Structural similarity in figurative language: A preliminary cognitive analysis

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Abstract

Structural similarity may be based on the structural characteristics of concrete entities (e.g., the heart relates to blood circulation in the way that a pump to a hydraulic system) or on the structural properties of situations and events (e.g., *Your words were a dagger to my heart* compares the emotional damage done by the hearer's words to the physical harm caused by a dagger). In combination with metonymy, structural similarity gives rise to paragon-based antonomasia and allegory-like narratives. An example of paragon-based antonomasia is *the Lennon of football*, which, said about a great player, is based on structural similarity: the player and the musician are masters, each in his domain of expertise. Allegory-like narratives rely on a form of high-level structural similarity where each entity-denoting target element is elaborated through the member-for-class metonymy. For example, in "The Prodigal Son", the regretful son's return to his father asking for forgiveness represents any repentant sinner. In terms of structural similarity, God is to a repentant sinner what the forgiving father is to his returning son. Drawing on a selection of examples, this article reexamines the contribution of different types of structural similarity to figurative reasoning at various degrees of abstractness and complexity.

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1. INTRODUCTION

The present article deals with a largely neglected area of research in Cognitive Linguistics: the study of similarity in figurative language. This is a situation that was acknowledged over two decades ago by Grady (1999) in his discussion of the contrast between *correlation* metaphor and *resemblance* metaphor. The former arises from the co-occurrence of otherwise unrelated experiences whereas the latter is based on similarity. An example of correlation metaphor is AFFECTION IS WARMTH (e.g., *She's a warm person*), which is grounded in our experience of feeling warm when we are held close to those that love us. In this metaphor we treat affection, the target domain, as if it were warmth,

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the source domain.[2] By contrast, resemblance metaphor exploits similarities between the source and target domains. For example, interpreting the metaphor *Her teeth are pearls* requires reasoning about the whiteness and brightness of a lady's teeth, the target domain, by thinking of corresponding properties in pearls, the source domain.

According to Grady, despite ample evidence of its pervasiveness in language and thought, traditional metaphor theorists had failed to study correlation metaphor. Compensating for this serious research gap could explain the initial emphasis of the cognitive-linguistic community on the study of this metaphor type. The emphasis became stronger as evidence accumulated that experiential correlation is just one aspect of the largely embodied nature metaphor and thought (Bergen, 2012; Desai, 2021; Gibbs, 2014; Lakoff and Johnson, 1999; Ritchie, 2017). This situation created a new imbalance in research on metaphor, this time in the opposite direction. It is in this context that Grady's (1999) delineation of boundary lines between the two broad types of metaphor is to be understood. He was aware of the need to re-stage similarity-based metaphor, although with the added benefit of the new cognitive perspective. However, the imbalance persists and understanding the role of similarity in figurative language is a pending issue.

A word of caution is necessary at this point. As he explicitly stated, Grady (1999:89) decided to use "resemblance" instead of "similarity" to avoid confusion with the traditional "similarity thesis" of metaphor, according to which the ascription of properties of the vehicle to the tenor had an aesthetic purpose (Leech, 1969:150). In this view, metaphor is not a matter of thought, but of linguistic expression. Thus, saying *Her teeth are pearls* is simply an impacting way of referring to the whiteness and brightness of the lady's teeth, but not a way of thinking of the teeth in terms of pearls. Unfortunately, with the consolidation of the correlation/resemblance distinction, the term "resemblance" has become a widespread replacement for "similarity" in Cognitive Linguistics. In this situation the two terms have become interchangeable, although the former is favored to avoid the traditional connotations of the latter. However, here we will distinguish between them, with "similarity" being reserved to designate the process of creating resemblance conditions and "resemblance" being used to highlight the result of such a process. One reason for this choice is our belief that all metaphors, including correlation metaphors, involve finding source-target similarities. Consider again the case of AFFECTION IS WARMTH. Cognitive linguists note that there is no direct perceptually accessible similarity between the source and target domains. However, it can be argued that there is less direct, more abstract –or high-level– similarity based on the fact that people who are treated affectively and people who are in a warm place have comparable feelings of comfort. The existence of these comparable feelings points to the grounding of experiential correlation in high-level similarity, which is what actually makes the metaphor possible; i.e., high-level similarity acts as a licensing factor for correlated experiences to become metaphorical. This observation is important in view of the fact that there are many correlated experiences that do not clearly allow for a metaphorical use. This is the case, for example, of the correlation between a flash of lightning and a clap of thunder, snowfall and a drop in temperature, and a bout of anxiety and a rapid heartbeat. It is not easy to see in what way, if any, there is any similarity between these experiences (cf. Ruiz de Mendoza, 2020:18; Ruiz de Mendoza and Barreras, 2022:20–24; Peña and Ruiz de Mendoza, 2022:101).

High-level similarity is not the only resemblance dimension that affects metaphorical thought. There is yet another dimension that affects conceptual metaphor and that has received only passing attention in the cognitive-linguistic literature: structural similarity (cf. Ruiz de Mendoza, 2022). Structural similarity underlies metaphor and simile based on analogical reasoning. Here, we follow the general understanding of analogy as a mapping of structure adopted in the cognitive sciences (Gentner, 1983; Gentner and Markman, 1997; Gentner et al., 2001), which is taken up by Itkonen (2005). However, analogy, which is fundamental to a wide range of aspects of human thinking (cf. Hofstadter and Sander, 2013), has been understood in broader ways (e.g., as the mere picking out of recurring patterns in our experience) that may make it hard and somewhat controversial to differentiate this phenomenon from the different kinds of metaphor and simile (see, for example, the collections of papers in Krawczak et al, 2022; Wuppuluri and Grayling, 2022). In our view, it is useful to understand analogy as the result of detecting and applying structural similarity relations to a cognitive task (e.g., developing language structure). This understanding favors drawing clear boundary lines with related linguistic phenomena like metaphor and simile. In fact, we argue that some kinds of metaphor and simile are based on analogy, while others are not. We also contend that structural similarity works at different levels of abstraction and is applied to different kinds of knowledge structure thereby giving rise to different analogy-based uses of language, which can be figurative. For example, at the concrete or low level, structural similarity results in analogical judgments based on the structural properties of entities (e.g., the heart is to blood circulation what a pump is to a hydraulic system); at the high level, analogy is based on the structural properties of events (e.g., *Your words were a dagger to my heart*, where someone's words are to emotional damage what a dagger is to physical injury). High-level structural similarity

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[2] In Cognitive Linguistics the labels *source* and *target domain* correspond to *vehicle* (usually described as the image that supplies the material for the comparison) and *tenor* (what we talk about) in traditional accounts of metaphor. The assumption in Cognitive Linguistics is that the source domain provides the structure and logic to reason and talk about the target domain (Lakoff, 1993).

also underlies what Lakoff and Johnson (1980) termed structural metaphor. This is the case of ARGUMENT IS WAR, where debaters are to an argument as contenders in a battle are to war (e.g., *She attacked my ideas*).

When complemented with metonymy, structural similarity is at the basis of paragon-based antonomasia, allegory and such variants of allegory as parables and fables. Paragon is a low-level analogy where an entity is treated as a paradigmatic example of a certain attribute for which it is metonymic: Sir Alex (A) is to football (B) as Lennon (C) is to pop music (D); so, A is the C of B, as in *Sir Alex* (A) *is the Lennon* (C) *of football* (B). Allegory rests on high-level structural similarity combined with the member-for-class metonymy in the metaphoric target. Thus, in the well-known allegory "The Prodigal Son", the wayward son –who squanders his inheritance and later returns to his father asking for forgiveness– stands for any repentant sinner. In this analogy, the relationship between God and the sinner (A) is to a sinner's repentance (B) what the relationship between a forgiving father and his wayward son (C) is to the latter's realization of his unwise decisions (D). This analogical layout allows us to draw two conclusions that are metaphorical: God is a forgiving father and a sinner is a wayward son (Ruiz de Mendoza, 2022).

In this research context, this article reexplores the role of structural similarity in the creation of low and high-level metaphorical thought. This kind of thought is sensitive to analogical reasoning and it clearly differs from the one characterizing correlation and traditional "resemblance" metaphors, as studied in standard accounts of Cognitive Linguistics (cf. Grady, 1999). The picture that emerges from this discussion is one that establishes relevant connections between figurative uses of language that exploit structural similarity. With such connections being explicit, the result is an integrated, albeit preliminary, framework that is meant to be refined as other resemblance phenomena are detected.

