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Extending extended conceptual metaphor theory: rethinking levels, modalities, and meaning-making

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Abstract: The following article aims to synthesize, review, and extend the existing framework of the multilevel approach to metaphor. The synthesis provides insight into how various levels of the human conceptual structure participate in the emergence of metaphoricity in gesture and visuals. The critical part of the paper evaluates contentious areas of the framework, focusing in particular on the question of reconciling the fuzzy, gradable character of the human conceptual system with much needed analytical rigor in analyzing metaphor, and proposes some tentative ways of overcoming these methodological and conceptual tensions. In the final part of the article, two additional levels of the conceptual structure are proposed, the level of mimetic schemas and constructions, providing more granularity for the future analysis within the multilevel approach.

Keywords: conceptual metaphor; levels of metaphor; multilevel approach to metaphor; conceptual system

1 Introduction

In the 2017 article *Levels of metaphor* Kövecses (2017) introduced an extended, refined view of the human conceptual system and the emergence of metaphorical conceptualizations. The view, chiefly based on the decades of previous work on various elements of the human conceptual system, presents metaphor as involving several levels of schematicity, from cognitively basic image schemas, through domains, frames, to contextually rich and discourse-embedded metaphorical scenarios, with each level contributing different conceptual content. The schematic representation of such a hierarchy of schematicity is presented in Figure 1 below.

The hierarchy of schematicity presented above signifies a long-lasting claim in the cognitive linguistic literature that concepts reside in what has been called

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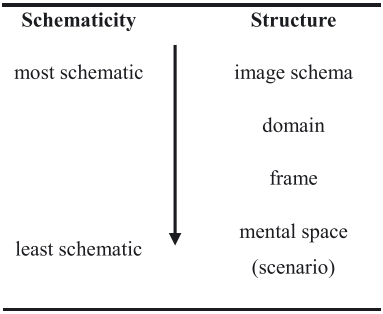

Figure 1: Levels of schematicity in the multilevel approach to metaphor, as shown in Kövecses (2017).

conceptual structure, "the patterns of knowledge representation, and the meaning construction processes that inhere in the mind" (Evans 2019: 42), revealed in language and other modalities. The hierarchical nature of the human conceptual system is primarily based on the idea that concepts in the human mind do not have rigid, stable boundaries but are inherently fuzzy and subject to changes (Rosch 1973, 1975), the claim that has shaped a large portion of the cognitive approaches to language and meaning-making (e.g., Lakoff and Johnson 1980, Lakoff 1990, Evans 2006, Langacker 2013). A renewed emphasis on the hierarchical approach to the human conceptual system, as proposed by Kövecses in the multilevel approach to metaphor, has generated a large number of studies both vastly confirming the idea of levels in the human mind, and reevaluating some of the assumptions of this approach. The general premise behind the emphasis is grounded as follows:

> My suggestion will be that it is best to think of conceptual metaphors as simultaneously involving several conceptual structures, or units, on a variety of different levels of schematicity. (…) My claim is that the resulting overall picture of conceptual metaphors provides us with a new comprehensive framework for the study of metaphor in CMT. (Kövecses 2017: 2).

Despite its quite short lifespan, the multilevel approach to metaphor has gained much interest, resulting in several further additions to the original idea (e.g., Kövecses 2020a; 2020b; 2020, , 2023, 2024) and a number of empirical analyses, both linguistic and multimodal (Dyrmo 2022a, 2022b, 2024b, Kazemian et al. 2022, Yu 2022, Esbri-Blasco 2024).

The following paper is an attempt to synthesize, evaluate and extend the proposed multilevel approach, taking into account what has so far been done in the multilevel approach to metaphor. To achieve this, I first explain the levels of metaphor, as proposed in the original account, and offer some evidence for its explanatory value and wide applicability. Then I critically evaluate some of the

contentious areas of the proposal, and suggest some tentative ways of solving resulting problems. Later I propose two additions to the levels of schematicity, mimetic schema and constructions, and explain how they fit and enrich the overall hierarchical perspective on the human conceptual system.

2 Levels of metaphor

Kövecses (2017) has proposed four levels of the conceptual structure: image schemas as the most schematic, pre-conceptual structures, such as CONTAINER, VERTICALITY, and OBJECT image schemas, domains, such as the domains of BUILDING or JOURNEY, frames, which "elaborate particular aspects of a domain matrix" (Kövecses 2017: 5), and mental spaces, equated with metaphorical scenarios, which are more specific than frame structures as they "do not operate with generic roles and relations" (Kövecses 2017: 6). All of these levels together participate in "structured conceptual experience" (Kövecses 2017: 7), with no particular level of the hierarchy privileged over others. The studies below showcase how this "structured conceptual experience" is expressed via three different modalities: language, pictures, and gesture, to illustrate fairly broad analytical applicability of the multilevel approach to conceptual metaphor. Simultaneously, I aim to highlight some emerging challenges regarding the claim of theoretical equivalence and symmetry across the proposed levels.

2.1 Levels of metaphor in language

Linguistic analyses based on the multilevel approach has naturally been the most numerous, reflecting, at least to some extent, the primacy of (spoken) language in linguistics (e.g., Cohn and Schilperoord 2022). Language as a modality has proven informative in analyzing the levels of conceptual structure. Kövecses (2017) in the original, programmatic paper introducing the multilevel approach, relies solely on linguistic examples in his analysis of THEORIES (AND ARGUMENTS) ARE BUILDINGS:

(1) Is that the *foundation* for your theory?
(2) This theory needs more *support.*
(3) The argument is *shaky.*
(4) We need some more facts or the argument will *fall apart.*

The decomposition of this metaphor reveals how the levels come together to build a coherent metaphorical message: image schemas of EXTENSION, CONTAINER, OBJECT, and WHOLE-PART participate in the emergence of such domains as SHAPE, SIZE, COLOR, SPACE,

STRUCTURE, which then get elaborated into frames for BUILDING and PHYSICAL SUPPORT, lending the final parts for the emergence of mental spaces (scenarios) (Kövecses 2017: 18).

Later linguistic analyses reveal the applicability of the multilevel approach to poetic language, as Kövecses himself shows in the analysis of sonnet 18 by Shakespeare (Kövecses 2020b: 77). The level-inspired interpretation of the metaphoricity in the sonnet unfolds in the following way (Figure 2):

We see that the schematic elements of INTENSITY transfer to the domains of EMOTIONS, which are later elaborated into frames motivating the fire-centered metaphor of LOVE IS HEAT, which, at the level of mental spaces becomes the most poetic interpretation of the INTENSITY OF LOVE being understood in terms of a summer day's heat. Similarly, in the most recent application of the multilevel approach, Kövecses (2024) shows how particular levels of the human conceptual system can be applied to proverbs. In a sample analysis of "look before you leap", advising caution before making a move, he suggests that the underlying image schematic pattern that motivates the meaning of the proverb is ACTION IS MOTION, which later gets elaborated to the domain-level LIFE IS TRAVEL metaphor, which, when contextualized, becomes LEADING A LIFE IS JOURNEYING, finishing with the least schematic level of mental spaces (scenarios), resulting in GETTING MARRIED IN A QUICK AND HASTY WAY IS LEAPING TO A PLACE THAT MAY NOT BE SAFE (Kövecses 2024: 32).

