

# Structuring and (Re)creating the Affective value of Emotional Categories. A corpus study of FEAR: Embodied Metonymic and Metaphoric Constructions



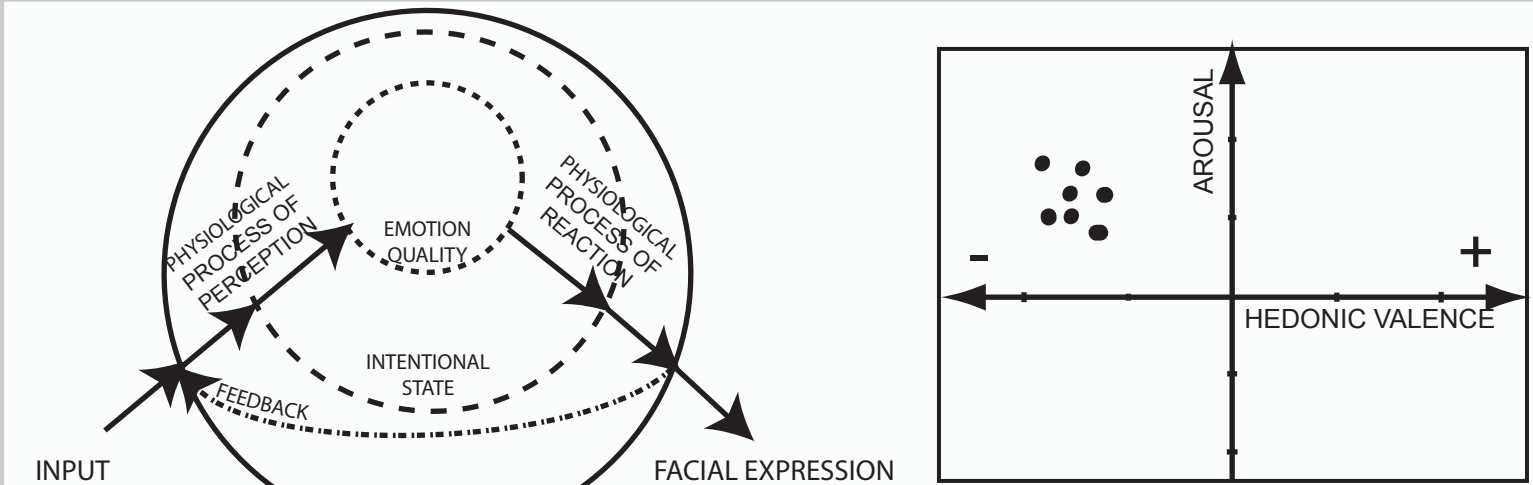
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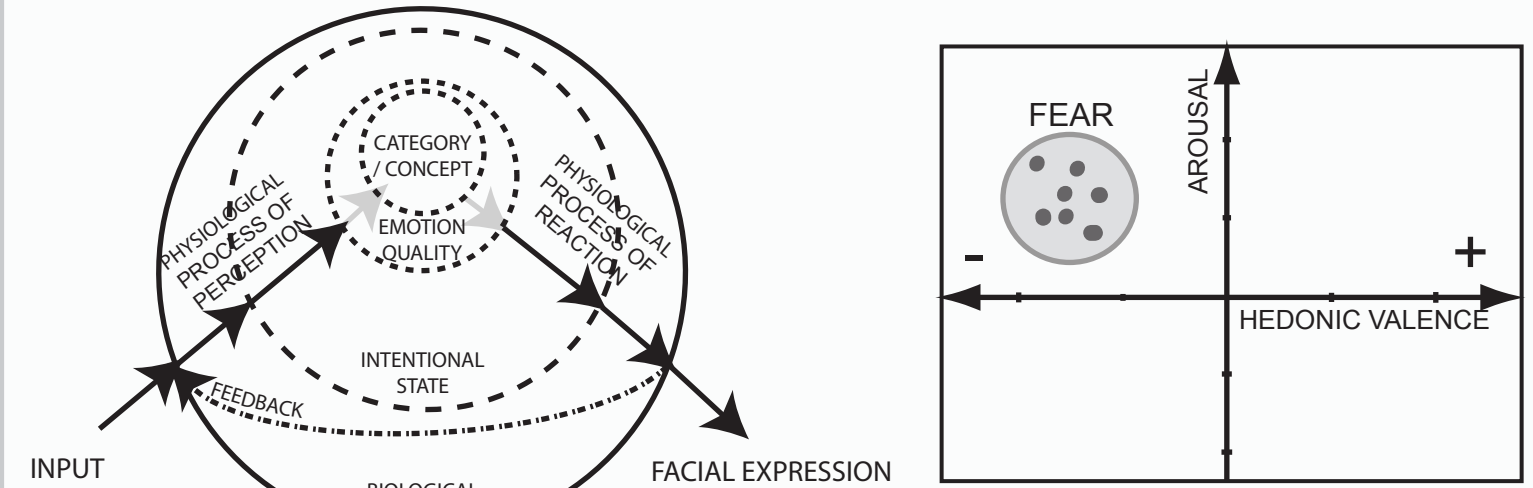