2. STRUCTURAL SIMILARITY

Structural similarity is best understood in contrast to attribute-based similarity. The latter kind of similarity has been the object of interest in traditional studies on metaphor and simile.[3] It results from finding physical and/or behavioral properties common to different concepts designating entities or the scenarios in which entities are involved. A straightforward example of physical similarity based on shared attributes is found in the stock metaphor *Your eyes are sparkling diamonds*, which implies that the hearer's eyes are remarkably bright and attractive. Animal metaphors in English often focus on behavioral attributes that we can apply to people: a fox is sly, a bull is clumsy, a chicken is cowardly, etc. On the other hand, structural similarity results from the parallel alignment of elements from discrete conceptual domains in terms of their similar structural and/or functional relationships to such domains. As a result, structural similarity underlies analogical reasoning of the following kind: A is to B as C is to D; therefore, A is C (and B is D). In this kind of reasoning, A and C are understood in terms of B and D respectively, where B is the *domain of reference* for A and D for B. We define a domain of reference as the most immediate and least abstract conceptual domain capable of making a conceptual characterization maximally meaningful. For example, the term *horseshoe* has been created by analogy with human footwear. The analogical reasoning process is as follows:

A horseshoe (A) is to a horse's hoof (B) what a person's shoe (C) is to a human foot (D). Therefore, a horseshoe (A) is (like) a human shoe (C) and a horse's hoof (B) is (like) a human foot (D).

In this analogy, the domain of reference of a horseshoe is a horse's hoof, while that of a person's shoe is a human foot. Less immediate domains (e.g., the legs) and more abstract domains (e.g., size, shape) do not support the analogy. This view of the figurative role of structural similarity is at home with previous work on the topic. For example, Itkonen (2005:1–2) defines analogy as structural similarity and also as a *metarelation*, i.e., a relation that holds between relations. It also relates structure to function and states that each element of the structural relationship has a function that is similar to the function of its analogical counterpart. For example, within their respective domains (locomotion, getting oxygen, and protection), wings, lungs, and feathers in birds are analogous to fins, gills, and scales in fish. In the same way, the relation between a horseshoe and a horse's hoof, just as the relation between a person's shoe and a human foot, goes beyond their similar part-whole structure into the comparable function of hoofs and shoes in animal and human locomotion respectively. The similarity relation that holds between these spatial and functional relations makes their analogical alignment possible, thus converting such alignment into a metarelation.

The observations made above provide an initial characterization of the role of structural similarity in reasoning. Sections 2.1 and 2.2 refine this characterization by discussing its role at the low and high levels of reasoning.

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[3] Resemblance metaphor and simile are both based on the comparison of low-level attributes. However, there are differences in terms of open-endedness (Glucksberg, 2006), degree of source-target similarity (Chiappe and Kennedy, 2000), sensitivity to elaboration (Romano, 2017) and conventionalization (Bowdle and Gentner, 2005). These and other differences, which have been discussed in detail in Ruiz de Mendoza (2022), do not affect the present exposition and will thus be disregarded.

2.1. Low-level structural similarity

The horseshoe-human shoe analogy is metaphorical. However, structural similarity, which does underlie analogy, is not necessarily exploited metaphorically. Non-metaphorical exploitations of structural similarity arise when the ground for the consequence part of the resulting analogical judgments (A is C and B is D) is not evident in their default interpretation. Consider these examples:

- Green is to color what square is to shape: green is a type of color and square is a type of shape. The equation "green is square" resists a metaphorical interpretation.
- Stone is to quarry what tree is to forest: stone can be found in a quarry and trees in a forest. It is not clear that the resulting equation, "a stone is a tree", can be used metaphorically.
- White is to black what up is to down: white and black, on the one hand, and up and down, on the other hand, are opposites, each pair in its own domain. Saying that "white is up" is not metaphorical.

These examples provide evidence that structural similarity, by itself, is not a sufficient condition for analogy-based metaphor to occur. This type of similarity simply provides the rationale for a non-attribute-based equation to be possible. However, the equation may be clearly metaphorical (e.g., the heart is a pump) or it may not (e.g., green is square). It can be considered metaphorical only to the extent that (i) the ground for similarity between its two terms is conceptually and/or contextually workable, and (ii) the expression of the equation is not merely descriptive (e.g., a mental exercise on the logic of relations) but also interpretively meaningful, i.e., an equation that produces meaning implications that go beyond its descriptive dimension (cf. Sperber and Wilson, 1995:224). For this reason, highly defined contextualization may be required to allow for a metaphorical interpretation that overrides the hearer's default assumptions. Let us discuss three situations by way of illustration:

(a) Entity-based low-level structural similarity: eyes (A) are to sight (B) what fingers (C) are to touch (D). This analogy is feasible since the eyes are instrumental to sight in the same way that the fingers are instrumental to touch. It may not follow clearly from this alignment that the metaphors "eyes are fingers" (A is C) and "sight is touch" (B is D) are possible. However, they are. An example is provided by the metaphor *His eyes tapped across his land*, taken from the short story "Lolwethu Oluthando", by Julie Nxadi (Moolman, 2017), where the character's eyes wander from place to place as he fixes them on specific features of the landscape. Here, "eyes are fingers" not only in the correlational sense that both can be used to derive perceptual information from the world (UNDERSTANDING IS SEEING/TOUCHING) but also in the similarity-based sense that the quick, intermittent taps resemble the character's glances. Together, these two aspects of seeing and touching lay the foundation (i.e., the ground) for the comparison.

(b) Situation-based low-level structural similarity. An example is provided by the following paradoxically wise remark made by a low-IQ Forrest Gump in the movie of the same name:

Life is like a box of chocolates –you never know what you're gonna get (*Forrest Gump*, 1994).

There is no low-level shared attribute since life does not resemble a box and chocolates do not resemble misfortunes. However, there is structural similarity supporting analogical reasoning:

The uncertainties of life (A) are to life (B) what the chocolates in the box (C) are to the box (D). Therefore, the uncertainties of life (A) are (like) the chocolates in a box (C), and life (B) is (like) a box of chocolates (D).

This is a non-obvious, surprising analogy, grounded in the similarities between how people relate to living life events and tasting the chocolates in a box. Because of its striking nature, the ground for the comparison has to be made explicit by Forrest Gump himself. Speakers tend to disclose the grounds of their analogies if these are not easy to resolve. This situation holds true of attribute-based metaphors and similes too. In this regard, Romano (2017) has noted that what we call attribute-based simile is usually elaborated when it is not conventional. The same holds for metaphor. Since unconventionality makes communication difficult, speakers who want to be understood tend to make the ground for comparison explicit. This is true regardless of the type of similarity relationship.

It should also be noted that the existence of structural similarity in a metaphor or simile does not preclude other forms of metaphorical activity from further supporting the logic of the resulting analogy. Thus, in this example, the connection between life and a box is grounded in the metaphorical treatment of life as a container. In this metaphor, the uncertainties of life are the objects (the chocolates) in the container (the box), and discovering the nature of the uncertainties is finding out about the nature of the objects (e.g., by tasting them). However, there are limits to the number and kind of target-domain meaning implications that can be captured by the source domain. This is the case with metaphor and simile in general. Speakers tend to use source domains that capture what they consider the set of relevant meaning

effects they want to convey. This tendency follows naturally from the Principle of Relevance, as formulated by Sperber and Wilson (1995). According to this principle, speakers gear their communicative acts to the maximization of relevance, i.e., the achievement of the best possible balance between cognitive economy and meaning effects. The application of this principle to metaphor has given rise to the Correlation Principle (Ruiz de Mendoza and Galera, 2014; Peña and Ruiz de Mendoza, 2022). According to this principle, speakers tend to select the source domain that best captures the meaning implications that they focus upon in the target (i.e., those that they think are communicatively relevant). For example, one might observe that life events are not always chosen, but just happen. However, the person that picks chocolates from a box is more likely to be choosing them (although not necessarily) on the grounds of their color, shape, and apparent texture. The point here is that this aspect of the target domain is not in focus in the analogy so it is not necessary for the latter to be workable.

(c) Event-based low-level structural similarity. Consider the structural relationship that holds between the events of love and war as exploited in the following quote from Bertolt Brecht's *Mother Courage and Her Children*: *War is like love –it always finds a way*, meaning that, although sometimes there are "islands" or periods of peace, the general situation for nations is one of war, just like love is the most common situation among people:

Being at war (A) is to a nation (B) what being in love (C) is to an individual (D). Therefore, being at war (A) is (like) being in love (C) and nations (B) are (like) individuals (D).

Here, because of the oddity of postulating that opposites such as love and war are similar, Brecht needs to make explicit the ground of the comparison. Otherwise, the analogy is not possible. The ground is the striking assumption that both events "find a way", where this additional metaphor points to the tendency of water to flow toward sea level. Note that love and war become low-level constructs through personification (EVENTS ARE PEOPLE): the two events are seen as if endowed with a will of their own and with the ability to break down any barrier to their development. This analytical situation differs from the one in (b) above. The mapping in (b) follows the common pattern of conceptual metaphor originally identified by Lakoff and Johnson (1980), according to which there is a tendency to use concrete concepts to reason about abstract ones. Tasting the chocolates (concrete) maps onto dealing with life events (abstract). By contrast, the mapping in (c) starts with two abstract concepts (the events of love and war) but these concepts are treated as non-abstract by means of personification, so that the result is closer to that of an ontological metaphor where two entities that converge in some of their material or behavioral characteristics are put into correspondence.