In the analysis of coming out stories, Dyrmo (2022a) applies the multilevel approach to check the applicability of the model from a usage-based perspective, surveying archival data available from the Internet. Apart from analyzing the levels that have been proposed in the initial formulation of the multilevel approach, Dyrmo (2022a) also suggests that simple image schematic structures may give rise to complex image schemas, such as ITERATION, which is composed of SOURCE-PATH-GOAL and PROCESS image schemas. The following examples serve as an illustration (from Dyrmo 2022a: 31):

Level	Description
Image Schema	Intensity is heat/cold
Domain	Emotion is temperature: Intensity of emotion is the degree of heat/cold
Frame	Love is fire: Love's intensity is the degree of heat of fire
Mental Space	The intensity of the poet's love is the degree of a summer day's heat

Figure 2: A level-inspired interpretation of Shakespeare's sonnet 18 (from Kövecses 2020a).

(5) I realized that I was actually gay though so I *re-came out.*
(6) I'm starting to *come out again.*

ITERATION image schema is relevant to the analysis of coming out specifically, as the experience of revealing one's sexual orientation and gender identity is recurrent and iterative. As a recent review shows (Mousavi et al. 2024), identity disclosure is "multiple [and] nonlinear" (2024: 2), marked by moments of revealing, concealing and negotiating identity. This recurring non-linear nature of coming out aligns with the iteration image schema, based on the repetitive nature of events. ITERATION image schema serves as the conceptual foundation for the domain of MOVEMENT, which is an inherent element of the COMING OUT frame, with its roles and relations. The frame of COMING OUT is then elaborated further and with added context becomes a scenario of COMING OUT OF A CONTAINER IS REVEALING ONE'S IDENTITY. Figure 3 below illustrates the emergence of the metaphorical scenario.

In a parallel study on Polish data, Dyrmo (2023a) analyzed the possible levels of conceptualization in coming out accounts elicited from LGBT+ individuals via a survey. A comparison between the levels of schematicity between the English dataset (Dyrmo 2022a) and the Polish dataset has revealed major similarities in terms of the image schematic structures: in both studies, the image schemas of CONTAINER, FORCE, and OBJECT were the most prominent, which likely stems from the general experiential character of coming out being generally understood as movement out of a container. Interestingly, in the Polish dataset, the study participants have not touched upon the iterative character of the coming out process, leaving ITERATION image schema out of the picture altogether, with the level of scenarios largely converging on COMING OUT IS SHIFTING A HEAVY OBJECT OFF YOUR SHOULDERS, present in both languages.

Kazemian et al. (2022) analyzed the conceptualization patterns of the COVID-19 pandemic and offered a comprehensive level-inspired interpretation. Their analysis has shown that fighting with the pandemic is conceptualized in terms of FORCE image schema, which later becomes the domain-level metaphor of ILLNESS IS AN INTERACTION OF

Schematicity	Structure	Elements
most schematic	image schema	**iteration**, container, force
	domain	**movement**, transfer
	frame	**coming out**
least schematic	mental space (scenario)	**coming out of the container is revealing one's identity**

Figure 3: A multilevel model of coming out, adapted from Dyrmo (2022a).

FORCES BETWEEN FORCEFUL ENTITIES, later elaborated into the frame level metaphor of COVID IS AN OPPONENT. At the level of mental spaces (or scenarios) we arrive at THE RECOVERY/DEATH OF PATIENTS INFECTED WITH COVID-19 IS A VICTORY/DEFEAT IN A HARD-FOUGHT BATTLE (2022: 445). Later analyses also show a separate conceptualization pattern: although COVID-19 is still conceptualized in terms of FORCE image schema, the frame-level metaphor of COVID IS FIRE gets elaborated into a rich scenario of REPUBLICANS' WILLINGNESS FOR AN INCREASE IN THE NUMBER OF COVID-19 INFECTED AMERICANS IS THROWING AMERICAN PEOPLE INTO THE FIRE (2022: 447). The analysis shows that the image schematic elements are the most stable across all levels, with variability increasing with a decrease in schematicity.

The multilevel approach to metaphorical conceptualization can also be to some extent applied to the analysis of keywords, such as in the study by Dąbrowska (2023) and the analysis of the word *flounder* in Polish. Dąbrowska has shown that the image schema of PART-WHOLE, motivating the metaphor A HUMAN BEING IS AN ANIMAL, gets elaborated into the metaphor of HUMAN CHARACTERISTICS ARE ANIMAL CHARACTERISTICS. From this level, the metaphor gets individualized into A WOMAN WHO IS/LOOKS SLOPPY IS A FLOUNDER, which results in the mental-level interpretation of X (FEMALE INDIVIDUAL) WHO IS/LOOKS/IS DRESSED INAPPROPRIATELY IS A FLOUNDER (2023: 90). Dąbrowska suggests that the multilevel approach to metaphor brings about the fundamental role of mental spaces and "the contemporary ways of thinking about reality, systems of ordering and evaluating the world" (2023: 93), which seems to chime well with the discourse-structuring function of metaphorical scenarios, the issue I come back later in the paper.

In a study on emotion concepts, Esbri-Blasco (2024) analyses the following sentences:

(7) Mailer's anger *boiled over* and he sent Vidal to the ground with a punch (COCA, 2016, MAG: Scientific American).

(8) Dylan *cheered me up* immeasurably that night, even throwing in my favourite song (COCA, 2005, MAG: Backpacker).

The analysis of the metaphorical conceptualization in (7) unfolds in the following way: first, FORCE image schema (CAUSES ARE FORCES) serves as the conceptual foundation for the domain level EMOTIONS ARE CONTAINED FORCES metaphor, which is later developed into the frame ANGER IS A HOT FLUID IN A CONTAINER, giving rise to the mental space-level interpretation of MAILER LOSING CONTROL OF THE INTENSITY OF HIS ANGER IS AN OVER-PRESSURIZED HOT LIQUID OVERFLOWING/SPILLING OUT OF A BOILING POT. In the analysis of (8) Espiri-Blasco postulates the following interpretation: the image schema of STATES ARE SPATIAL LOCATION develops into the domain-level metaphor of EMOTIONS ARE POSITIONINGS ALONG THE VERTICAL DIMENSION, which gives rise to the frame-level metaphor of HAPPINESS IS UP, and later to the mental space level of DYLAN IMPROVING SOMEONE'S MOOD IS AN ENTITY MOVING SOMEONE UPWARDS/ELEVATING SOMEONE TO A HIGHER LOCATION (2024: 143).