## Introduction

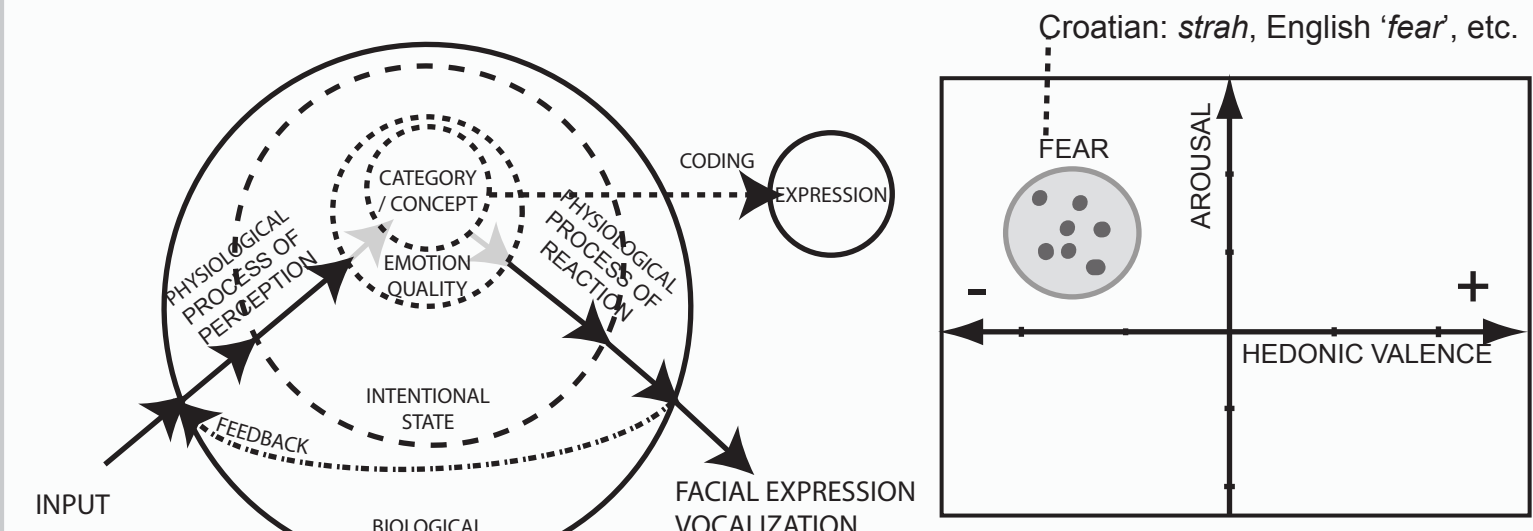
This paper presents a **corpus based research** on the **conceptualization of emotional category FEAR** in Croatian language from the perspective of cognitive science and demonstrates the embodied basis of **cognition, categorization** and **communication** of the emotional categories.



1a) Core affect with hedonic valence and arousal



1b) Categorization of prototypical emotional episodes



1c) Linguistic expression of symbolic structures

Figure 1. Emergent Emotional system: a) core affect, b) categorization and c) linguistic expression.

From the perspective of Cognitive Semantics, **profiling** of the embodied cognitive model via the mechanism of conceptual mapping is related to the theories of **conceptual metaphor** and **conceptual metonymy**. By virtue of metaphorical mappings and metonymical profiling the (embodied) meaning of the source domain A is projected on to the target domain B.