Examples (b) and (c) contain explicit cues on the ground of the comparison, which reveals the speaker's awareness of the potential difficulty in identifying it. However, there are cases where being explicit is not necessary. Consider, in this respect, this other example of situation-based structural similarity: *The new chef is amazing. His dishes are (like) sculptures.* This metaphor –or its corresponding simile– rests on the following analogical layout:

A chef is to food what a sculptor is to stone: a chef cooks food in an artistic way and a sculptor carves stone into a work of art. Therefore, a chef is a sculptor (of food) and food is a chef's stone.

The chef-sculptor relationship is metaphorical. Unlike non-metaphorical analogies the chef-sculptor relationship allows for a reasoning process in which a chef's culinary activity is treated as if it were a sculptor's carving activity. This reasoning process is supported by the existence of high-level similarity between the source and target domains: both the chef and the sculptor are creators and the result of their work is artistic.

2.2. High-level structural similarity

High-level structural similarity is primarily focused on abstract concepts. We will illustrate this pattern by examining a case of shared cause-effect structure and another of shared plan-goals structure. As an example of the former, think of the following verses from the book of *Psalms* in the Bible:

How sweet are your words to my taste, sweeter than honey to my mouth! I gain understanding from your precepts; therefore, I hate every wrong path (Psalms 119:103–104, New International Version).

God's words, or the teaching they convey, cannot be literally sweet like honey, but they can be as pleasing and comforting in the domain of intellectual understanding and its associated emotional wellbeing as honey is pleasing and comforting in the sensory domain of taste. This common feeling of pleasure and comfort (non-physical and physical) is the ground of comparison. The underlying analogical layout for this metaphor takes the following form:

Because of their pleasing effects, God's words (A) are to the psalmist's understanding (B) what honey (C) is to his taste (D). Therefore, God's words (A) are honey (C) and intellectual insight (understanding) (B) is sensory perception (taste) (D).

Here, A and C are the causes, together with their associated effects (they are both pleasing and comforting), and B and D are the domains of reference for A and C respectively. Evidently, this analogy is not based on the structural properties of entities, but on those of intellectual (and/or emotional) and sensory events. Such analogical alignment, grounded in high-level similarity, supplies the correspondences of this metaphor:

- God's words are honey.
- The comfort that God's words produce are the physical pleasure honey produces.
- Intellectual understanding is physical perception.
- The effects of intellectual understanding are the effects of physical perception.

The second high-level structural pattern can be illustrated with reference to the ARGUMENT IS WAR metaphor, whose source and target domains share the same plan-goal structure. Whether we are engaged in an argument or in war, we attack the opponent's positions and defend our own, we plan strategies, we gain or lose ground, and we either defeat or are defeated by our opponent. Expressions like *We were attacked*, *We were defeated in one brief battle*, *They decided to change their tactics*, *They couldn't defend their position any longer* can apply literally to the domain of war and metaphorically to the domain of argumentation. The analogical nature of this metaphor has been noted in Ruiz de Mendoza and Barreras (2022):26). In terms of structural similarity, it is based on the following reasoning template:

People arguing (A) are to an argument (B) what contenders in a battle (C) are to war (D). Therefore, people arguing (A) are contenders in a battle (C), and an argument (B) is war (D).

The shared plans-goals high-level structure guarantees the metaphoricity of the A is C and B is D equations. Also, note that this metaphor differs in its level of abstraction from the lower-level case WAR IS (LIKE) LOVE discussed in the previous section, whose two domains were treated as if they were concrete animate entities capable of overcoming any obstacle in their path.

2.3. Structural similarity and invariance

The question may arise as to how structural similarity is preserved. Lakoff (1990, 1993) put forward the Invariance Principle as a way to account for how the image-schematic relations that hold in the target domain of a metaphorical mapping have to be preserved in the corresponding source-domain elements. Image schemas are topological configurations like spatial orientations (up and down, front and back), motion along a path, part-whole relations, and dimensional constructs like the notions of a point in space, surface, and container (cf. Johnson, 1987, for the well-known pioneering proposal, and Peña, 2003, 2008; Hampe, 2005, for developments and critical overviews of the literature). To illustrate how the Invariance Principle works, think of a mapping in which a man is depicted as if he were a tree. In the mapping, no item from the source domain (a tree) can be used to reason about elements of the target (the man) that do not preserve the part-whole image-schematic structure of the latter. Thus, the top of the tree naturally maps onto the person's head, the trunk onto the body, the branches onto the arms, the twigs onto the fingers, the various root configurations onto the legs, feet, and toes.

Ruiz de Mendoza (1998) noted that the preservation of structure in metaphor goes beyond image-schematic configurations. He formulated a more general principle, called the *Extended Invariance Principle*, according to which all contextual effects arising from a metaphoric mapping preserve the generic or high-level structure of the source domain in a way that is consistent with the inherent high-level structure of the target domain (see also Ruiz de Mendoza and Galera, 2014; Peña and Ruiz de Mendoza, 2022, for applications of this principle to other figures of speech). Thus, in some animal metaphors and similes, this principle ensures that outstanding physical and behavioral attributes in animals map onto corresponding physical and behavioral attributes in humans: a very strong person is an ox, a fast runner is a hare, a person that pays attention to details has an eagle eye, a cowardly person is a chicken, an astute person is a fox, a lazy person is a sloth, etc.

These examples of metaphors and similes based on animals illustrate low-level attribute-based similarity. However, metaphor can also arise from the creation of high-level resemblance conditions across conceptual domains that relate in terms of either experiential correlation or structural similarity. These forms of metaphor also fall within the scope of the Extended Invariance Principle, since correlation and structural similarity supply the resulting metaphor with its internal logic. For example, consider the correlation metaphors MORE IS UP and ADVANCED IS UP. The former, listed as one

among many other correlation metaphors in Lakoff and Johnson (1999:51–54), maps height onto quantity by virtue of such experiences as seeing levels go up as the quantity of a substance increases (e.g., oil or water in tanks) or when objects accumulate (e.g., a pile of books or a heap of rocks). This metaphor underlies expressions like *Prices seem to go up all the time*, *Temperatures are too high this year*, and *Sales have skyrocketed*, all of them involving an increase. Ruiz de Mendoza and Barreras (2022:21) have argued that –besides the correlation of experiences, which underlie the construction of the source and the target domains– this metaphor can only happen if the mapping is grounded in high-level similarity. In this case, the source and target domains share the similar sensation of increase that occurs when substances or objects accumulate and when objects reach higher positions. In terms of the Extended Invariance Principle, the mapping is only possible because both the source and target domains share the logic of an interval scale (i.e., one in which there is order and the difference between two values is significant). By contrast, the latter metaphor, ADVANCED IS UP, which is not part of Lakoff and Johnson's list, underlies the logic of other expressions. For example, we use it when we talk about high and low forms of life, higher mathematics, high intellectual capacity, etc. Here, height correlates with developmental progress and degrees of sophistication as a result of our experience with tall structures (e.g., towers, skyscrapers), which are more difficult to build. From the perspective of high-level similarity, building tall structures and achieving complex developments convey a similar sense of progress despite difficulties. The Extended Invariance Principle ensures that the various aspects of life-form evolution, scientific progress, and intellectual capacity, among other possible target domains, such as their complexity, degree of difficulty and sophistication, are put into correspondence with comparable aspects of the source domain of our experience with erecting exceptionally high structures.

Structural similarity underlies the logic of other metaphors where material attributes are not in focus. Consider again, in this regard, the logic of treating the heart as if it were a pump, a metaphor which was briefly mentioned in the introduction section. The heart pumps blood throughout the body in the same way that a pump causes fluids to move throughout a hydraulic system. The force-dynamic aspects of pumping fluids create a logical system that can be used in reasoning: pumping involves degrees of pressure on the fluid, a certain flow rate and a valve system intended to prevent backflow; there may be obstacles to proper fluid flow and the possibility of malfunction. This logical system carries over to the heart seen as a pump. Thus, we can talk about high or low blood pressure, about a correct or incorrect blood flow caused by arterial blockages, about heart valves working correctly or incorrectly, and, if the latter is the case, about backflow and malfunction. The mapping preserves the high-level conceptual structure and logic of the target domain (the heart in relation to the circulatory system) in full consistency with the parallel structure and logic of the selected source domain (a pump in relation to a hydraulic system): both have basic part-whole structure in common and similar forces and counterforces promoting or impeding the motion of fluids around the system.

The analytical situation is not very different when metaphor is based on high-level structural similarity. This is the case of the examples of cause-effect and plan-goals structure discussed in section 2.2. Thus, the Psalmist's equation of God's words with honey is possible on account of the underlying cause-effect relationship shared by both terms of the equation when seen against the background of their domains of reference (intellectual insight and sensory perception, respectively). This mapping takes place in compliance with the Extended Invariance Principle to the extent that the point of similarity between the source and target domains (a pleasant feeling) is supported by the cause-effect layout of both domains. Finally, in the case of the metaphor ARGUMENT IS WAR, we already noted that the source and target domains share their plan-goal configuration, where at least two opposing parties deploy specific tactics intended to demonstrate superiority of one over the other. The Extended Invariance Principle ensures that the application of the structure and logic of war to that of an argument does not do any violence to the latter.