A cursory look at the above studies shows that linguistic metaphorical expressions has provided a valuable testing ground for the multilevel approach to metaphor. It has been shown that the levels of metaphor can be applied to various types of data, ranging from poetry, archival datasets and corpus data, with a variety of different topics under investigation. Yet, for a cognitive theory of meaning-making to be analytically robust, it needs to withstand the pressures of different semiotic modalities and their affordances. As aptly put by Hart and Mormol Queralto (2021), "the cognitive processes involved in language are not unique to language but are manifestations of more general cognitive processes found to function in other non-linguistic domains of cognition" (2021: 532). With this in mind, the following subsections explore two semiotic modalities: the visual and the gestural.

2.2 Levels of metaphor in visuals

The multilevel approach to metaphor offers preliminary yet telling evidence of the interplay between different conceptual structures in the interpretation of visuals. One such source of evidence is a study by Kövecses (2020a). In a more theoretical analysis of cubism as a form of artistic expression, Kövecses proposes that cubism can be conceived of as A COMPLEX ABSTRACT SYSTEM, understood in terms of an image schematic idea of A COMPLEX PHYSICAL OBJECT. At the level of domains, he sees several concepts as playing a part in the conceptualization of cubism: CREATION, SHAPE, SIZE, TYPE, STRUCTURE, CONSTITUENT MATERIALS, FUNCTION, OPERATION, FORCE and MOTION (2020a: 24). At the level of frames, a cubist painting is enriched with further specificity, resulting in CUBIST PAINTING IS AN AIRPLANE. At the level of mental spaces, the emerging metaphor is couched as: THE FRAGILITY AND UNCERTAIN FATE OF CUBISM AT THE TIME OF ITS EMERGENCE IS THE FRAGILITY AND UNCERTAINTY THAT COMES FROM THE LIGHTNESS AND CONSTITUENT MATERIALS OF THE AIRPLANE THAT IS ABOUT TO TAKE OFF, a maximally discourse-embedded interpretation of a cubist painting.

Dyrmo (2024a) has proposed a more extensive analysis of visual metaphors. In the analysis of distress relief posters released after the 2011 earthquake in Japan, he shows the progressive increase in cognitive complexity of the levels as they emerge from the interpretation of the posters. An example of such an increase is shown in the interpretation of the "Unexpected pain" poster, which shows a big red circle (the flag of Japan used metonymically) sliced in half, with blood gushing from the cut. PART-WHOLE image schema, exemplifying a fundamental human tendency to perceive wholes in a positive, gestalt-like fashion, serves as the default setup for the interpretation of the poster. The severance of wholeness leads to PAIN (the domain level

interpretation), which is caused by A NATURAL DISASTER (the frame level interpretation), resulting in the scenario-level metaphor of BEING CUT IN HALF IS PAIN. This is shown in Figure 4 below.

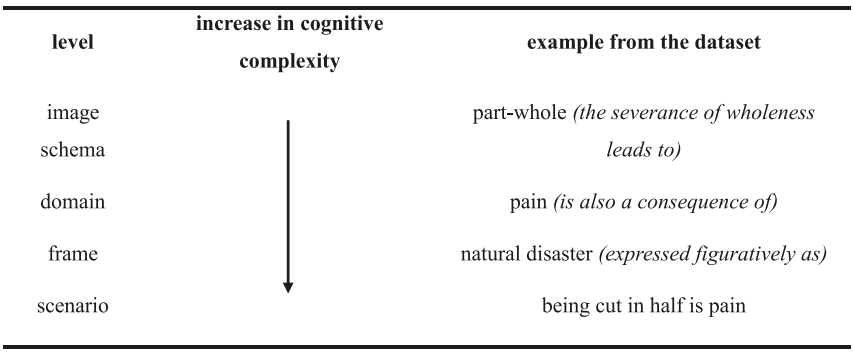

Figure 4: Levels of schematicity in the intepretation of the "Unexpected pain" poster, as in (Dyrmo 2024a: 4).

In this visual analysis, the question of the role of metonymy arises and its role in the interpretation of the metaphorical meaning progressively evoked by the levels of the conceptual structure. It is explicitly stated that some visual messages do not offer readily available interpretation at the level of scenario: "the frame level metonymy seems to considerably influence the reading of the poster, excluding a clear-cut establishment of a motivating scenario, with no salient meaning emerging from the scenario level" (Dyrmo 2024a: 16).

2.3 Levels of metaphor in gesture

Gestures as an expressive modality has provided ample evidence for the extralinguistic, embodied presence of metaphor (e.g., Tuite 1993, Cienki 2004, Casasanto and Jasmin 2012, Valenzuela et al. 2020), with some of the levels of the human conceptual structure receiving focused attention, such as image schemas and frames (e.g., Cienki 2004, Chui 2012, Mittelberg 2017). Despite the fact that separate analyses have highlighted how a metaphorical reading of a given gesture is reached at a particular level, they have necessarily paid rather minimal notice to the interactions between the levels, noting only in passing that "representational gestures (iconics and metaphorics) differ from beats in terms of both their semiotics and their motoric *complexity*" (Tuite 1993: 100, italics mine).

An integration of all the proposed levels of the conceptual structure in the context of gesture is presented in Dyrmo (2023b). Gestures are shown as being capable of embodying different levels of the human conceptual system, from the image schemas of OBJECT and SOURCE-PATH-GOAL, through the domain of TRANSFER, the frame of COMING OUT, to the least schematic scenario of COMING OUT IS SHOWING AN OBJECT. The logic of this interpretation is built upon the cognitively primary meanings of image schemas, which then participate in the emergence of the TRANSFER (of an image schematic OBJECT) domain, which directly links to contextualized COMING OUT frame. The COMING OUT frame, embodied in gesture, supported by image schematic properties of OBJECT, and the domain-level TRANSFER, can be shared in a given culture/discourse community and thus becomes a variable and context-dependent scenario. A visual representation of the levels in gesture is shown below (from Dyrmo 2023b: 345) (Figures 5–8):

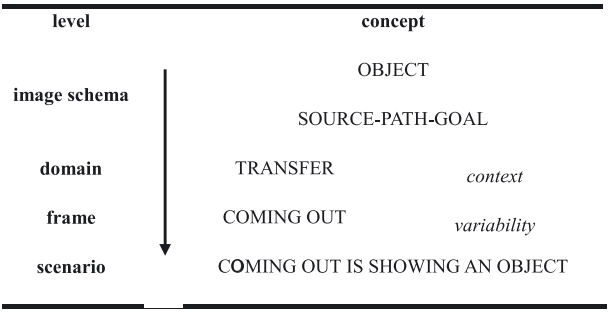

Figure 5: Levels of schematicity in gesture.

