Analyst 2	Greece	Greek flag is incongruous with the toilet paper, Replacement: no toilet paper	Greek flag stands for Greece / toilet paper stands for dirtiness, perhaps corruption, Greece is dirty	Greek politics is corrupt
Your response	External evaluator 1	YES	YES	YES	NO
Your response	External evaluator 2	YES	YES	YES	NO

Figure 7. Protocols used to collect binary data from external evaluators.

3. Analysis

3.1. Non-metaphorical rhetorical images

In this section we provide a qualitative analysis of those images in which we observed the presence of rhetorical figures *other than* metaphor. This means that the "candidate metaphors" given by Step 2 (Expression) did not evolve to "metaphors" in Step 3 (Conceptualization).

3.1.1. Metonymy and synecdoche

Figure 8 displays a classic Greek statue with a Molotov cocktail in one hand (with the conventional symbol of a heart on the bottle) and a red flag on which the word *Revolution* is written. This image was interpreted as a primarily indexical image, where a series of metonymies come into play to construct the message, because the indexical semiotic ground is the most predominant one, according to the following line of reasoning. The topic of this image is broadly speaking the "Greek rebellion." Within this topic, the Greek statue representing a rebel is incongruous, because we would rather expect to see a human rebel holding a bomb and a flag in this manner. The incongruous element (the Greek statue) and its replacement (the Greek rebel), however, share a number of features of what defines a human being: body, expressive posture etc. This is a relation based on diagrammatic iconicity (the shape of the two elements) and can thus motivate us to analyze the image as a "candidate metaphor" in which the statue represents

a rebel. However, after deeper scrutiny, we agreed that at the dimension of conceptualization the relationship between these two elements (the human rebel and the statue) may be explained by means of a form of concept metonymy (Radden and Kövecses, 1999) regarding our indexical world knowledge, where the statue is a representation of the actual rebel.

Moreover, the classic Greek statue may stand for the Greek culture and heritage, at a higher and more abstract level, and the Greek rebel that we would expect to see, in place of the statue, could stand for the whole Greek population. In this sense, Greek culture and heritage are aligned to the Greek population. These two entities do not belong to different domains, but to the same one.[11] Therefore, we concurred that the image is indeed rhetorical, and it contains various indexical elements, but not necessarily metaphorical as far as Step 3 (Conceptualization) is concerned. Finally, our previous expectation that semiotic grounds can be co-extensional is clearly affirmed here: we used this image to exemplify metonymy, where indexical ground is not the only one but the predominant one, which serves to categorize a given sign as such, since this artwork encompasses also both iconic relations and conventional symbolic signs, such as the heart depicted on the bottle and the flag.

Metonymies and synecdoches are indexically motivated signs based on contiguity (spatial or temporal) and part-whole relations, respectively, based on our experience of the world as social and cultural human beings (see Devylder, 2016; Sonesson, 1989 for reviews). Given that they have the same kind of semiotic ground, synecdoche figures can be regarded as specific sub-types of metonymies. Still, from the point of view of rhetorical taxonomies, different kinds of synecdoches in our street art corpus deserve special attention, as the following example.

Figure 9a exemplifies in a clear way our theoretical claim about the rhetorical figure of synecdoche. This artwork displays two hands in a praying gesture, where only the part "hands" is present, instead of the whole "human figure" or "divine entity", as we would have expected based on our embodied understanding of the lifeworld. As for the procedure for identifying and analyzing the rhetorical structure of this street artwork, we first agreed on its general topic, "Praying." At the dimension of expression, the incongruity within this street artwork is represented by the direction of the praying hands, which are

pointing down instead of up. Based on our lifeworld experience we would indeed expect these hands to be pointing upward (see Figure 9b). At the dimension of conceptualization, based on shared socio-cultural knowledge, the praying hands may stand for the whole praying entity, which in this case could be a divine entity. Thus, even if we can agree about the iconic representation of hands in this street artwork, there seem to be no comparisons between contents belonging to different domains. In other words, the indexical ground is the predominant one, which serves the interpretation of this artwork as a unisemiotic pictorial synecdoche.

Figure 9a, b. Street artwork - 21st century (image on the left), Artwork - 16th century (image on the right).

a) Praying for Us. Creators: Kretsis crew, Manolis Anastasakos, and Pavlos Tsakonas.