3. EXTENDING STRUCTURAL SIMILARITY THROUGH METONYMY

We are now in a position to explore how the properties of structural similarity apply to more complex analytical situations where the resulting analogy undergoes metonymic elaboration. This exploration reveals analytical patterns that can be considered complementary of other analyses such as Goossens's (1990) pioneering study of *metaphtonymy* and Ruiz de Mendoza and Galera's (2014) broader account of metaphor-metonymy interaction. In essence, this broader account reveals four basic interaction patterns that arise from the metonymic development of (all or part of) the source or target domains of a metaphor either through domain expansion or domain reduction. Let us briefly illustrate these situations:

1. Metonymic expansion of the metaphoric source: *She had a hands-on-waist attitude when she addressed my concerns.* The hands-on-waist posture shows and is thus metonymic for self-assertion and readiness for action. The metonymy provides a developed metaphoric source domain that maps onto a target situation in which the person in question was not adopting the physical posture, but manifested the associated attitude.

2. Metonymic reduction of the metaphoric source: *Mary has an eye for spotting new trends*, meaning that Mary is good at noticing new trends and making judgments about them. *Eye* is metonymic for the ability to see. Metaphorically, this ability (taken as particularly good) maps onto a person's successful intuition. Since the ability to discern through sight is a subdomain of the organ of vision, the metonymy involves domain reduction of the metaphoric source domain.

3. Metonymic expansion of the metaphoric target: *Lend me your ear and I will sing you a song*. In *lend (someone) an ear*, *ear* stands for the broader domain of 'attention' by virtue of the instrumental role that we assign to the ear in hearing and listening. This metonymy is made part of the target of the metaphor ACTIONS ARE TRANSFERS OF POSSESSIONS so that the action of heeding someone is treated as a temporary transfer of possession. The transferred object in the metaphoric source domain thus maps onto attention in the target domain.

4. Metonymic reduction of the metaphoric target: *Mary gave John a piece of her mind for spreading vile rumors*. This example is also based on the metaphor ACTIONS ARE TRANSFERS (OF POSSESSION). Here the object of transfer maps onto "a portion of Mary's mind" in the metaphoric target, in a folk view of the brain where different parts of it are associated with specific behavioral and emotional responses. This target element, in turn, stands for the speaker's feelings of anger or frustration figuratively contained in it.

None of these patterns of interaction, however, exploits structural similarity. In the following subsections we will explore two broad analytical patterns where metonymy is used to develop analogy-based metaphor: one is provided by paragon-based antonomasia and the other by allegory, parables, and fables. Each involves a highly specific type of metonymic operation that becomes definitional for the figure under study.

3.1. Paragon-based antonomasia

The term paragon is commonly used to refer to a person or object that can be considered a model of excellence in some respect. For example, we can say that a person is a paragon of virtue, intelligence, diligence, responsibility, etc. Sometimes people become paragons of some attribute for which they are universally known. This situation gives rise to one of the forms of a figure of speech traditionally termed *antonomasia*, consisting of the substitution of an appellative name for the designation of the quality that characterizes it (Bussmann, 1996:67); e.g., an Einstein is an extremely intelligent person; a Hitler is an extremely cruel and dictatorial person; a Shakespeare is a person that excels as a writer, and so on. From the point of view of expression, the form *an X,* where X is a paragon, alternates with the form *the X of Y*, where X is a paragon and Y its domain of reference (for a detailed study of the constructional nature of both paragon and antonomasia, see Athanasiadou, 2023). This situation is illustrated by expressions like *Armstrong is the Einstein of modern music,*[4] *Nero is the Hitler of the ancient world* (Woods, 2004:298), and *Roger Federer is the Shakespeare of tennis.*[5] The paragon-based construction *the X of Y* has been studied by Berberović (2007), in line with previous work on the figurative use of personal names by Barcelona (2003, 2004) and , as a matter of the metonymy ENTITY FOR ACTIVE ZONE. An active zone is defined as the "portion of a trajector or landmark, i.e., a profiled entity, that participates directly in a given relation" (Langacker, 1984:177; see also Langacker, 1990:190, 2009:48). It follows that a special property, when cued by common world knowledge or textual clues, is an adequate target for a proper name in the construction in question. A more refined understanding of this metonymic activity arises from the realization that names designate unique entities. Because of this peculiar nature, when a proper name identifies a well-known person, place, or event, there is a strong tendency to use the name for whatever makes the person, place or event well known or otherwise special. The label UNIQUE ENTITY FOR SPECIAL PROPERTY can capture this idea. This alternative label simply emphasizes the uniqueness of the entity involved in the antonomasia and the fact that the "active zone" is more than some aspect of a concept: it is a special one.

This latter form of paragon-based antonomasia, *the X of Y*, is more open to creative exploitation than the form *a X*. This property is due to the fact that it makes explicit the domain of reference, which thus becomes more readily available for operations of contrast and other elaborations. Let us briefly discuss, in this regard, three examples taken from Głaz (2012:250–253). The first example is a statement attributed to anthropologist Bronisław Malinowski. It takes the form of two contrasting cases of antonomasia: *Rivers is the Rider Haggard of anthropology; I shall be the Conrad*. William H. R. Rivers was a psychiatrist who treated soldiers suffering shell shock during the First World War. He also produced low-quality work on kinship following an expedition to Torres Straits (located between Australia and New Guinea). Rider Haggard was an English author who popularized the lost world literary subgenre. He is known for his romantic adventure novels set in far-flung locales, primarily Africa. The mapping from Haggard to Rivers is used to reason about the

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lack of value of the latter's work, in contrast to writer Joseph Conrad's penetrating thought and masterly prose style. Malinowski prefers to see himself as the Joseph Conrad of anthropology. This development of paragon-based antonomasia, which is facilitated by the explicitation of the target domain of reference, is richer than simply saying *I am a Conrad* or even *I am a Conrad in anthropology*.

The second example comes from Sapir's book *Language*: *When it comes to linguistic form, Plato walks with the Macedonian swineherd, Confucius with the head-hunting savage of Assam* (Sapir, 1921:234). The idea here is that everybody is equal with respect to language, i.e., that there is no superior or inferior language. Plato and Confucius, each in his own way, are metonymic for (and paradigmatic of) wisdom and superior intellectual sophistication in the domain of philosophy. However, they both used linguistic form in an unsophisticated way, accessible to common people, even those of the coarsest kind. This example thus differs from other cases of paragon-based antonomasia in the existence of a common domain of reference for the paradigmatic names, linguistic form, which overrides the one provided by our world knowledge, philosophical expertise, which is also shared by the two paradigmatic names. As a result, structural similarity is affected. Notice the resulting structural-similarity alignments, which differ from others in that they share the same domain of reference (i.e., B = D):

Plato (A) is to linguistic form (B) what a Macedonian swineherd (C) is to linguistic form (D). Therefore, Plato is a Macedonian swineherd with respect to linguistic form.
Confucius (A) is to linguistic form (B) what a head-hunting savage of Assam (C) is to linguistic form (D). Therefore, Confucius is the head-hunting savage of Assam with respect to linguistic form.

In these alignments, the coarse use of language by the swineherd and the savage contrasts with our common-sense expectation of greater minds making a superior use of linguistic form. More incidentally, the analogy is further elaborated by means of a subsidiary metonymy that does not change the basic structural alignment: WALKING WITH A PERSON FOR ACTING LIKE THAT PERSON (PARTIAL BEHAVIOR FOR FULL BEHAVIOR).

The third example is a comment made by Victoria Beckham about her 3-year-old son Cruz: *He's the next Justin Timberlake*. Victoria Beckham's remark was motivated by her son breakdancing during a Spice Girls reunion concert. Then, his breakdancing became a YouTube hit. This example uses a variant of the general pattern where the domain of reference for the target domain of the cross-domain analogical mapping is not explicit but is to be derived from world knowledge as cued by the adjective *next* ('immediately following'). Justin Timberlake is a highly popular and iconic singer and actor with impressive record sales for his songs. The "next" Justin Timberlake is the first person in the succession of people that may have the attributes that have made this actor paradigmatic. The relevant domains of reference can be constructed on the basis of this knowledge thereby giving rise to the following analogical alignment:

Cruz (A) is to YouTube breakdancing popularity (B) what Justin Timberlake (C) is to singing performance popularity (D). Therefore, Cruz is Justin Timberlake and YouTube breakdancing popularity is (like) singing performance popularity.