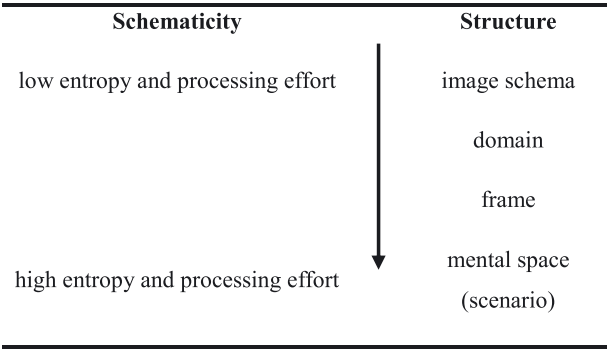

Figure 6: An entropy-based approach to conceptual structure.

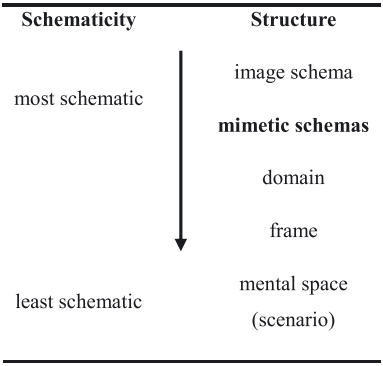

Figure 7: Mimetic schema in the multilevel approach to metaphor.

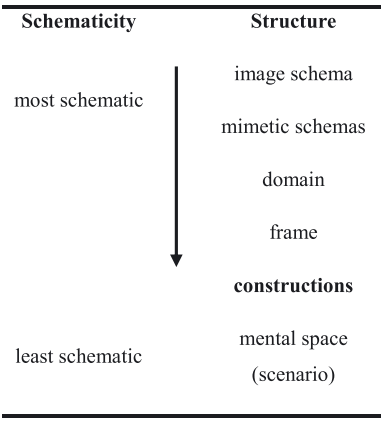

Figure 8: Constructions in the multilevel approach to metaphor.

In a level-inspired analysis of swearwords, Dyrmo (2024b) also shows the multimodal applicability of the framework. In the investigation of "fuck off" and the accompanying gestures, it is revealed that image schematic structures underpin the scenarios embodied in gesture. For example, it has been shown that when people use the "fuck off" in their speech, use the co-expressive gestures to convey the meaning of an image schematic OBJECT being blocked from reaching the immediate space surrounding a person. This, in turn, shows their refusal to talk or to accept a topic of conversation. At the scenario level, this can be interpreted as REFUSING TO ACCEPT A PIECE OF INFORMATION IS BLOCKING THE OBJECT'S WAY FORWARD, which instantaneously highlights the image schemas of OBJECT, BLOCKAGE, and SOURCE-PATH-GOAL. The analysis also

showcases the role of salience in the emergence of a given interpretation: because gestures are unlikely to simultaneously express two ideas with the same level of granularity (OBJECT vs SOURCE-PATH-GOAL), image schematic structures act as *salience amplifiers*, directing attention either on the object-like or path-like properties of gesture (see Dyrmo 2024c: 10).

Level-oriented gestural analyses of metaphorical meaning show further applicability of the hierarchical view on the human conceptual system. It has been shown, for instance, that bodily enacted image schemas serve as the kinesthetic building blocks for the more complex level of domains and frames. These more complex structures, in turn, motivate the emergence of a culturally shared understanding of SECRETS as OBJECTS that can be transferred to another person in the gestural scenario of COMING OUT.

Table 1 is an overview of the studies focusing on the multilevel approach metaphor as viewed in Extended Conceptual Metaphor Theory. It outlines the studies' focus, the underlying image schemas, conceptual domains, frames, and mental spaces (scenarios) as well as the predominant modality.

3 Levels revisited

In this section, I attempt to highlight several points emerging from the above studies that require a more systematic look. I also propose some tentative ways of smoothing the emergent methodological and conceptual tensions. I focus in particular on the following aspects: fuzzy boundaries and analytical rigor in identifying the levels, the divide between the conceptual and the discursive approach to metaphor, the question of operationalization of the levels, and modalities with their affordances in investigating the human conceptual system. This section ends with a possible extension to the multilevel account, suggesting two additions: the levels of mimetic schemas and the level of constructions.

3.1 Fuzzy boundaries versus analytical rigor

The fuzzy, gradable nature of the human conceptual system is a long-standing assumption in the cognitive approaches to meaning (e.g., Rosch 1973, 1975, Kelly et al. 1986). This assumption is also echoed in the multilevel approach to metaphor:

> The view entails that, given particular concepts, the various levels of schematicity form a *continuous* hierarchy; the various levels *shade gradually* into more or less schematic levels. In other words, the levels within such schematicity hierarchies do not have rigid boundaries but are *graded* as regards their schematicity. (Kövecses 2020b: 52, italics mine)

Table 1: A summary of the current studies in the Extended Conceptual Metaphor Theory.

Study	Modality	Focus	Image schemas	Domains	Frames	Mental spaces (scenarios)
Dyrmo (2023b)	Gesture	Gesture metaphors in coming out narratives	OBJECT, SOURCE-PATH-GOAL	TRANSFER	COMING OUT	Coming out is showing an object
Dyrmo (2024b)	Gesture	Gesture metaphors in swearwords ("fuck off")	OBJECT, BLOCKAGE, SOURCE-PATH-GOAL	INTERACTION, REFUSAL	REFUSING TO ACCEPT INFO IS BLOCKING OBJECT'S WAY	Blocking an object's path is refusing information
Dyrmo (2022a)	Language	Coming out stories (English dataset)	ITERATION, CONTAINER, FORCE	MOVEMENT, TRANSFER	COMING OUT	Coming out of a container is revealing one's identity
Dyrmo (2023a)	Language	Coming out stories (Polish dataset)	CONTAINER, FORCE, OBJECT	MOVEMENT, WEIGHT	COMING OUT	Coming out is shifting a heavy object off your shoulders
Dąbrowska (2023)	Language	Keyword analysis in Polish (e.g., "flounder")	PART-WHOLE	HUMAN CHARACTERISTICS ARE ANIMAL CHARACTERISTICS	A HUMAN BEING IS AN ANIMAL	A woman who is sloppy is a flounder
Esbri-Blasco (2024)	Language	Emotion metaphors in language	CAUSES ARE FORCES, STATES ARE SPATIAL LOCATIONS	EMOTIONS ARE CONTAINED FORCES, EMOTIONS ARE POSITIONINGS	ANGER IS A HOT FLUID IN A CONTAINER/HAPPINESS IS UP	Losing control of anger is boiling over/Improving mood is being elevated
Kazemian et al. (2022)	Language	Conceptualization of COVID-19 pandemic	FORCE, INTERACTION OF FORCES	ILLNESS AS FORCE, OPPONENT	COVID IS AN OPPONENT/COVID IS FIRE	Recovery/death from COVID is victory/defeat in battle
Kövecses (2017)	Language	Multilevel conceptual structure of metaphor	CONTAINER, VERTICALITY, OBJECT	SHAPE, SIZE, SPACE, STRUCTURE	THEORIES ARE BUILDINGS	No privileged level; all contribute to structured conceptual experience
Kövecses (2020b)	Language	Poetic language (Shakespeare's Sonnet 18)	INTENSITY IS HEAT/COLD	EMOTION IS TEMPERATURE	LOVE IS FIRE	Intensity of love is summer day's heat
Kövecses (2024)	Language	Proverbs (e.g., "Look before you leap")	ACTION IS MOTION	LIFE IS TRAVEL	LEADING A LIFE IS JOURNEYING	Getting married hastily is leaping to an unsafe place
Kövecses (2020a)	Visuals	Visual metaphors in Cubism	COMPLEX ABSTRACT SYSTEM	CREATION, SHAPE, SIZE, TYPE, STRUCTURE, CONSTITUENT MATERIALS, FUNCTION, OPERATION, FORCE, MOTION	CUBIST PAINTING IS AN AIRPLANE	Uncertainty of Cubism is uncertainty of an airplane taking off
Dyrmo (2024a)	Visuals	Visual metaphors in distress relief posters	PART-WHOLE	PAIN	NATURAL DISASTER	Being cut in half is pain