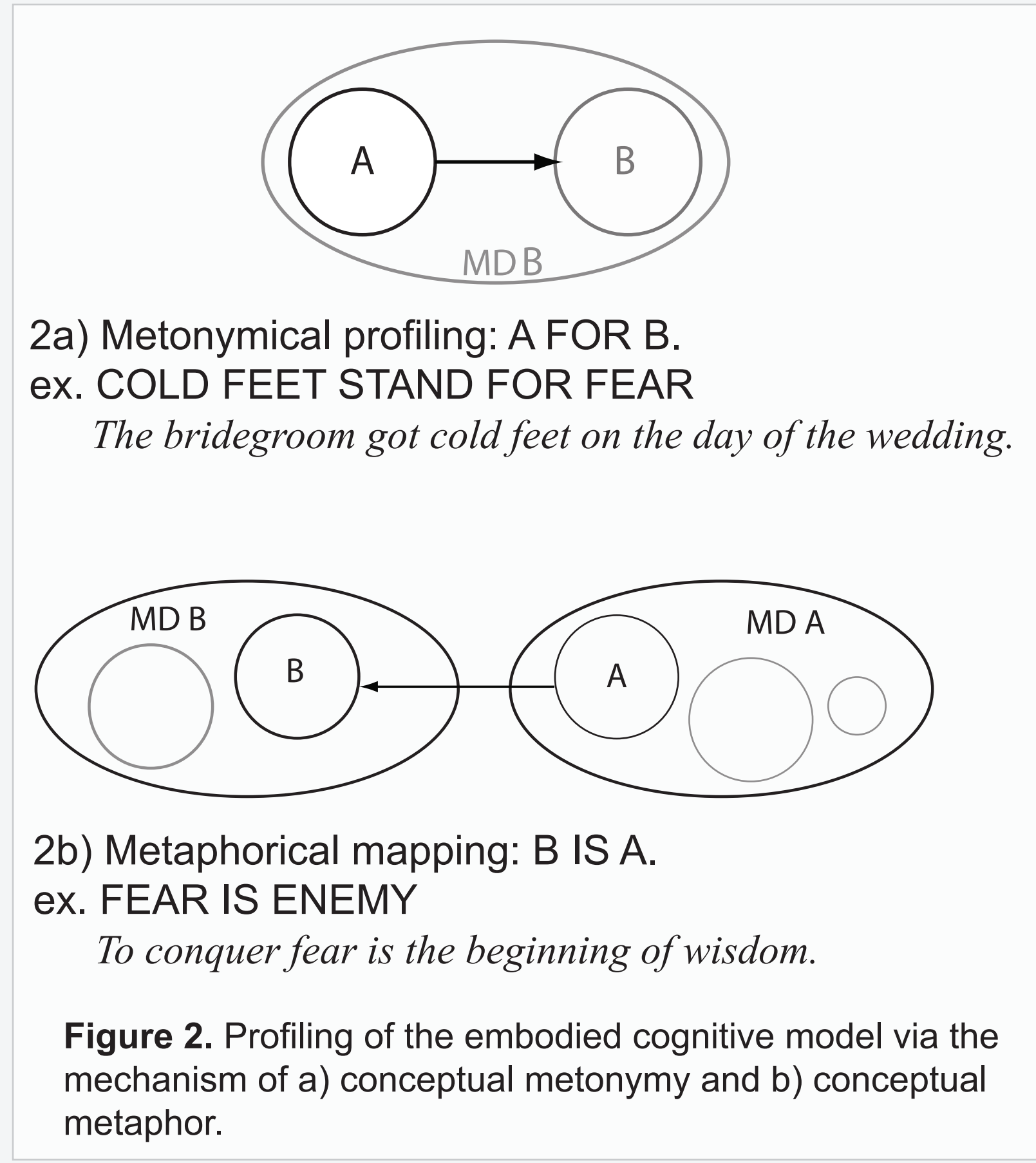


Figure 2. Profiling of the embodied cognitive model via the mechanism of a) conceptual metonymy and b) conceptual metaphor.

In accordance with the recent cognitive theories of emotion (Russell and Barrett-Feldman 1999; Damasio 1999), structuring of emotional categories/concepts is analyzed as emerging from the neuropsychological processes functionally dedicated to produce awareness of the **core affect** (Fig. 1a). From the core affect emerge prototypical emotional episodes that are **categorized** (Fig. 1b) and expressed in **linguistic symbolic structures** (Fig. 1c).