The pattern *the next X*, and related configurations invoking immediate succession, like *another/a second X* (e.g., *another/a second Vietnam*), cannot have an explicit domain of reference (*He's the next Justin Timberlake of YouTube breakdancing*) and the immediate succession marker is compulsory (*He's the Justin Timberlake*). If this marker is omitted, then the domain of reference has to be made explicit resulting in the general pattern *the X of Y* (*He's the Justin Timberlake of YouTube breakdancing*). The reason for this is that the definite article (*the*) does not generally act as a determiner of names since it indicates that the identity of the nominal head is known to the hearer (e.g., *the singer* means 'a singer that you can identify from knowledge of the world or context') and, by definition, a name uniquely identifies a referent.

Paragon-based antonomasia has been studied by Barcelona (2004:364) as involving a metonymic complex: Einstein is metonymic for his special intelligence, which at the same time makes him stand for the whole class of extremely intelligent people. Brdar, 2017 and Brdar and Brdar-Szabó, 2007 take a step further and discuss this figure as a combination of metaphor and metonymy where the metonymy has a specific highlighting role. For example, to interpret the sentence *My teacher is an Einstein*, we do not map everything we know about Einstein (the metaphoric source) onto what we know about the speaker's teacher (the metaphoric target), but only the specific attribute for which Einstein stands. This metonymy is thus an elaboration of the metaphoric source. However, this kind of analysis, which focuses on an attribute, does not provide a full picture of how paragon is used in this type of antonomasia. There is structural similarity at work. Let us discuss how this happens.

First, note that the fact that Einstein excelled in the domain of theoretical physics should make the expression *an Einstein* more naturally applicable to situations where we find someone's scientific intuition and skills to be exceptional.

However, the notion of "an Einstein" has been generalized, through pragmatic broadening (Carston, 2010, 2017), to designate any situation involving intellectual skills of any sort. For example, it is not uncommon to find the expression *an Einstein dog* to refer to a dog that is strikingly intuitive and capable of making inferences that allow it to solve problems that it has never encountered before (e.g., when playing hide-and-seek, when learning to fetch, when finding a lost object, when understanding above-average human instructions). There is a recent self-awareness book entitled *Everyone is an Einstein; and there is an Einstein in everyone; the constitution of genius*, by Benjamin Michaell (2020), which encourages readers to unlock their full potential in any area of human activity that requires intuition. Similarly, a sentence like *My teacher is an Einstein* can be used to refer to a teacher of any subject: *My Mathematics/chemistry/contemporary literature teacher is an Einstein.* It can also be applied to a given teacher's general intellectual abilities regardless of the field of study: *My teacher is an Einstein. He can solve any problem and debate on any topic better than anyone else*. An alternative expression takes the form A is the B of C: *My teacher is the Einstein of contemporary literature*.

This discussion suggests that the attribute highlighted through metonymy is used to support reasoning based on structural similarity:

> My teacher (A) is to the domain of contemporary literature (B) what Einstein (C) was to the domain of theoretical physics (D). Therefore, my teacher (A) is an Einstein (C) in the domain of contemporary literature (B) or the Einstein of contemporary literature.

The expressions *an Einstein* and *the Einstein of* reveal that Einstein is not seen as an individual but as the paradigmatic member of a class (see Fig. 1). In these expressions, attribute-based similarity is a consequence of (and secondary to) the structural relations that characterize these two domains. Thus, we know that Einstein was a genius in the domain of theoretical physics and that the speaker's teacher is a genius in the domain of contemporary literature. This interpretation is evidently grounded in the constructional form of the expression. Thus, the use of the indefinite article in *an Einstein* calls for a paradigmatic use of Einstein (where *a* means "any person that is like"). Similarly, the use of the pattern *the X of Y*, where X is the name to be used as the analogical source item and Y the shifted domain of reference that applies to the analogical target, calls for a paradigmatic use of the name. Only in this use can the relevant domain of reference for Einstein be activated thereby providing a conceptual match for the domain of reference in the target of the analogy.

The resulting metaphors differ from saying *My contemporary literature teacher is Einstein*. The former expressions (*an Einstein/the Einstein of*) require analogical reasoning based on structural similarity to build the metaphor with a domain-expansion metonymy acting on both the source and the target domains for the purpose of providing the domains of reference for the analogy (theoretical physics and contemporary literature). In these expressions, attribute-based similarity is a consequence of (and secondary to) the structural relations that characterize these two domains. Thus, we know that Einstein was a genius in the domain of theoretical physics and that the speaker's teacher is a genius in the domain of contemporary literature. By contrast, the latter expression, *My (contemporary literature) teacher is Einstein*, in a non-literal interpretation,[6] is a matter of attribute-based metaphor involving only metonymic reduction of the metaphoric source domain: Einstein stands for his best known characteristic, i.e., intelligence, which is mapped onto a corresponding property of the teacher. Metonymic elaboration does not apply to the target of the metaphor since there is no structural similarity. Thus, the optional premodifier *contemporary literature* does not set up a domain of reference but merely provides extra details about the teacher (Fig. 2).

Paragon-based antonomasia can also apply to places or dates that stand for notorious or otherwise well-known events: the Vietnam War, 9/11, and the Iraq War are some examples. Consider the infamous 1993 Waco, Texas, military siege of the Davidian compound, carried out on the grounds that the Davidians, a sect, were suspected of stockpiling illegal weapons. Sadly, the siege ended in the (maybe voluntary) death of 76 people. Any other such event with potentially disastrous consequences (even if only vaguely comparable) has since been referred to in the press as "another Waco". Waco is metonymic for the events that took place there. This metonymy supports the identification of the relevant domains of reference for analogical reasoning to be carried out. Thus, through structural similarity, the Waco community is to the tragic events that took place there what any comparable community is to any potential tragic event that may take place if the same mistakes are made.

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[6] As correctly noted by one of the reviewers of this article, this utterance can also be understood in a literal referential sense when the teacher's name actually happens to be Einstein (cf. *My literature teacher this semester is Smith, not Wilson*).
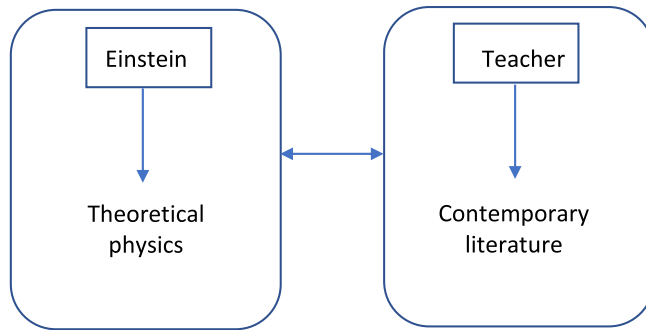
Fig. 1. My contemporary literature teacher is an Einstein / My teacher is the Einstein of contemporary literature.
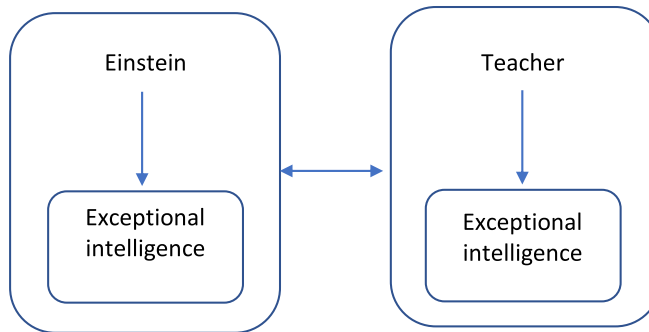

Fig. 2. My (contemporary literature) teacher is Einstein.

3.2. Allegories, fables and parables

The traditional literature on figurative language defines allegory as the application of a metaphor to structure an entire narrative. The narrative thus acquires a hidden meaning that contains truths about human existence (Bussmann, 1996:41; Holman, 1972:13). Because of its peculiar nature, allegory has been treated as a genre (Quilligan, 1979) or as a mode of expression with frequent manifestations in art, literature, politics, religion, and even advertising and business (Fletcher, 2012). In this approach, parables and fables are treated as specific forms of allegory: the former consists of a simple story with a moral (Holman, 1972:377); the latter, which can also have a moral, uses animals and objects with human attributes as characters (Holman, 1972:217).

The traditional studies of these narrative uses of language focus on what they can communicate and how effectively. The present study allows us to complement the tradition by considering such a communicative function from the point view of its foundation in cognition. Regarding this aim, this research is consistent with previous work by Gibbs (2011), Gibbs and Blackwell (2012), and Okonski and Gibbs (2019), who advocate using a common explanatory framework for both metaphor and allegory. In this framework, the implicit alternative interpretation of text characteristic of allegorical meaning is derivable from the metaphorical reading. Let us now discuss and illustrate each of these narrative forms on the basis of how they work from a figurative perspective.