Following the prototype-based approach to meaning, Kövecses postulates that the hierarchies that represent a progressive increase in cognitive complexity do not have rigid boundaries but are rather gradable. Although this assumption is correct and supported by a large number of studies, it necessarily poses methodological problems. If we follow the prototypicality assumption to the organization of metaphorical concepts in the human mind, to what extent are we able to identify particular levels of the hierarchy? Clausner and Croft (1999) signal a similar kind of a problem in their comment on image schemas and domains:

> We observe that some domains exhibit properties attributed to image schemas (they are schematic and persuasive), indeed these structures are identified in the theory as image schemas, yet exhibit properties of domain (they support different types of concept profiles) (1999: 21).

Clausner and Croft's (1999) comment on the parallels between image schemas and domains is not an isolated one. Allbritton (1995) makes a note of schemas derived from conceptual metaphors:

> Metaphor has been shown to serve a number of important cognitive functions, including that of making new conceptual domains accessible through metaphorical "scaffolds" imported from better-known domains, such as in the case of metaphors in science, and providing a coherent framework or schema for understanding such everyday topics as time, arguments, and emotions (1995: 43).

Allbritton's suggestion that schemas make certain domains of human experience more accessible by metaphorical "scaffolds" seems quite close to the multilevel approach to metaphor postulated much later by Kövecses. Both comments highlight the blurry nature of the division between various levels of the conceptual structure, with image schemas having some features of domains and vice versa, and with schemas guiding the understanding of such everyday topics as time or emotions. By way of example, in a study by Esbri-Blasco (2024) that I mentioned earlier the HAPPINESS metaphor is characterized at the level of frames as HAPPINESS IS UP. There seems to be no particular reason for this metaphor to be at this particular level, especially given that UP represents one of the most frequently analyzed image schemas in the cognitive linguistic literature (e.g., Johnson 1987, Lakoff 1990, Grady 2005, Peña 2008, Hedblom et al. 2024). Kövecses (2024) himself seems to treat the levels with some leeway. In his proverb analysis, he postulates that at the very top of the schematicity hierarchy resides the image schematic metaphor of COGNITION IS PERCEPTION (2024: 33). This does not align with the prototypical approach to image schematic labelling of metaphor, including his initial formulation of the multilevel approach (see Kövecses 2017: 18). Rather, this metaphor is a domain-level metaphor, based on a basic image schematic structure.

The question arises how to deal with the inherently fuzzy, unprecise character of the conceptual system if we aim to study metaphorical conceptualizations in a principled and reliable way, not relying solely on introspection, as it has not shown adequate reliability (e.g., Gibbs 2006). One way to possibly circumvent the problem is to start with a clearly delineated set of labels at one of the levels and extrapolate from them either to the more schematic or to the less schematic level. This has been done by Dyrmo (2024a) in the analysis of distress relief posters, which started with the level of image schemas and progressed along the hierarchy to the elements of higher cognitive complexity. The choice of image schema has been supported by the claim that "the identification of image schema has been relatively straightforward due to their relative cognitive basicness and a comprehensive list of psychologically plausible image schematic structures" (2024a: 7). From this perspective, it seems reasonable to follow an already existing body of literature in the identification of particular conceptual structures. Research on prototypicality effects (Geeraerts 2010) shows, for example, that categories can have both clearly delineated central members and more peripheral and context-sensitive extensions of the prototypical concepts. It provides both a more principled, reliable and replicable way of analyzing metaphorical concepts, and follows the Generalization Commitment, advising cognitive linguistic analyses to embrace broader context and findings offering insight into the human conceptual system at large (Lakoff 1990). The methodological choice to being with clearly delineated image schemas at the outset of the analysis makes it easier to trace conceptual patterns and maintain cognitive coherence within the analysis of metaphorical meaning.

3.2 Operationalization

Levels of processing have been present in psycholinguistic since Craik and Lockhart (1972) account of human memory. Since then, numerous applications of their framework have been worked out, including studies on lexical access (Caramazza 1997), language encoding (Eich 1985), or cognition in general (Roediger et al. 2002), with more recent approaches focused on the interaction between semantic processing and mood (Naranowicz and Jankowiak 2024).

I would like to suggest one of the possible ways of operationalizing the levels of conceptual structure akin to the levels of semantic processing, in terms of its cognitive complexity that might additionally help to establish a clearer, more principled analytical view. If we attempt to measure cognitive complexity of a given conceptual structure, I propose to rely on *information entropy* (Shannon 1948), a measure initially developed to handle density of information in mathematics,

already applied to linguistic research (Berger et al. 1996; Chen et al. 2016; Hale 2016). Research in cognitive neuroscience using information entropy has shown its useful application in investigating cognitive control of information processing and uncertainty reduction. Fan (2014) shows for instance that information processing and uncertainty reduction likewise work in a hierarchical faction, from highly abstract level of goal-making, to the high-level contextually detailed layer of cognitive processing (2014: 9–10). Similarly, Karimi et al. (2024) show entropy to be a good predictor of cognitive difficulty in linguistic tasks, especially in contextual uncertainty tasks, as measured by entropy. In the study, entropy levels seem to modulate lexical access: high entropy activates semantic features of words, allowing for quicker selection of the best candidate in a particular context. Entropy seems to be a suitable operationalization means for the levels of conceptual structure as it links cognitive complexity and schematicity to information processing demands and cognitive effort. This is also consistent with what Kövecses (2020a) claims of how meanings emerge: it is claimed that image schemas endow experiences with meaningfulness, the very idea of being *meaningful.* Then, with the increase of contextual factors (situational, bodily, discourse, conceptual-cognitive contexts), more cognitively demanding structures are accessed and activated (Kövecses 2020b: 167). Based on the emerging findings from entropy-based linguistic studies, it can be postulated that low-complexity levels (image schemas) generate low entropy, are easier and quicker to comprehend, whereas high-complexity levels (domains, frames, scenarios) generate high entropy because they are dependent on more contextual factors and require more cognitive processing. To test such a proposal, a hypothetical study could measure the processing of metaphorical expressions at different levels of complexity, ranging from basic image schemas to more elaborate and context-dependent metaphorical scenarios. This would offer empirical support for the claim that information entropy reflects cognitive demands in interpreting metaphorical meaning at various levels of schematicity.