Photography Author 1 © in December 2017.

b) The Praying Hands (ca. 1508). Creator: Albrecht Dürer © The Albertina (Vienna, Austria).

Available at: https://www.albertina.at/en/exhibitions/albrecht-duerer/ (retrieved 2019/02/27).

"Praying for Us" (Figure 9a) is a sanctioned piece of urban art, which was created as a part of a creative project during a collaboration between the Greek Ministry of Environment Energy and Climate Change, and the Athens School of Fine Arts.[12] The artists were clearly inspired by the artwork "The Praying Hands" (Figure 9b). As in this case, the figurative lexicon for the crisis often employs intertextual references, which may play an important role for the street artwork's interpretation (see also Author 1, 2016). In terms of the broader communicative aims at the final step of our procedure, this street artwork (Figure 9a) may unfold several possible interpretations, one of these being that the divine entity is praying to save Greece and its inhabitants.

In terms of intertextuality, street artists as political activists often employ popular figures of Greek history, allusions to historical events and widespread narratives (e.g. classical antiquity ideals and values), revolutionary slogans and symbols (e.g. the euro sign, Molotov cocktail, rebellious calls), and time-space narratives by showing the significance of the contemporary Greek urban space by connecting it to present-day Greece. In a nutshell, a number of wall paintings have occupied a large part of Athens nowadays, reflecting the problematic tensions of the last ten years by giving additional sociopolitical weight through their intertextual references to not only widespread and persistent stories in the street art world (see Figure 13 inspired by Banksy's most recognizable girl with heart-shaped red balloon) but also to quite popular TV shows such Next Top Model (see Figure 12, Greece Next Economic Model), as we will explain later in greater detail.

3.1.2. Hyperbole

Figure 10 displays a fetus and a wording intertext which reads *Welcome...You owe to TROIKA €36730!!!*.

We agreed that this street artwork can hardly be interpreted as metaphorical, but rather involves other rhetorical figures. In particular, the core topic of this image, given that the fetus is not yet ready to be born, is broadly speaking a "Premature birth". Within this topic, the incongruous element seems to be the cross-culturally unexpected linguistic slogan.[13] This can be seen as a sign based on indexical relations, where the representation of the fetus may stand for the new generation, whereas the wording about troika and money apparently stands for the Greek debt and financial crisis. Again, it is crucial to bear in mind that the three semiotic grounds – iconicity, indexicality, and symbolicity – are not reciprocally exclusive, and usually coincide in a given sign, but with predominance of one over the others two (Jakobson, 1965).

Therefore, a possible interpretation of this street artwork, by taking into account the context-specific information about the crisis era, is that the future Greek generation is not "free", but instead is charged with all the loans that previous generations have accumulated. Considering this analysis, this image has been interpreted as an example of verbo-pictorial hyperbole anticipating rhetorical effects in which the exaggeration leads to a literally impossible condition.

3.1.3. Oxymoron

Figure 11 displays two African children who are being "welcomed" to one of the Europe's refugee camps. Children are "a vehicle often used by street artists to deliver a message about the inherent inhumanity of deprivation, subjugation and violence" (Hansen and Flynn, 2016). The core topic of this street artwork is the recent "Migrant/refugee crisis" with its complex consequences for Greece. Since 2015 a number of refugees (including hundred thousand of unaccompanied children) have reached Europe by sea or land in search of asylum or a viable future. This constitutes Europe's largest wave of mass immigration since the end of the Second World War.

Figure 11. Welcome to Europe camp. Creator: Μαρet.

Photography Author 1 © in March 2015.

Based on our lifeworld knowledge, we might not expect to see a barbed wire fence in the context of migrants and refugees, and this wire can be indexically associated to (Nazi) concentration camps, and thus to xenophobia and racism. In terms of the rhetorical effects that the linguistic and pictorial elements imply, we both agreed (as analysts and authors) that this street artwork cannot be categorized as metaphorical, because there is no comparison across different domains here. Even if the pictorial representation of two refugee children is inevitable in this street artwork, it is not possible to point out a similarity relation between this element and some other categorically distinct element, as was the case with the Greek flag and toilet paper in Figure 4, for example. However, this image still creates strong rhetorical effects, because the "welcoming" expressed by the semiotic system of language contradicts the pictorial representation of barbed wire fence. In general terms, what we would expect based on our

sociocultural and background knowledge might be a pictorial setting that would complement in some way the wording intertext "Welcome to Europe camp".[14] In this case, the two African children and the barbed wire determinate in juxtaposition the sociopolitical reality, which is indeed, the shameful source of the artwork's power. In other words, the incongruity according to our lifeworld expectations can be found between the two semiotic systems: the pictorial part is sad, tragic, etc. The linguistic part expresses a happy slogan that we would rather expect to see in relation to a summer camp for kids, for example.