This approach suggests that phenomena of the core affect, prototypical categories and linguistic symbolic structures form an **emergent emotional system** with bottom up and top-down causal relations of perception, representation, reaction, expression and simulation of the emotional experience.

Considering the subjective nature of the emotional experience and the epistemological problem of **commensurability** (Third-Person Perspective has no access to mental states), the study of symbolic communication of emotions indicates the unattainable ground for the objective categorization of emotions and the need for the an **Embodied Cognitive Model of Conceptualization** of the emotional category FEAR constructed in relation to the physiological processes of perception, representation and reaction.

In the case of conceptualization of emotional categories/concepts, qualitatively most relevant are the events of cooccurring bodily reactions that induce features of core affect as a result of autonomic responses, facial and vocal expressions, startle responses and voluntary or involuntary behavioral traits.

Other contextual sensory and cognitive information of an emotional event such as the object of emotion, motives, manner of expression, empathy target, can provide additional culturally motivated framework for the conceptualization of emotional category.

This framework structures the cognitive model of an emotional category functioning as a network that facilitates activation of specific cognitive and affective information.

## Aim

Purpose of the research is:

- A) to **qualitatively describe the network of embodied concepts and domains** that facilitate conceptualization, simulation and recreation of respective emotional affective experience categorized as FEAR in Croatian. B) to **quantify metonymic and metaphoric patterns** indicating the level of cognitive entrenchment of linguistic constructions within a culture (as represented in a corpus).

## Methodology

	Lemma <i>strah</i> 'fear'
Number of words in Corpus	131,8 Mw (10 <sup>9</sup> )
Appearances of lemma <i>strah</i> in Corpus	14 875
Frequency of lemma <i>strah</i> in Corpus	0,000011286039453

Textual **corpus** (res. 1&2) for the research of the conceptualization of emotional category STRAH 'FEAR' in Croatian consists of **131,8 Mw**. Within that corpus **14.875 instances of lemma *strah* 'fear'** were retrieved, presenting a basis for identification of metonymic and metaphoric constructions. The identification of embodied metonymic

and metaphoric constructions is based on the **metaphorical-pattern analysis** of the lexical concept *strah*.

"Metaphorical (and metonymic) patterns are multi-word expression from a given source domain into which one or more specific lexical item from a given target domain have been inserted." (Stefanowitsch and Gries 2006: 66).

*Croatian*: <GREAT, Adj> <SRCE, N> <OBUHVATITI, V> *Silan strah obuhvati mu srce.*  
*English*: <GREAT, Adj> <'HEART', N> <'TO SEIZE', V> *'Great-fear-seized-his-heart'*  
[HEART (PHYSICAL REACTION) FOR FEAR]metonymy [FEAR IS FORCE/AGENT/ENEMY]metaphor

**Example 1.** Metaphorical pattern analysis of the target domain STRAH 'FEAR'.  
The adjective <GREAT>, the noun <HEART> and the verb <TO SEIZE> are tagged as source domains that form the metonymic and metaphoric construction of the lexical concept *fear*.

## Results

The metaphorical pattern-analysis enabled a **qualitative description** of the embodied domains that structure and facilitate embodied simulation (Bergen 2005) of semantic value in the discourse. The domains are schematically distributed according to the physiological processes of perception, representation and reaction (Fig. 3).