3.3 Conceptual versus discursive

Another pertinent example of the inherent fuzziness of the approach is the interchangeable use of the labels *mental space* and *scenario*:

> Musolff (2006) uses the term “scenario” in the same sense in which I use “mental space” (…). Musolff also suggests that scenes and scenarios function below the level of domains and frames, where speaker and hearer metaphorically conceptualize their experiences in a fully contextualized fashion. The speaker and the hearer take advantage of a large amount of knowledge available to them in the specific communicative situation (2017: 9–10).

This part equates scenarios as understood as Musolff (2006) and mental spaces as understood by Fauconnier (1994). I would like to suggest that these are actually different and the difference lies predominantly in what these two labels describe in research practice. It has been suggested by that mental spaces pertain to the level of conceptual organization *in situ* that changes dynamically and constructs novel inferences (e.g., Oakley 1998, Coulson and Oakley 2000, Coulson and Pascual 2006), whereas scenarios tend to describe the organization of discourse at large, similarly to conceptual frames (Musolff 2006, Jäkel 1996, Cameron and Seu 2012). This is supported by what Fauconnier and Musolff say about the terms:

> Scenarios reflect not just the universal "schematic" ontology of a metaphor and its lexical and domain-specific "framing" but also include narrative, emotive and argumentative elements. (…) The scenario category is only designed as *an analytical tool* to represent empirically *observable usage patterns* in a corpus of metaphor data (Musolff 2021: 8–9, italics mine).

> The spaces do not in principle have to be logically consistent. The mental space constructions are *cognitive*; *they are not something that is being referred to*, but rather something that itself can be used to refer to real, and perhaps imaginary, world. (Fauconnier 1994: xxxvi, italics mine).

It follows from the fragments above that scenarios function more as tools for analyzing existing linguistic (and multimodal) data that are analyzable because they already exist in the world can be analyzed as such. Musolff (2016) additionally mentions that, in their discursive nature, "inferences from scenarios are not assumed to be cognitively or logically binding but are contestable and depend for their success on their discursive plausibility" (2016: 30), for example the scenario of FAMILY in the western part of the world. Mental spaces differ in that they are dynamic and individual cognitive constructions, not subject to discursive validation or competition like scenarios, and primarily function to reference real or imagined worlds rather than broader discursive patterns.

If we follow the idea of an increase in cognitive complexity from the most schematic to the least schematic conceptual structures, I posit that the label scenario better fits the description of structures that "are also coherent organizations of experience, just like frames and domains, but they function at a very specific and conceptually rich level" (Kövecses 2017: 6). The richness of this level comes from "attitudinal and argumentative trends that are characteristic for particular discourse communities" (Musolff 2004: 28) and reflects more stable, sometimes fossilized conceptualization patterns rather than online meaning formation. A comparison of mental spaces and scenarios is presented in Table 2.

The table illustrates that mental spaces function as cognitive structures that emerge dynamically, making them more flexible and context-dependent. Since they operate at the macro-level, they do not have to maintain logical consistency.

Table 2: Comparison between mental spaces and scenarios.

Aspect	Mental spaces	Scenarios
Definition	Cognitive constructions used for organizing and connecting thought in situ	Discursive tools for analyzing stable, contextualized patterns in language and multimodal data
Purpose	Refer to real or imaginary worlds and support meaning construction dynamically	Analyze linguistic and multimodal phenomena already present in discourse
Nature	Cognitive, individual to the conceptualizer	Discursive, shared by communities, and subject to contextual plausibility
Logical consistency	Not necessarily consistent; flexible and adaptable	Often exhibits coherence and stability across discourse
Contextual level	Operates at a micro-level, within a specific communicative situation	Functions at a macro-level, describing broader narrative or argumentative trends
Function in research	Used to study in-the-moment meaning formation	Acts as an analytical framework for observable discourse patterns
Example of application	Understanding metaphors, counterfactuals, and mental blends	Exploring entrenched scenarios like FAMILY in Western discourse
Discursive plausibility	Not subject to discursive scrutiny or external validation	Relies on plausibility within a specific discourse community

Interestingly, this point can be illustrated by one study by Semino (2010), in which the term "unrealistic scenarios" are used. Unrealistic scenario, according to Semino, can be accounted by with the use of Blending Theory and mental spaces, "concerned with online meaning construction [which] can adequately account for meanings generated by unconventional or novel metaphors" (Semino 2010: 251). Metaphorical scenarios, as defined by Musolff, serve as discourse-level structures, are stable and socially and culturally motivated, providing discourse participants with plausible, ready-to-use conceptual templates, and their applicability to analyzing novel metaphorical meanings is rather limited.

3.4 Modalities and affordances

Affordances, introduced by Gibson (1979) as guiding principles of visual perception, have made their way into cognitive linguistic theories, especially in those oriented towards multimodality. They have been defined as "the allowable actions specified by the environment coupled with the properties of the organism" (Zhang and Patel

2006: 337), which has been transported into linguistic research by the burgeoning field of Social Semiotics (e.g., Kress and van Leeuwen 2001, Jensen and Pedersen 2016, Eisenlauer and Katatza 2020).

I would like to propose, after Cohn and Schilperoord (2024), that modalities should not be looked at as separate from the human conceptual system, but rather as "persist[ing] in parallel" to them (2024: 33). It means that a given modality expresses meaning and this meaning is limited by its affordances:

> However, if the unique affordances of modalities are taken seriously, then the assumption of complete intertranslatability disappears, and we can acknowledge that some modalities may do a better job in accessing certain conceptual structures than others. Indeed, this view holds that modalities exist as complementary pathways to the expression and access of meaning, with each modality considered as part of a broader whole, not as competing alternatives. (Cohn and Schilperoord 2024: 33).

Cohn and Schilperoord make a claim that the conceptual structure should not be separated from the modalities and their inherent affordances. To give an example, gestures will likely exhibit different limiting affordances and therefore access the elements of conceptual structure differently than visuals. Some elements of the coming out experiences embodied in gesture include, for example, the transfer of an image schematic OBJECT from the person who shares a secret to the person who is a recipient of the secret (see Dyrmo 2022b, 2023b), which would most likely not be present if expressed in the visual mode. If we accept the suggestion that modalities are at least partially bound by their affordances, and that access to the human conceptual structure depends in some part on those affordances, it becomes informative to consider which modalities present the best fit for any given level of the conceptual structure. The question remains open how to operationalize "the best fit" and how to approach the question of modality-specific access to the conceptual structure.