The communicative message of this quite complex street artwork could be summarized as follows: refugee-children are being held in bad conditions in European camps for extended periods of time, after travelling (unaccompanied) in hard and degrading conditions across several countries, including Greece. Thus, this image has been interpreted as an example of oxymoron (Teng and Sun, 2002), where a contradiction such as "welcome is not welcome" achieves socio-cultural rhetorical effects. In this case the incompatibility between the interaction of the semiotic systems of language and images is apt for expressing verbo-pictorial oxymoron.

3.2. Metaphorical images

Following the procedure described in section 2.3, we observed that most of the images in the corpus encompass metaphors in combination with other figures. In this section, we illustrate three examples of interaction between metaphors and other rhetorical figures (often with *personification*). Our interest in personification in street art is triggered by the fact that it serves as an artistic device in order to personify the country (in many cases, Greece) as the main protagonist and not just a background actor of the urban stories (Avramidis and Tsilimpounidi, 2017).

Figure 12 displays a female figure with a wooden leg and the message *Greece Next Economic Model*. The image represents the topic of "Fashion models" by means of the interaction between the pictorial and linguistic semiotic systems, where the polysemy of the word "model" as either economic or fashion model is hinted. At the dimension of expression, a wooden "leg," has diagrammatically replaced the

female model's leg. This is quite unexpected and incongruous, within the general topic of modelling, which is typically populated by human beings without prosthetic limbs.

Figure 12. Greece Next Economic Model. Creator: Bleeps.gr. Photo courtesy of the artist ©.

This wooden leg apparently represents Greece's broken economy, austerity, and unsafety in terms of iconic and indexical relations at the dimension of conceptualization. The street artist, Bleeps.gr, intertextually combines the Greek reality TV show "Next Top Model" with Greece's broken financial

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and political system and personifies Greece as a model with a wooden leg.

At the dimension of communication, the standpoint of the artist emerges, where a sociopolitical comment about contemporary issues including the poor condition of Greek economy and politics in general, as well as the melancholy of living in a country suffering in the crisis, being represented as a differently able country compared to other countries.

The second example, Figure 13, displays a little girl wearing a Greek flag colour skirt losing her balloon.

Figure 13. Greek girl losing balloon/Euro. Creator: Absent. Photo courtesy of the artist ©.

We both agreed that the topic of this street artwork is a "Girl losing a balloon". Within this topic several incongruities can be identified: (a) the balloon is diagrammatically substituted for the Euro sign, which

has replaced a normal balloon; (b) the Greek flag colour skirt has diagrammatically replaced a normal skirt; and (c) the traditional Greek shoes, typically worn by the Greek guards known as Evzones in front of the Greek parliament (the so-called *Tsarouhi*, in Greek τσαρούχι) have diagrammatically replaced normal shoes.

    a.   Euro sign is balloon (and vice versa)

    b.   Greek flag is skirt (and vice versa)

    c.   Greek shoes (*Tsarouhi*) are normal shoes (and vice versa)

At this level the similarity between the two terms of the (potential) metaphor is realized by means of pictorial meaning-making devices, such as forms, shapes, colours, and silhouettes (dimension of expression). However, this diagrammatic iconicity stimulates the viewer to look for iconic relations between their different contents and reformulate the two compared entities at the dimension of conceptualization.