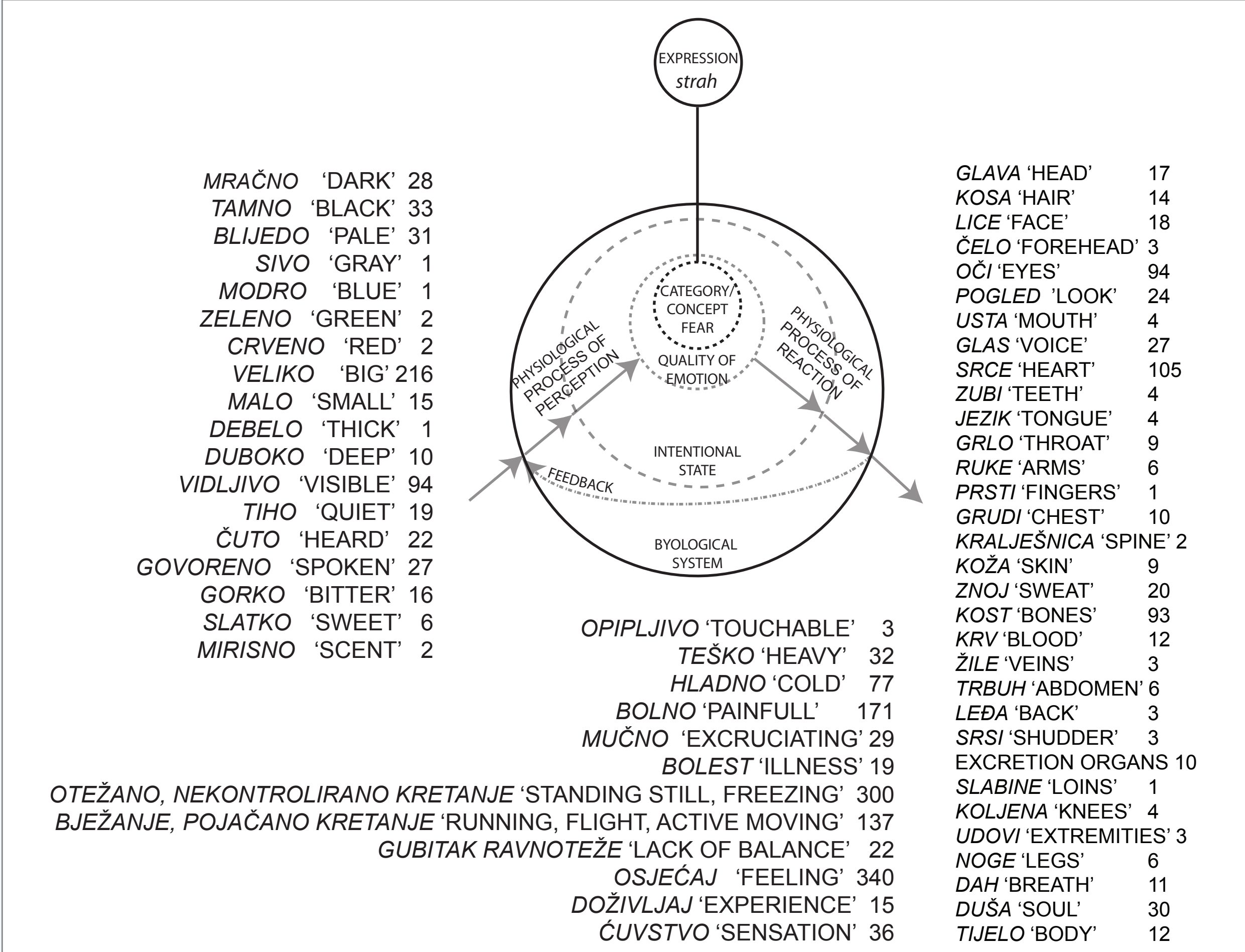


Figure 3. Embodied domains that facilitate conceptualization, simulation and recreation of emotional affective experience categorized as FEAR in Croatian.

The **quantitative results** of the metaphorical pattern analysis show that metonymic and metaphoric constructions profiling the embodied processes of representation and reaction comprise 15,2% of the 14 875 retrieved instances of the lemma *strah*.