3.2.1. The allegory of the cave

Peña and Ruiz de Mendoza (2022:162) provide a brief analysis of Plato's allegory of the cave in terms of metaphor combined with metonymy. Here, we expand on this analysis by discussing its underlying analogical grounding. In Plato's allegory, a group of prisoners is chained in a cave facing a wall. They see shadows cast on the wall by objects in front of a fire behind them. One day, one of the prisoners escapes the cave and sees the real objects, but when he returns and tries to explain what the objects are like, the others in the cave do not believe him. The prisoners represent ordinary people who can only see shadows of reality. The fugitive prisoner is the philosopher who manages to fully understand reality. The attempt to teach the other prisoners about reality represents the philosopher's effort to make ordinary people understand the true nature of things. Surprisingly, people refuse to know the truth. Table 1 below outlines the main metaphorical correspondences.

Table 1
Metaphorical correspondences in the allegory of the cave.

SOURCE	TARGET
Prisoners chained in a cave facing a wall	Common people who cannot see reality
Shadows projected on the wall by objects in front of a fire behind them	Limited sensory perception and consequent poor understanding of reality
Runaway prisoner	Philosopher
Getting out of the cave and seeing reality	Finding true knowledge
Sharing his new knowledge with other prisoners	Sharing true knowledge with common people
Being resisted by the prisoners	Being resisted by those that are less educated

The metonymy MEMBER FOR CLASS plays an essential role in the development of this metaphor. Through this metonymy, each source character (the runaway prisoner, the other prisoners) maps onto a class of elements in the target. Thus, the escaped prisoner (who belongs to the source domain) is not mapped onto one philosopher in the target domain but onto any philosopher who discovers truth. This analysis thus treats allegory as a narrative case of metaphor-metonymy interaction to be added to those discussed in the previous literature, which do not reflect cases of structural similarity.

Central to this allegory is analogical thought based on structural similarity. Also, as in other cases of analogy, any other form of similarity (e.g., both the philosopher and the runaway prisoner desire to change their situation) is secondary to and dependent on structural similarity. This is the basic layout of the analogy:

Ordinary people (A) and the philosopher (A') are to ideal truth (B) what the chained prisoners in the cave (C) and the runaway prisoner (C') are to real perceptual truth (D). Therefore, ordinary people (A) are chained prisoners in a cave (C) and the philosopher (A') is a runaway prisoner (C'). Also, ideal truth (B) is perceptual truth (D).

Each of the conclusions incorporates a correlation metaphor. Let us first take B is D. This conclusion, which arises from putting the domains of reference of the analogy into correspondence, is a manifestation of the correlation metaphor UNDERSTANDING IS SEEING. This metaphor is based on the fact that perceptual and intellectual awareness correlate since seeing an object, situation, or event allows us to derive information from them. These two correlated experiences are similar in the sense that visual perception and intellectual understanding involve awareness (Ruiz de Mendoza and Barreras, 2022:23). This is a case of high-level similarity enabling experiential correlation to be exploited metaphorically. The other conclusion, A is C (ordinary people are chained prisoners in a cave) and A' is C' (the philosopher is a runaway prisoner), is based on the frequent correlation between physical bondage and the inability to express one's beliefs freely. It can give rise to metaphor on account of high-level similarity: the common feeling of restriction involved in the two correlated experiences. Hence, we may postulate the metaphor INTELLECTUAL RESTRICTION IS PHYSICAL BONDAGE to account for the conclusion that A is C and A' is C'.

In the light of this discussion, we are in a position to provide a cognitive-linguistic definition of allegory that is complementary to more traditional definitions:

Allegory is a narrative form of analogy-based reasoning exploiting cross-domain structural similarities where each entity-denoting target element stands for a class of items and where any other form of non-structural similarity is secondary to and dependent on the general structural similarity pattern.

This definition avoids defining allegory in terms of metaphor, although it does claim that it exploits structural similarity, and that, because of this, it engages the language user in analogy-based reasoning. The idea that allegories are constructed on the basis of analogy has been defended by Thagard (2011) and Wearing (2022). However, Thagard (2011) focuses on the cognitive-emotional aspects of allegorical meaning and Wearing (2022) on pragmatic interpretation, with no attempt to break down the conceptual layout of allegory.

An interesting feature of allegory relates to the fact that, because of its narrative nature, its source and target domains can have literal independent readings. However, note that the mapping requires the same non-literal interpretation as analogy-based metaphor. Thus, in Plato's allegory of the cave, the story of the runaway prisoner, although fictional, can be interpreted literally. It is possible to chain prisoners in a cave and only allow them to see the dark shadows of the objects behind them projected onto a wall. It is also possible for one of the prisoners to escape, see reality outside the cave, and return to tell the other prisoners about his new experience only to be met with skepticism. Similarly, the parallel story of the philosopher who is capable of understanding the real nature of things but is rejected by people,

who can only believe their own poorer version of reality, is also literally interpretable. But there is non-literalness in bringing these two stories together: a philosopher is not a runaway prisoner, common people are not chained prisoners facing a wall, and so on. The same assumptions apply to parables and fables, as will become apparent from the analysis provided later in sections 3.2.2 and 3.2.3.

One final word of caution is still needed in this discussion. There are some metaphorical uses that might be thought to share features with allegory. A case in point is Shakespeare's metaphor *All the world is a stage* (*As You Like It*, Act II, Scene VII), discussed by Carston (2010:170–171), where, in Shakespeare's elaboration, people are "merely players" who have their "exits and entrances", and one man "plays many parts". Carston treats this example as different from the lexical-pragmatic cases where metaphor requires what relevance theorists call the "ad hoc" broadening of a concept. For example, in lexical pragmatics it is argued that the notion of 'shark' in the metaphor *My lawyer is a shark* is broadened to encompass not only the characteristic instinctive predatory behavior of sharks, but also ruthlessness, which is attributable to people. In Shakespeare's example, Carston argues that there is no broadening of the notion of 'stage'. Instead, there is an imaginary meta-representation of what the sentence explicates, i.e., the assumption that the world is a stage where people play their roles. This assumption exists side by side with some people's belief that their lives are largely predetermined, that they are powerless against the passing of time, and that most of their activities are only of momentary significance. The weakness in this otherwise interesting view is that it requires the analyst to postulate separate cognitive processes for lexical and non-lexical metaphors. Our account, on the other hand, posits the same basic process (based on structural similarity) applied to different sorts of conceptual material (entities, situations, and events). Thus, Shakespeare's metaphor cannot be taken literally even if it is developed situationally by introducing the idea that people in the world are players on the stage. Admittedly, this situational development brings this metaphor closer to allegory, but it is not allegory since it lacks the overall episodic structure of the narrative genre. It should be borne in mind that a story is typically based on a plot that consists of episodes, each of which consists of a subgoal, an attempt to solve the goal, and an outcome of the attempt. There is a resolution, which is the final outcome after all possible attempts have been made (see Thorndyke, 1977). Evidently, Shakespeare's metaphor is situational but it is not narrative since it fails to have a plot developing a general plan-goal structure.

In the light of the discussion above, Sections 3.2.2 and 3.2.3 will use the cognitively more complex approach to allegory provided here to address parables and fables, which are forms of allegorical thought with their own distinguishing characteristics.

3.2.2. Parables

Parables are allegorical stories with a moral. For example, the Qur'an features the parable of "The Spider". This is a brief, structurally simple parable based on the depiction of a one-event scenario (a spider building a spider's web). However, it contains an interesting degree of non-structural complexity that will be addressed below:

"The parable of those who take protectors other than Allah is that of the spider, who builds (to itself) a house; but truly the flimsiest of houses is the spider's house; if they but knew" (Surah 29:41).

An initial analysis reveals no essential difference from allegory other than the moral, i.e., the importance of recognizing the frailty of non-divine protection. Table 2 provides the basic layout of conceptual correspondences in terms of metaphor-metonymy interaction. However, on deeper inspection, we observe that this layout contains a meaningful internal elaboration of one of the correspondences of the general cross-domain mapping. To capture this specific form of elaboration, we will use the following symbols: <=> represents a metaphorical mapping and > a domain-reduction metonymy.

At a general level, as a form of allegory, the metonymy MEMBER FOR CLASS applies to the target domain of the metaphorical mapping from the spider scenario to the material protection seeker scenario. Thus, the target refers to any

Table 2
Metaphoric and metonymic mappings in "The Spider".

SOURCE	TARGET
Spider	A person who trusts non-divine protection
Spider's "house" <=> spider's cobweb > protection provided by the web (OBJECT FOR FUNCTION)	A person's non-divine protection
Building a "house" to search for protection	Acting in a way that will result in finding non-divine protection
Flimsiness of the spider's web	Frailty of non-divine protection

person that does not trust in divine protection. At a local level, one of the global source components contains a metaphor from "house" to "spider's web", which is complemented with the OBJECT FOR FUNCTION metonymy. This metaphor-metonymy complex is internal to the correspondence between the protective function of a spider's web and a person's material protection. This arrangement of correspondences is supported by analogical reasoning:

A person that does not turn to God for protection (A) is to the effectiveness of the protection he gets (B) what a spider that builds a cobweb (C) is to the strength of the cobweb (D). Therefore, a person that does not turn to God for protection (A) is a spider that builds a cobweb (C) and the effectiveness of the protection he gets (B) is the strength of the cobweb (D).