At the dimension of conceptualization, abstract concepts through indexical relations can be evoked: The Euro sign (€) may stand for the Eurozone, or even for the European Union, the Greek flag may stand for Greece, and the traditional Greek shoes may stand also for Greece (or Greek nationalism). It is important to stress that at this level of analysis, we used our lifeworld cross-cultural knowledge to connect these pictorial elements with our experiences. However, for one of us it was not possible to connect the pictorial representation of the traditional type of footwear, with corresponding lifeworld experiences due to the lack of Greek sociocultural knowledge. On the other hand, as both of us share the cross-cultural European sociocultural lifeworld, it was a fairly easy task to connect the Euro and Greek flag symbols with our shared knowledge. This points to the fact that the interpretation of the given street artwork (and this may apply to the whole genre of street art) requires adequate sociocultural and historical knowledge. Finally, at the dimension of communication, the idea of expelling Greece from the Eurozone (Grexit) after the long-standing negotiations and dialogues between Greek and other European politicians is metaphorically visualized as the relation between a little girl and her balloon. This leaves us with the (open) question: is the girl (Greece) releasing the balloon (EU identity) or is she trying to catch it?

Another important step in the analysis of this specific street artwork is one of the main characteristics of the visual genre of street art: the employment of intertextual references as visual citations or in other words the opportunity for an emergent and lively visual dialogue. The Greek street artwork is inspired by the Banksy's most famous and recognizable girl with heart-shaped red balloon. According to the German art historian Blanché (2015), a "Banksy-expert" in British post-war art, the first and original artwork in question (girl with heart-shaped red balloon) has most famously been a symbol of political protest, and thus, arguably, it could be related to the current sociopolitical situation between Greece and Eurozone.[15]

The last example, Figure 14, displays an overweight woman with conventional symbolic Euro (€) and Dollar ($) signs on her breasts.

Figure 14. Always hungry. Creator: Unknown.

The topic of this street artwork is an "Overweight woman". Within this topic we would not expect to see the conventional symbols of Euro (€) and Dollar ($), which represent money. These symbols here have diagrammatically replaced the normal nipples on Step 2 of the analysis (Expression), without any directionality (Euro (€) and Dollar ($) are nipples, or vice versa). At the dimension of conceptualization, taking into account our background knowledge, we agreed that the Euro (€) and Dollar ($) symbolic signs could stand for the (capitalist) EU and the USA, respectively. In other words, the abstract concepts of Capitalism and Country can be mapped onto the more concrete concept of an overweight human person. The presence of the semiotic system of language with the wording *Always Hungry* is compatible with the pictorial representation of an overweight woman. In terms of iconicity, a similarity-based comparison between elements' contents belonging to different domains, such as the overweight woman and the capitalist and consumer western society could invoke the metaphor: consumerism and capitalism are overweight persons. At the dimension of communication, the standpoint of the artist emerges as a sociopolitical comment about obesity vs austerity in Greece and generally in Western world.

Through personification Western society is hereby represented as an overweight and always hungry human being. Thus, this image has been interpreted as metaphorical with symbolic signs, achieving rhetorical effects by using personification. This conclusion may take us again to our previous statement that metaphorical structures are predominantly iconic because of their similarity and dissimilarity based on our lifeworld expectations, but indexical and symbolic relations help us motivate the interpretation of these metaphors.

3.3. Quantitative analyses

3.3.1. First reliability test

This section displays the results of the first interrater agreement test, which provide quantitative data on

the degree to which we, as two independent analysts, agreed on the identification of what is a metaphorical street artwork, as opposed to a broadly rhetorical one. The first reliability test was run on the outputs of the procedure for identifying metaphors in street art, outlined in section 2.3. The outputs are summarized into a binary distinction: "YES, the image is metaphorical, or "NO", the image is not metaphorical, even though it contains rhetorical meaning. We achieved a substantial agreement on this part of the analysis (Cohen's kappa = .865). As Figure 15 shows, on 3 street artworks out of 50 we disagreed on whether these images were metaphorical or broadly rhetorical.

Number of pictures	Agreement between two analysts
32 out of 50	Metaphorical
15 out of 50	Non–metaphorical (but with rhetorical potential)
3 out of 50	No agreement reached between the two analysts

Figure 15. First reliability test between the authors of this paper (independent analysts).

3.3.1.2. Diverse metaphor construction and interpretation (an example)

As a final point for this analysis, let us now show an image that exemplifies one of the cases in which the two main analysts *clearly interpreted the metaphorical structures in different ways*, as indicated by the meta-analyses provided by the two external evaluators.

Figure 16 displays a street artwork that both analysts identified as metaphorical, but that, according to the external evaluators, the two analysts interpreted in very different ways, on all the levels of the analysis: different topic, different expression, different conceptual structure, and different communicative message.