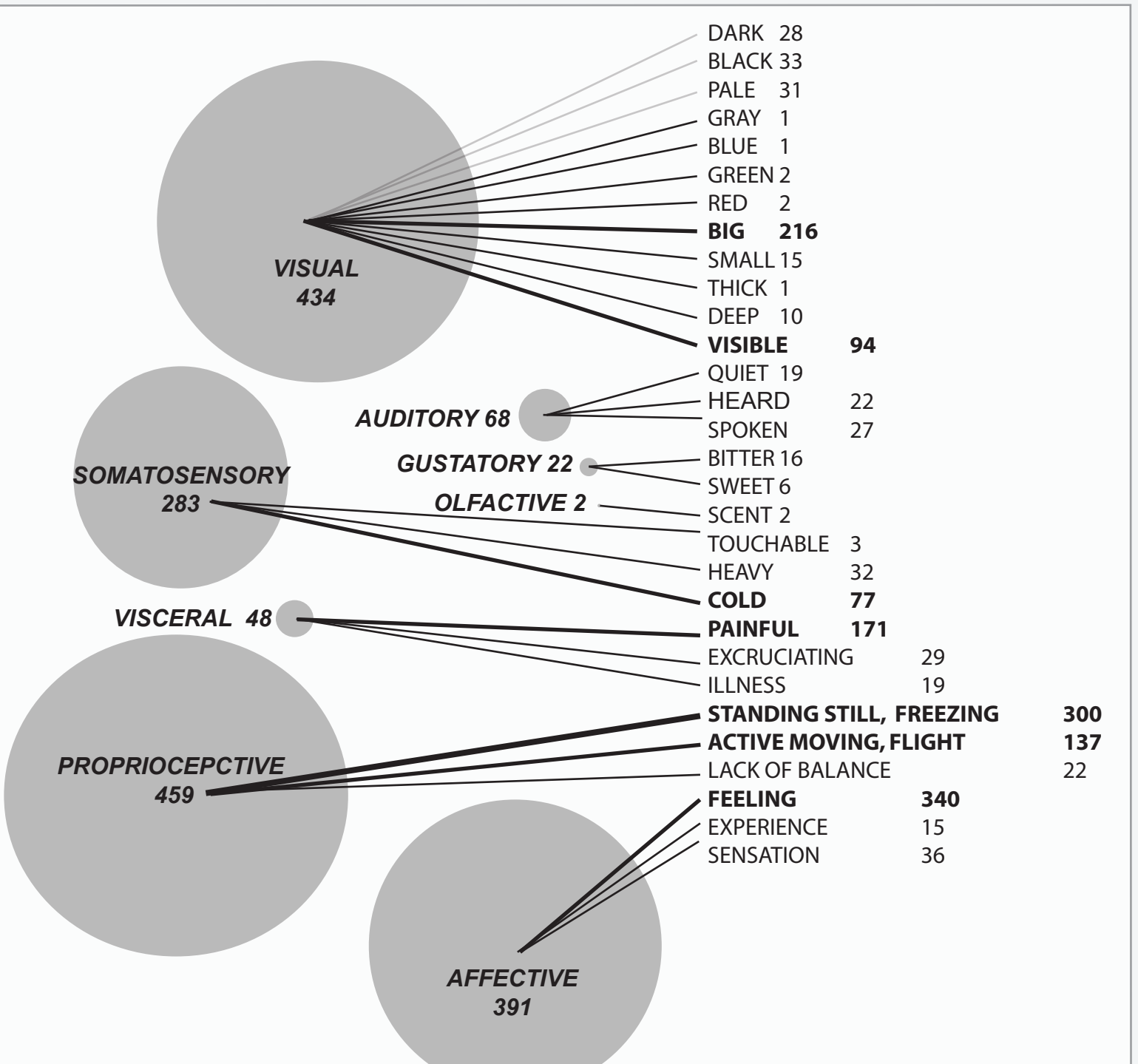


Figure 4. Frequency of sensory domains conceptualizing FEAR via metonymic and metaphoric constructions.