A narratively and structurally more elaborated parable, although less developed in terms of its source-internal features, is "The Lost Sheep" found in the Bible:

[3] Then Jesus told them this parable: [4] "Suppose one of you has a hundred sheep and loses one of them. Doesn't he leave the ninety-nine in the open country and go after the lost sheep until he finds it? [5] And when he finds it, he joyfully puts it on his shoulders [6] and goes home. Then he calls his friends and neighbors together and says, 'Rejoice with me; I have found my lost sheep.' [7] I tell you that in the same way there will be more rejoicing in heaven over one sinner who repents than over ninety-nine righteous persons who do not need to repent" (Luke 15:3–7; New International Version)

Table 3 spells out the cross-domain correspondences for this parable and their general metonymic elaborations in terms of MEMBER FOR CLASS. The last correspondence is the basis for the moral: God takes joy in the repentance of sinners.[7] Note that > represents a domain-reduction metonymy.

The analogical support for this cross-domain mapping takes the following form:

God (A) is to the domain of the guidance and care that He can provide (B) what a shepherd (C) is to the domain of the guidance and care that he can provide (D). Therefore, God (A) is a shepherd (C) and the guidance and care that God provides (B) is the guidance and care that a shepherd provides (D).

This specification of structural similarity relations provides the groundwork for the source-target correspondences laid out in Table 3 and the non-structural similarities that they exploit, such as those characterizing the metaphor SPIRITUAL GUIDANCE AND PROTECTION IS MATERIAL GUIDANCE AND PROTECTION. The logic of this metaphor rests on the low-level observable behavioral similarities between sheep led by a shepherd and followers of a leader. These are some of the points that source and target have in common:

- God is a shepherd because He guides and cares for His people just like a shepherd guides and cares for his sheep.
- People are sheep because they follow God based on their intuitive trust in Him, as they "hear" His "voice", just like sheep follow the shepherd, as they hear his literal voice, based on their instinctive trust in him.
- A lost sheep is a sinner because it has strayed from the path set up by the shepherd in the same way as a sinner has deviated from the course of moral conduct established by God.
- The shepherd will typically search for the lost sheep to guide it back to its fold for the kind of protection that he can provide just like God will search for sinners to persuade them to regain the special spiritual guidance and protection that only He can provide. For this to be possible, sinners have to repent and follow the established course of moral conduct.
- God rejoices when one of his lost followers decides to return to the established course of moral conduct, just like His other followers, in the same way that the shepherd rejoices when he finds the lost sheep that will henceforth be under his guidance and protection.

From a cognitive perspective, the characteristics of parables are fully coincidental with those built into the general definition for allegory. From a communicative perspective, the definition can add the observation that there is a moral teaching that arises from the correspondence or correspondences that encapsulate the outcome of the narrative.

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[7] See Gomola (2018) for a discussion of the patristic exegesis of this parable from the point of view of Fauconnier and Turner's (2002) Blending Theory.

Table 3

Cross-domain correspondences and metonymic elaboration in "The Lost Sheep".

SOURCE	TARGET
Shepherd (one who herds, guards, and tends sheep)	God (as the supreme spiritual guide and protector of people)
Sheep	God's (spiritually guided and protected) people
Lost sheep	Sinner (<any sinner) who rejects God's guidance and care
Searching for the lost sheep to guide it back to the fold for protection	Actively looking for the sinner (<any sinner) to persuade him or her to repent
Joy over finding the lost sheep	Joy over managing to persuade the sinner (<any sinner) to repent

3.2.3. Fables

We now turn our attention to fables. Let us take a narratively simple example, Aesop's "The Lion and The Mouse". In this fable, a lion, the king of the jungle, is asleep, when a little mouse starts running up and down on him. The lion awakes, places his huge paw on the mouse, and opens his jaws to swallow him. The mouse pleads for forgiveness and pledges to help the lion in the future. The lion finds the promise amusing and lets the mouse go. Sometime later, the hunters capture the lion and put him in a cage, bound in ropes. The mouse, who happens to be around, runs to the lion, gnaws the ropes and releases him. The strength of the mouse's promise is thus vindicated. The moral of the fable is that small acts of kindness may reap a huge reward. The relevant metaphorical correspondences are spelled out in Table 4:

There is only one level of interpretation since, unlike *Animal Farm*, discussed below, source characters do not map onto identifiable historical figures but simply to types of people. Thus, in the metaphorical target, the lion is not a specific strong, self-reliant person but any such person. This elaboration is possible through the application of the MEMBER FOR CLASS metonymy, whereby each categorizable source element maps onto a class of elements in the target. In this fable, this elaboration applies to target domain correspondences for the lion and the mouse.

The full map of personality traits results from chaining the metaphor ANIMALS ARE PEOPLE to PEOPLE ARE ANIMALS. The former metaphor allows us to see animal attributes such as strength or weakness in terms of corresponding physical and/or moral attributes in humans. As a result, human attributes such as spite or mercy are seen in terms of animal attributes like a powerful animal's instinctive decision to kill a weaker animal or simply ignore it. The fable makes use of analogical reasoning based on structural similarity:

A capable person (A) is to the domain of self-reliance (B) what a lion (C) is to the domain of physical strength (D). Therefore, a capable person (A) is a lion (C) and self-reliance (B) is physical strength (D).
An incapable person (A) is to the domain of self-reliance (B) what a mouse (C) is to the domain of physical strength (D). Therefore, an incapable person (A) is a mouse (C) and self-reliance (B) is physical strength (D).

This case of analogical reasoning is based on the sharp contrast between attributed features of lions and mice as representative of strong and weak creatures. For this reason, structural similarity spins around two contrasting but complementary analogical judgments. All target-domain attributes in the mapping, like the capricious attitude of the powerful and their potentially harmful behavior with the weak, arise from the 'lion-to-strong people' and 'mouse-to-weak people' correspondences.

Table 4

Cross-domain correspondences in "The Lion and the Mouse".

SOURCE	TARGET
Lion	Strong, self-reliant people
Mouse	Weak and apparently expendable people who can later be useful
The mouse inadvertently bothering the lion	The ignorance of the weak, which can annoy the strong
The instinctive reaction of the lion to kill the mouse	The natural inclination of some strong people to do harm to the weak
The mouse's plead for mercy in exchange for future help for the lion	A weakling's plea for mercy in exchange for future help for the strong person
The lion's capricious attitude of amusement and contempt for the mouse	The capricious attitude of amusement and contempt of strong people toward the weak
The unexpected lion's mishap	Any misfortune that may befall unsuspecting strong people
The unexpected help provided by the mouse	Any unexpected help provided by the weak to the strong
The vindication of the mouse's reliability	The vindication of a weak person's reliability

We finish with a more complex case of an allegorical fable, a satirical novella, where the characters stand for real people: George Orwell's (1945) *Animal Farm*. We provide a necessarily selective summary. The story takes place at Mr. Jones' Manor Farm, where Old Major, a pig, instills his philosophy of Animalism in all animals to free them from human tyranny. The animals, led by two young pigs, Snowball and Napoleon, plot a rebellion against Jones, who is thrown off the farm along with his men. Manor Farm is renamed Animal Farm and the animals adopt the Seven Commandments of Animalism, the most important of which is *All animals are equal*. Initially, the rebellion is a success. However, the pigs soon rise to leadership positions and abuse their power. Napoleon hires the services of Squealer, a pig who has the ability to persuade the other animals that pigs always do the right thing. Snowball, in turn, proves to be a genius of tactics and inventiveness. He tries to improve living conditions on the farm by building a windmill to supply electricity to the farm and make it possible for the animals to work less. Napoleon boycotts the plan, expels Snowball from the farm and then tells the animals that the idea of building the windmill, which was his own, had been stolen by Snowball, who becomes a scapegoat from that point on. To build the windmill the animals count on Boxer, an incredibly strong horse. Gradually, Napoleon becomes a totalitarian dictator. He breaks the principles of Animalism by trading with neighboring farms and extracts forced confessions from innocent animals that are exemplarily executed by the dogs in front of the other animals. The pigs move into Jones' house, they begin sleeping in beds and grow fatter while the rest of the animals receive less and less food. Owing to the many successive violations of the Commandments, they are revised and readjusted accordingly. Boxer works strenuously and, exhausted, collapses. Napoleon sells the poor horse to a slaughterhouse, but Squealer tells the animals that Boxer was in fact taken to a veterinarian and died peacefully in a hospital. As the years go by, Animal Farm expands through the purchase of property from a neighboring farmer, Pilk-

Table 5
Figurative interpretation of the main characters in Animal Farm.