Figure 16. XMASS in the EU EMPIR€. Creator: Bleeps.gr. Photo courtesy of the artist ©.

In particular, one analyst suggested that this street artwork addresses the topic of Christmas, by displaying an undressed woman (possibly a prostitute). Given the topic 'Christmas' the viewer may rather expect to see representations of holy or sacred entities and scenes. The naked woman, which appears to be posing in a sexy fashion, may stand for the abstract concept of prostitution, which is compared to Christmas (in the EU-empire, as the star displays). In this sense, the first analyst constructed a message in which the religious nature of Christmas is intended to be degraded into consumerism.

The other analyst, instead, suggested that this artwork addresses the topic of the EU empire, represented as a female model. Regarding the pictorial representation of the posture of the female body, one possible interpretation may be that the female figure stands for activist and/or feminist movements within the EU. In this case, it could be a voice for the women's activist movement against the EU. Regarding the synergy between the semiotic systems of language and depiction, an ironic comment may appear on the label in terms of both the linguistic pun (Xmass coincides with Christmas, X instead of Christ, Mass instead of mas). Consequently, XmaSS may be an ironic commentary for Christmas but also a term we often see heavily. The final "€" at the word 'empir€' in the form of the euro sign, may refer to the interregnum era, as approached by thinkers such as Antonio Negri and Michael Hardt in the homonymous book "EMPIRE". This possible interpretation could invoke the metaphor EU is EMPIRE.

Therefore, based on the analyses of the sample of street artworks illustrated, we discussed and identified a number of different types of knowledge, that contributed to our metaphor interpretations, diverse or not. A description of the required knowledge is provided in the Section 4.

3.3.2. Second reliability test

As described in section 2.4, the detailed analyses performed by both of us on the 32 images that were interpreted as metaphorical were then administered to two external evaluators, who were asked to determine whether the content analyzed for each of the dimensions (Topic, Expression, Conceptualization, and Communication) was the same for both evaluators.

As expected, our interpretations of the images and therefore the text that each of us inserted in the coding book was formulated in different ways. Therefore, as described in section 2.4, measuring directly our agreement on the basis of the *words* would have been problematic from both a theoretical and a methodological perspective.

As displayed in Figure 17, the evaluators displayed a high level of agreement on whether we provided the same or different interpretations of the images, on each dimension. Interestingly, the data shows that our interpretations were comparable in relation to the first two dimensions of Topic and Expression (we agreed on 23 images and disagreed on 6, according to the external evaluators). However, our interpretations tended to become more and more different on the other two dimensions. The last dimension of meaning (Communication) shows the least degree of agreement between the two analysts (authors): the external evaluators agreed on saying that we provided the same interpretation of 14 images, and different interpretation of 15 images.

Variables	Cohen's kappa scores between two external evaluators	Number of pictures on which external evaluators agreed that the analyses provided by both of us were the same	Number of pictures on which external evaluators agreed that the analyses provided by both of us were NOT the same	Number of pictures on which external evaluators did NOT agree on whether the analyses provided by both of us where the same	TOT
Topic	0.742	23	6	3	32
Expression	0.742	23	6	3	32
Conceptualization	0.738	18	10	4	32
Communication	0.814	14	15	3	32

Figure 17. The evaluators' agreement on whether our interpretations on each of the variable were the same or different.

4. Discussion and conclusions

As stated in the introduction, the purpose of this paper was to investigate how metaphors and other rhetorical figures are expressed and conceptualized in a contemporary polysemiotic artistic genre, commonly used to convey sociopolitical messages of protest: street art. To achieve this goal, we framed our analyses with the help of cognitive semiotics, which may serve as a synthetic theoretical and methodological bridge between the disciplines of cognitive linguistics, semiotics, and cognitive science. The transdisciplinary nature of cognitive semiotics with the central feature of methodological triangulation helped us to deal with the complexity of (verbo-) pictorial metaphors and other rhetorical figures in street art.

The main contribution of our analysis is an intersubjectively reliable procedure for identifying and interpreting (verbo-) pictorial metaphors and other rhetorical figures in street art, combined with a series of qualitative and quantitative analyses.