Let us take a more focused look at the affordances of gestural communication. Some research suggests that there are certain affordances that persist in representational gestures: it has been shown that OBJECT-use is one of the most frequently employed representation techniques (Masson-Carro et al. 2016). Streeck (2008) makes a similar observation: gestural depiction is based on "practices of making" (putting together and molding); holding, taking, and depositing (transportation-based methods); and schematic forms of object use (handling) (2008: 298). Kita et al. (2017) likewise show the persuasive character of OBJECT handling in gesturing, for example when people talk about spatio-motoric information (2017: 248). This is also true of metaphoric gestures, those that depict abstract ideas. People have been shown to gesture about information as if it was a physical, tangible object, holding hands in front of them as if holding an object (Bressem and Wegener 2021; Cassell

et al. 1999; McNeill 2005; Mittelberg 2017; Müller 2017). The persuasive character of OBJECT image schema is attributed to its cognitive primacy: a very basic and schematic metaphor of AN ABSTRACT ENTITY IS AN OBJECT (see Szwedek 2011) represents the ultimate affordance for any metaphorization process to begin:

> Thus, structural metaphors are possible only if we first conceptualize the concept as an object. It is always 'the structure of an object', never *'the object of a structure'. We cannot have a structure without an object that has the structure. (…) Space can be described only relative to objects occupying it, and structure can be described only relative to objects that have the structure. The dependency of conceptualization of space and structure on concrete objects means that the fundamental, ultimate experiential basis is our experience of physical objects, the only entities directly accessible to our senses (Szwedek 2011: 350).

If we follow this account, it is possible to claim that ontological, cognitive primary metaphors operate upon cognitively primary affordances. This is if we accept the proposal in its full extent. If we take a more cautious position and assume that "some modalities may do a better job in accessing certain conceptual structures than others" (Cohn and Schilperoord 2024: 33), the cognitive primacy of OBJECT image schema may hold especially well for gestures, as consistently evidenced by abovementioned studies, but not so well for other modalities. Hart and Marmol Queralto (2021) has shown that in the interpretation of visuals, affordances are dependent upon several image schematic experiences, e.g., "the transference of energy, through forceful physical contact, from one participant to another" (2021: 539). This shows a possible interaction between levels of conceptual structure and a hierarchy of affordances: gestures may operate more on affordances pertaining to object handling, visuals, at least to a limited degree, to FORCE.

3.5 Additional levels?

One tentative addition to the original multilevel approach to metaphor has been proposed by X (2022a). The ITERATION image schema, theorized to consist of SOURCE-PATH-GOAL and PROCESS image schemas, has proven useful in the analysis of coming out narrative. I would like to suggest two further additions to the levels: mimetic schemas and constructions. I discuss them in order and offer some initial support for their inclusion in the multilevel approach to metaphor.

3.5.1 Mimetic schemas

Mimetic schemas "constitute preverbal concepts" (Zlatev 2007: 124), "fairly specific, cross-modal, consciously accessible representations based on imitation, and largely

shared within a (sub)culture" (2007: 131). Cienki (2013) explicitly admits that "they (mimetic schemas) concern a different level of specificity than image schemas" (2013: 424), an observation confirmed by a close tie between mimetic schemas and language development in children (see Zlatev 2014). Mimetic schemas, similarly to less cognitively complex image schemas, are expressible multimodally. Zlatev (2014) points out to the fact that "iconic gestures should not therefore be regarded as direct realisations of mimetic schemas (…) but (…) as imagery that may have its basis in bodily mimesis and mimetic schemas" (2014: 26), which he shows in the study of the development of iconic gestures in children. It has been shown that iconic gestures of children are indeed reflections of mimesis: they are "imitation of practical, culture-typical actions" (2014: 9). Jääskeläinen (2016) has likewise observed that the use of Finnish imitatives (*naps* and *humps*) reflects the underlying image mimetic, metaphorical use: the fictive sound, as Jääskeläinen calls it, "are a metaphorical means of describing meaningful experiences in a comprehensive, concrete way" (2016:171).

Specifically, Zlatev's (2014) characterization of mimetic schemas focuses on the following aspects:

- Mimetic schemas form a pre-linguistic semiotic system that aids communication and cognition (2014: 5).
- Mimetic schemas are based on embodiment and depend on sensorimotor imitation (2014: 5)
- In contrast to image schemas, mimetic schemas are conscious and intentional (2014: 7)
- Mimetic schemas correspond iconically or indexically to actions, objects and events (2014: 11)
- They integrate visual perception with kinesthetic sense (2014: 8, see also Zlatev 2007).
- They allow individuals to map observed movements and interactions onto their own bodily actions (Zlatev 2014: 8)
- They have an internal structure that makes them recognizable across a community (Zlatev 2014: 4).

The difference between image schemas and mimetic schemas is crucial for the addition of the level. Image schemas are theorized to be largely unconscious, pre-conceptual patterns that structure a vast array of human thinking. Mimetic schemas, on the other hand, are conscious, embodied and imitative, represented directly in such basic actions as pushing or grasping (Zlatev 2007: 133). For example, the image schema of force can be mimetically enacted as pushing, an imitated action involving exertion of force. The mimetic schema may be later elaborated into the domain of war, whereby pushing forward equals advancing from one strategic

position to the next. The level of frames includes in this example structured knowledge about how arguments work, such as roles (opponents) and relations (persuasion). The level of scenario involves the political debate argumentative scenario, where speakers try to "win the argument" by "pushing their points forward".

3.5.2 Constructions

Constructions, as described by Goldberg (1995) are "form-meaning correspondences that exist independently of particular verbs" (1995:1). Examples of such form-meaning correspondences are found in the English argument structure patterns:

These basic argument structure patterns are thought to be grounded in dynamic scenes. Goldberg says, for example, that "simple clause constructions are associated directly with semantic structures which reflect scenes basic to human experience" (1995: 5). This means that constructions, although expressed in grammatical terms such as SUBJ and OBJ, illustrate their frame-like character. Goldberg comments:

> The central sense of the ditransitive construction can be argued to be the sense of involving successful transfer of an object to a recipient, with the referent of the subject agentively causing the transfer. (Goldberg 1995: 33).

Indeed, it has been shown by Dyrmo (2022a), frames can analyzed in terms of recipients, agents and transfer, as shown below:

(9) When *I came out to* my parents, I knew they wouldn't have a problem with it.

This can be analyzed as a metaphorical motion construction following the schematic form of subject (mover) + motion verb + goal. Here, the mover is the subject of the sentence (I), the motion verb is come out, indicating metaphorical movement from being hidden (in the closet) to being visible (out of the closet), with the goal being the parents (to my parents).

A reinterpretation of Kövecses's (2017) own examples are presented in Tables 3 and 4.