SOURCE	TARGET
Old Major (a pig)	Level 1: Since he lays out the foundations of the revolution, he stands for Karl Marx, one of the founders of communism, and for Vladimir Lenin, the communist leader of the Russian Revolution and the early Soviet Union.
	Level 2: Old Major also stands for the power of ideology and for anyone that is capable of conceiving an enforceable system of political beliefs.
Napoleon (a pig)	Level 1: Napoleon, the leader of Animal Farm, is a representation of Joseph Stalin.
	Level 2: Napoleon represents anyone oriented toward totalitarianism based on ideological premises that can be discarded as appropriate for the sake of power.
Snowball (a pig)	Level 1: Napoleon's foe and the farm's first manager following Jones' removal. Although there is no mention of Snowball being assassinated (like Trotsky was), his life is similar to that of Leon Trotsky, combined with some Leninist features.
	Level 2: Any person that has the values and ingenuity that Trotsky represents.
Squealer (a pig)	Level 1: The Soviet *nomenklatura* and the journalists, including those at the official newspaper *Pravda* (*The Truth*), are depicted as a small, white, and fat pig that serves as Napoleon's second-in-command and minister of propaganda. These individuals are capable of justifying Stalin's policies at every turn.
	Level 2: Any person who twists truth and abandons moral standards to stay close to power.
The executed animals	Level 1: The people executed in the various revolutionary purges.
	Level 2: Anyone who is eliminated for getting in the way of those in power.
Mr. Jones	Level 1: The animals on the farm rebel against him when, after a drunken night, he completely ignores them. He stands for Nicholas II of Russia, who abdicated after the February Revolution of 1917.
	Level 2: Anyone with government responsibilities who neglects their duties to the people.
Mr. Frederik (neighboring farmer)	Level 1: In order to sell the additional lumber that Pilkington was also looking for, Napoleon teams up with Frederick. However, he is furious to discover that Frederick paid him with counterfeit money. Frederick and his men assault Animal Farm soon after. These events may allude to the Molotov-Ribbentrop Pact (the brief alliance) and Operation Barbarossa (the ensuing invasion).
	Level 2: Anyone who lacks integrity and is consequently capable of betraying allies.
Mr. Pilkington	Level 1: The owner of Foxwood Farm, a sizable nearby farm, Pilkington is wealthier and has more land than Frederick, but unlike Frederick's, Pilkington's farm requires more attention. Pilkington, who has a strained relationship with Frederick, is also worried about the animal revolution that brought Jones down and fears that the same thing could happen to him.
	Level 2: Any country ruler afraid of an eventual communist takeover.
Boxer (a horse)	Level 1: The loyal horse, strong and hard-working, but naïve. Boxer has been compared to Alexey Stakhanov, the role model of the Stakhanovite movement (workers who took pride in producing more than required).
	Level 2: Any loyal, strong, and hardworking laborer who will work to exhaustion to further a false ideal.

ington. Eventually, the pigs begin to walk on their hind legs and the Seven Commandments are reduced to a single one: *All Animals Are Equal / But Some Are More Equal Than Others*. The allegory ends with a scene in Jones' house, where Pilkington has some drinks with the pigs. The name of the farm is changed back to Manor Farm. During a game of cards, in which both try to play the same high card, Napoleon and Pilkington begin to quarrel. Outside the window, other animals observe this scene but are unable to distinguish between the people and the pigs.

In *Animal Farm* characters stand for real historical figures. We offer below (Table 5) a plausible interpretation (cf. Dickstein, 2007; Rodden, 1999) with two levels of interpretation for the most significant characters:

The metonymy MEMBER FOR CLASS is only active at level 2 of interpretation. This is the level that arises from working out the structural parallels that hold between the traits that distinguish each character in the allegory and their equivalent attributes in the real-life referent at level 1 of interpretation. Level 1 is based on a form of analogical reasoning that results in the creation of a paragon-based antonomasia:

Old Major (A) is to Animalism (B) what Marx and Lenin (C) were to Communism (D). Therefore, Old Major is the Marx and Lenin of Animalism.

Animalism and Communism are used as comparable domains of reference for the A is C connection to be workable. Since Marx and Lenin stand for their ideology and cultural values, the conclusion part of the analogical judgment (Old Major is the Marx and Lenin of Animalism) further qualifies as an example of paragon. In Plato's allegory of the cave or in Aesop's fable "The lion and the mouse" the characters are not cases of paragon. Paragon is a case of metaphtonymy constructed by elaborating the metaphoric source through a domain reduction (or target-in-source) metonymy (e.g., Marx stands for his ideas), which applies at level 1 of the interpretation of the target of the allegory. Level 2 involves a source-in-target metonymy involving domain expansion from the specific character to any member of the category that it represents. In the allegory of the cave or in Aesop's fable, by contrast, there is no level-1 interpretation, but level-2. As a result, the metaphorical target is only sensitive to the source-in-target MEMBER FOR CLASS metonymy (e.g., the runaway slave maps onto a philosopher, who stands for any philosopher; the lion maps onto any self-reliant person, etc.). Also, note that, even though in this specific fable some animals represent certain historical figures at level 1, it is the ANIMALS ARE PEOPLE and PEOPLE ARE ANIMALS metaphoric chain that configures the essential personality traits of each of these characters. Thus, through ANIMALS ARE PEOPLE, each different pig has a human-like role on the farm that somehow relates metaphorically to the role of a historical figure in the Russian Revolution. At the same time, through PEOPLE ARE PIGS, as a specification of PEOPLE ARE ANIMALS, some of these revolutionary figures inherit negative connotations of immoral behavior (e.g., abuse of power, treacherous acts, deceitful behavior). This happens by virtue of the incorporation of IMMORALITY IS FILTH to PEOPLE ARE ANIMALS, a cognitive operation that gives rise to the metaphorical amalgam IMMORAL PEOPLE ARE FILTHY ANIMALS (Ruiz de Mendoza, 2017; Miró, 2018). This amalgam is possible through the licensing power of the EFFECT FOR CAUSE metonymy, which allows us to match two unrelated causes, immorality and filth, through the commonality of their respective effects, i.e., through the fact that immorality and filth generally cause disgust in people.

In view of the examples of simple and complex fable discussed earlier, we are now in a position to define fable in cognitive-linguistic terms. This definition simply requires a small elaboration of the general definition for allegory:

A fable is a narrative form of analogy-based reasoning exploiting cross-domain structural similarities where each entity-denoting target element stands for a class of items, with each source element being molded by the chained combination of the ANIMALS ARE PEOPLE and PEOPLE ARE ANIMALS metaphors, thereby ascribing human features to animals, which are then seen as characterized by such human features, and where any other form of non-structural similarity is secondary to and dependent on the general structural similarity pattern.

4. CONCLUSION

This paper has provided a preliminary discussion of the role of structural similarity, to be contrasted with attribute-based similarity, in figurative language. The discussion has first defined and illustrated structural similarity as the result of setting up parallels between pairs of concepts standing in a sub-domain-to-domain relationship. Such parallels are at the basis of analogy-based judgments of the following kind: A is to B what C is to D. Therefore, A is C and B is D. These conclusions can be regarded as metaphorical to the extent that their terms do not relate descriptively, i.e., when there is no self-evident ground for a comparison between them. The next step has been to distinguish between low-level and high-level structural similarity. The former focuses on concrete concepts, whereas the latter works on the basis of

abstract concepts. Low-level similarity can apply to the concrete aspects of entities, situations, or events, whereas high-level similarity works on the basis of abstract patterns like effect-cause and goal-plans.

Up to this point, the exploration of the role of structural similarity in metaphor has focused on bare metaphors. However, research on metaphor has long shown its sensitivity to metonymic elaboration, especially in the wake of Goossens's (1990) pioneering study on metaphtonymy. Interestingly, work on metaphtonymy does not address combinations whose metaphorical component is based on structural similarity. We have undertaken this exploration by studying paragon-based antonomasia featuring characters and events that are paradigmatic of certain attributes in a given domain of reference. These attributes, which are highlighted through metonymic domain reduction, become conceptually prominent in a cross-domain metaphorical mapping from the source paradigmatic concept to a corresponding target concept that is likewise paradigmatic within its own domain of reference.

The exploration of analogy-based metaphor in its interaction with metonymy has taken us beyond the lexical and predicational domain of analysis to the world of narrative structures. In this regard, we have selected allegory and two variants of allegory, viz. parable and fable. We have treated allegory as a metaphorical cross-domain mapping grounded in analogy. It uses structure-based similarity to establish the basic logic of relations between characters and events, which are then enriched through other forms of similarity. The target of such a mapping is systematically elaborated through the MEMBER FOR CLASS metonymy, whose role is to extend the source-target reasoning beyond the scope of individual characters to whole classes. Parables are allegories that add a moral conclusion that arises from the correspondence or correspondences that encapsulate the outcome of the narrative. Fables have a moral too, but they incorporate an extra level of complexity by using animals with human-like attributes in the source of the cross-domain mapping. The target domain makes use of the MEMBER FOR CLASS metonymy in the same way as the other forms of allegorical thought.

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Data availability

No data was used for the research described in the article.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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