Our first research question asked whether metaphors in street art can be reliably identified and distinguished from broadly rhetorical images. As our analyses (see sections 3.1 and 3.2) showed a distinction between metaphorical and non-metaphorical (though still rhetorical) street artworks can be reliably applied, provided that we used the same step-wise procedure.

Our second research question asked to what extent analysts with different linguistic and sociocultural background may agree in analyzing and interpreting the same artworks, when provided with the same methodological protocols. In order to do this, we involved two external evaluators, who evaluated our analyses of the metaphorical images. The evaluations provided by the external evaluators reached a substantial degree of agreement with respect to which interpretations were similar and which interpretations differed. They indicated that while we seemed to agree on what the image is about (Topic), and what are the incongruities and their replacements (Expression), the identification of metaphor (Conceptualization), and its pragmatic interpretation (Communication) remained subject to variability, as the result of differences in the types of knowledge that we applied. These results suggest that the Topic and Expression are more general aspects, based on universal features of human perception and widely shared knowledge, while the dimensions of Conceptualization and Communication are more socio-culturally and contextually influenced. In other words, our sociocultural knowledge and contextual

information affected the way we conceptualized these metaphors and how we made sense of their pragmatic message.

Based on our discussions and negotiations (2PM), which were in turn based on our individual analyses (1PM) we identified the following types of knowledge, that came into play, and possibly determined our agreements as well as our disagreements in analyzing the images. More concretely, it has been shown that broader socio-cultural lifeworld knowledge-expectancy is important in interpreting metaphors in street art, as the examples displayed in Figure 12 (Greece as an economic model) and Figure 13 (Greek girl losing balloon/Euro) demonstrated, respectively. Consequently, pragmatic knowledge is also required, as illustrated in nearly all of our qualitative analyses of the sample of street artworks (e.g. Greece's debt crisis and sociopolitical instability, harsh austerity measures, Europe's migrant/refugee crisis, and consumerism and obesity in west world).

However, the interpretation of metaphors depends not only on pan-human world-knowledge and shared socio-cultural conventions, but also on both local contextual knowledge and purely personal experiences, such as political discourse at the time, knowledge of the time-and-site-specificity of the artwork itself, sociopolitical context, and emergent situated realities. These results support the claim that even when provided with the same model and procedure to analyze an image, we construct metaphors relying on our personal knowledge, which varies across interpreters, as clearly displayed in Figure 16. In general, our analyses support the claim that street art metaphors are neither completely universal nor completely culture and context-specific, but they embrace aspects of both. Therefore, it is crucial to approach them in a more encompassing model, which acknowledges that world knowledge and cross-cultural experiences, shared sociocultural conventionality, contextual knowledge, and highly personal (individual) experiences co-exist in different levels and degrees without excluding one another. The theoretical implications of our empirical analyses are illustrated in a dedicated article, in which we have developed a detailed account for the study of metaphors in street art under the umbrella of cognitive semiotics (Authors, under review).

A potential limitation of our current investigation is that being based on manual, extensive and time-

consuming analyses that involve several analysts and various rounds of analyses, the empirical investigations hereby reported are based on a relatively small corpus of 50 street artworks. Further analyses may embrace the methods described and apply them to new materials, in order to test the replicability of our methods, as well as enlarge the amount of data analyzed within this framework.

In sum, Athenian walls are "witness surfaces" of the crisis that hit Greece almost a decade ago (Chmielewska, 2008: 199). Our qualitative and quantitative analyses of a sample of street artworks have demonstrated that metaphors and other rhetorical figures, such as metonymies, synecdoches, hyperboles, and oxymora, emerge at the crossroads of several types of knowledge. Our results lead to the conclusion that the rhetorical understanding of street artworks cannot be explained exclusively based on universal (embodied) experiences and static cross-domain mappings without the help of socio-cultural and context-specific components including socio-cultural conventions and contextual knowledge. We anticipate future research on (verbo-) pictorial metaphors adopting the framework as well as the methodological tools presented, to tackle issues related to metaphors and other rhetorical figures in this form of polysemiotic communication.

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Conflict of Interest Statement

The authors declare that there is no conflict of interest.

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[1] The field of street art studies has seen a rapidly interdisciplinary academic interest globally during the past decade (for a review of recent research into street art, see Ross et al., 2016).