We see that of the analyzed examples can be re-cast as expressing canonical scenes. To follow up on the argument example, the level of constructions fits between the frame of debate, which provides background knowledge about how arguments and debates function, and the level of scenario, which represents stable and shared discourse structures. In my proposal, the level of constructions represents specific realization of the frame by means of semantic and syntactic structures. Moving beyond the sentence level of realization, we additionally know from recent research that constructions are multimodal. They have been shown to exist in the audiovisual

Table 3: Examples of constructions (from Goldberg 1995).

Type	Pattern	Example
Ditransitive	X causes Y to receive Z	Pat faxed Bill the letter.
Caused motion	X causes Y to move Z	Pat sneezed the napkin off the table.
Resultative	X causes Y to become Z	She kissed him unconscious.
Intrans. motion	X moves Y	The fly buzzed into the room.
Conative	X directs action at Y	Sam kicked at Bill.

Table 4: Examples of constructions expressing canonical scenes.

Example	Sentence type	Canonical sensescene	Semantics	Roles	Syntax
The argument collapsed.	Intransitive resultative	Change of State	CHANGE-STATE	⟨ agent result ⟩	⟨ NP V ⟩
They exploded his latest theory.	Causative	Causation	CAUSE-EFFECT	⟨ agent theme ⟩	⟨ NP V NP ⟩
We will show that theory to be without foundation.	Causative resultative	Causation + Change of State	CAUSE-RESULT	⟨ agent theme result ⟩	⟨ NP V NP XP ⟩

mode (Turner and Steen 2013), gesture (Bressem and Müller 2017), visuals alone (Zenner and Geeraerts 2018), and at the level of prosody (Lanwer 2017). A number of studies has shown the reliance of constructions on the elements of frame semantics: Bressem and Müller (2017) show, for example, that negative-assessment constructions in gesture rely on frames as "schematic cognitive scenes" (2017: 6). Croft (2009) shares this perspective in the analysis of *eat* and *feed*. He says that "individual domains (which he equates with frames) are pulled out or at least highlighted by particular verbs or constructions" (2009: 26). According to Goldberg (2011), semantic frames provide the background knowledge as to whether a particular sentence sounds natural or not (2011: 319); they "capture rich aspects of our world knowledge as is required for adequate characterization of word meanings" (Goldberg 2019: 13), essential for the understanding constructional meanings (Langacker 2009).

Croft (2001) highlights the relationship between frames and constructions by saying that "syntactic roles define regions in conceptual space that represent semantically related groupings of participates roles and events" (2001: 170), with constructions themselves being the most basic, primitive elements of syntactic

representation (2001: 46), a linguistic (or multimodal) realization of frames. Similarly, Hoffmann (2022) assumes that frames provide the semantic information that is necessary for constructing frames: "frames are part of the meaning pole of constructions" (2022: 287). Leclercq (2024), in an attempt to link Construction Grammar to Relevance Theory claims that "some pieces of information directly contribute to our mental representations (i.e., concepts)" (2024: 161), noting also that conceptual meaning – related to mental representations – form the core semantic content mapped into constructions.

Given the heavy reliance of constructions on frame-level structures, it makes sense to put them between frames and scenarios in the schematicity hierarchy.

4 Final remarks

The multilevel approach to metaphor emphasizes the hierarchical structure of the human conceptual system, with each level representing a different degree of cognitive complexity and schematicity. This approach borrows heavily from the cognitive psychological research on categorization, highlighting a highly fuzzy and gradable nature of the human conceptual system. This article has systematized, reviewed and extended the multilevel approach to metaphor, drawing on recent evidence from gesture and visuals. At the same time, empirical research cited in this paper has shown that the levels of metaphor can be successfully employed in the analysis of linguistic data, for example in poetry and proverbs.

In the critical part of this article, I touched upon several methodological and conceptual challenges of the multilevel proposal. The lack of rigid distinctions between the levels of conceptual structure (e.g., image schemas and domains) makes it difficult to establish a principled, reliable analytical procedure for the analysis of particular levels. One way of overcoming this is employing information entropy as a quantifiable measure of cognitive complexity, linking low-level structures to low-level entropy and cognitive processing difficulty, and high-level structures to high-level entropy and cognitive processing difficulty. Having said that, it is important to acknowledge that the entropy-based approach, with its possible quantifiable advantage over the intuition-based approaches, creates several limitations. First of all, it requires a precise operational definition of metaphoricity in order to avoid identification inconsistencies. Moreover, it may not capture the contextual factors present in the Extended Conceptual Metaphor Theory, which are reliably integrated within the intuition-based approaches to metaphor identification (Pragglejaz Group 2007).

Another problematic issue is the interchangeable use of the terms mental spaces and scenario, which seems to conflate online cognitive processing with discourse-structuring functions. While Kövecses (2017) treats these terms as functionally equivalent, my proposal argues that they serve distinct roles: mental spaces operate at the level of online meaning construction, while scenarios represent collectively shared and culturally entrenched conceptualization patterns. The distinction between these two terms allows for a more precise application of the multilevel approach to metaphor, whereby metaphorical scenarios capture long-standing discursive trends, relegating the role of mental spaces to situationally constructed meanings.

My proposal concerns also the role of semiotic modality in shaping access to different levels of conceptual structure. The studies that I review in the paper indicate that modalities afford different levels of the human conceptual structure, with some semiotic modalities providing easier access to a particular level than others. For example, gesture appears to favor image schemas and objectification-based conceptualizations, whereas visuals may privilege force-dynamic schemas and spatial relations.

The article extends the multilevel approach by adding two more levels: the level of mimetic schemas and the level of constructions. Mimetic schemas are treated as conceptually more complex than image schemas yet less complex than domains. Constructions are slotted between frames, upon which they depend for internal logic and naturalness, and scenarios. These two additional levels help to integrate the findings from cognitive linguistics, cognitive psychology, psycholinguistics, developmental psychology, and neuroscience to offer a more robust and internally consistent framework for analyzing metaphoricity across modalities, with their inherent affordances.

There are further challenges ahead of the multilevel approach to metaphoricity which emerge both from the overview of the existing literature and the possible modification and additions to the framework. It remains to be explored in more detail how to reconcile the gradable nature of the human conceptual system and the analytical rigor of linguistic investigation into the human mind. We are left with some degree of subjectivity in the analyses of metaphorical patterns in the human cognition on the one hand, and with a risk of oversimplifying its complex and fuzzy nature on the other. While entropy as a measure of cognitive difficulty in information processing may be promising in experimental lab studies, the question arises whether it will be also applicable in less controlled, more naturalistic settings. If we take affordances into consideration, then how can we apply entropy-based experimental designs to study different affordance-bound

modalities? The last important issue is the extent to which further research should focus on extending the cognitive hierarchy of schematicity with more levels. While it may, on the one hand, improve our understanding of the human mind by adding nuances, it may likely prompt analyses to get exceedingly granular, leaving the bigger picture behind.

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Bionote

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