[2] It is important to note that the terminological distinction and conceptual dichotomy between the semiotic systems of language and depiction, especially in the case of street art are not always clear-cut, as has been argued in a certain literature. Therefore,

we would like to stress that street art is typically a form of polysemiotic communication, and thus, we restrict the term unisemiotic either in the case of primarily *depiction-led* or primarily *language-led* graphic representations (see Authors, under review for extensive discussion on these matters).

[3] Figure 1a is a piece by Bleeps.gr, one of the most prolific Athens-based street artists. His work often reflects upon current sociopolitical and economic issues, such merchandise and consumer society, resistance and mass protest as the anti-asphyxiating mask on the top may imply, or even social and power relations. The artwork in question, which is part of the artist's *Window* series, invites its viewers to actively explore the potential interpretations (for a thorough analysis of Bleeps.gr work, see Drakopoulou, 2014, 2015: 332–333).

[4] The relationship between metonymy and synecdoche (distinct experiential phenomena) is indeed a complex and highly debated topic in the academic literature on cognitive linguistics and semiotics (see Devylder, 2016; Pérez-Sobrino, 2017; Sonesson, 1989 for reviews).

[5] Diagrammatic iconicity (= iconic ground) is a non-linguistic, cognitive and experiential process (Devylder, 2018; Itkonen, 2005; Jacobson, 1965; Zlatev, 2016) of analogy-making (Gentner and Markman, 1997). As capacities, these processes are universal, part of our human nature, though they can be shaped into culture and context-specific manifestations.

[6] An exemption may constitute the recent study on metaphor and antithesis in a selection of seventeen of Banksy's artworks (Poppi and Kravanja, 2019).

[7] We discuss and develop this model in greater detail addressing new terminology incorporating cognitive semiotic theory in an upcoming theoretical paper (Authors, under review). Here, we adopt the terminology adopted in the original model to which we are referring (Steen, 2008, 2011), despite the fact that the terms like "denotation", "connotation" and "pragmatic meaning" are heavily ambiguous (e.g. Sonesson, 1989; Sperber and Wilson, 1995).

[8] For example, in the sentence "the claims are supported by several arguments", the word *supported* has a contextual meaning (e.g. corroborated, argumented, etc.) which differs from the basic meaning of the verb *support* (e.g. to physically hold a concrete entity). Therefore, in that sentence, *supported* is marked for metaphoricity.

[9] Lifeworld is the English translation of the German term Lebenswelt, first introduced by the phenomenologist Husserl as an encompassing expression for the world of our experiences (Sonesson, 2014, 2015).

[10] The raw data including the corpus of 50 images, the protocols with the analyses, and the data-analytical procedures used for the reliability tests reported in this paper are publicly accessible on the Open Science Framework (OSF) at: https://osf.io/jrv5k/.

[11] The reader may nonetheless argue that in this case there is a sort of personification, discussed in Section 3.2 thanks to which a human-like entity (the statue) is used to represent a nation. This alternative interpretation shows how multiple interpretations are possible.

[12] In the strict definition of street art (e.g. Bengtsen, 2014; Hoppe, 2014; Ross et al., 2017) sanctioned pieces of art in urban space, such Figure 9a, are not supposed to be taken under the general term of street art, but rather urban art. However, here, we decided to include this piece in our analysis because it is a rather representative example of unisemiotic pictorial synecdoche and also widely recognizable.

[13] To remind the reader, "Troika" (a word in Russian!), consisted of the International Monetary Fund (IMF), the European Union (EU) and the European Central Bank (ECB), agreed on bailout packages for Greece. Afterwards, the reduction of incomes was unexpectedly announced, and thousands of Greek citizens came out in the streets in order to share their collective frustration (Goutsos and Polymeneas, 2014; Matsaganis, 2013).

[14] Our interpretation does not exclude other interpretations which may construct a metaphor such as: Greece/Europe is a concentration camp. However, here, we want to emphasize the interaction and incompatibility between the semiotic systems of language with the "welcoming" passage and the depiction in order to express verbo-pictorial oxymoron.

[15] Banksy's artwork was first created in the early 2004 and it was made in relation to the Iraq war. The widely circulated date (2002) that one can find in the internet is mistakenly attributed to Banksy's artwork, an issue which would deserve a detailed discussion, that, however, would fall outside the scope of this paper.