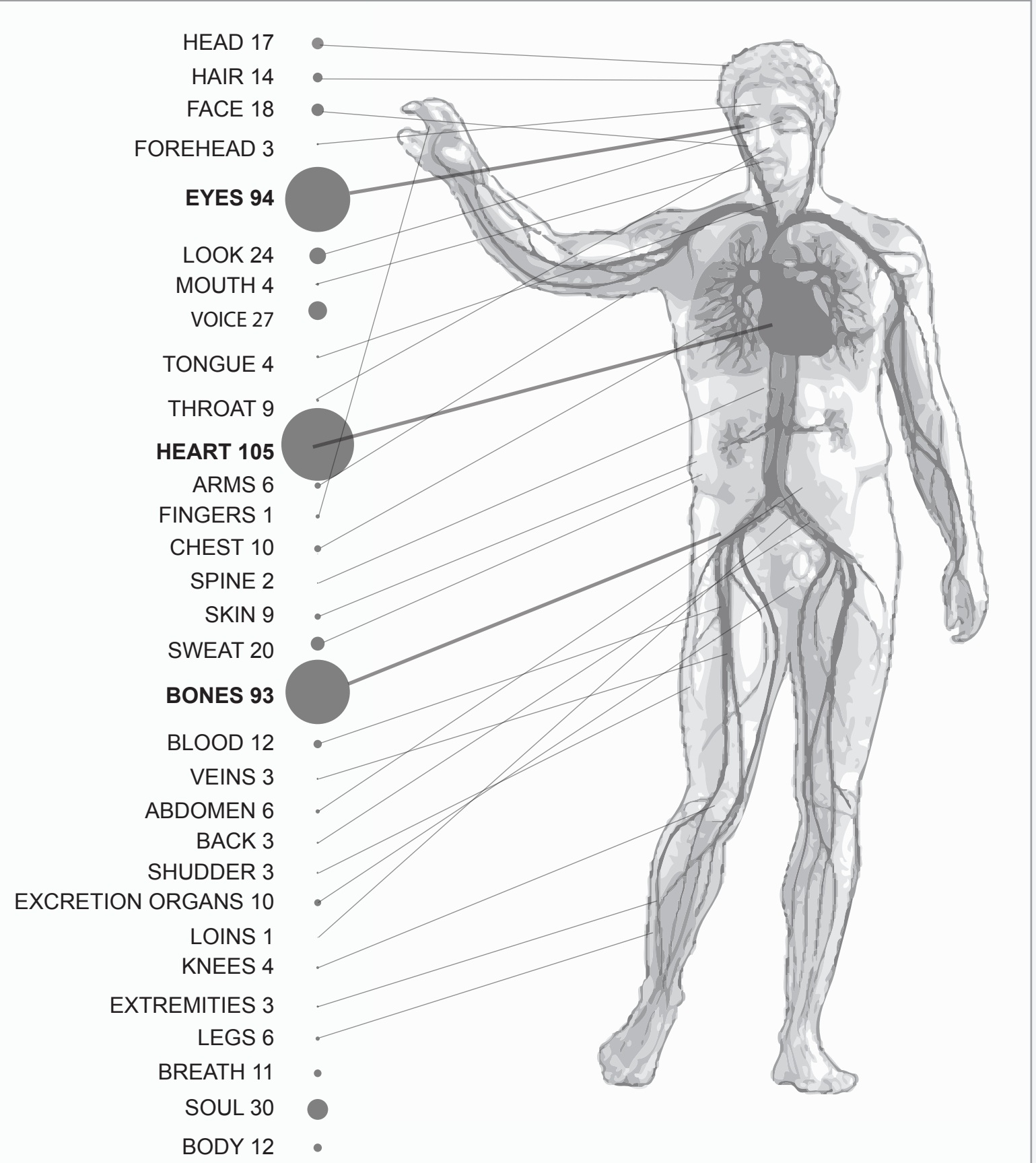
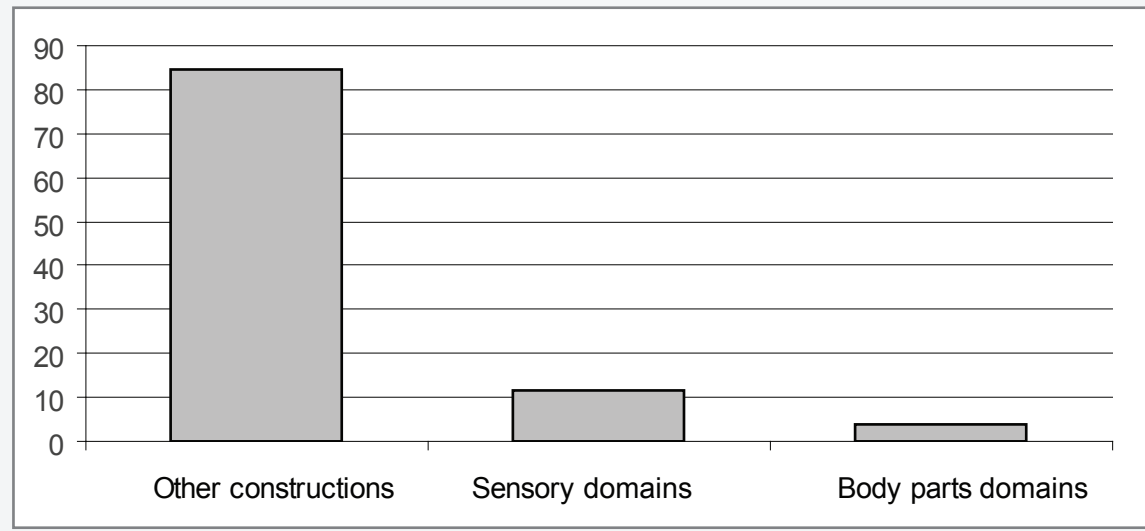


Figure 5. Frequency of body parts domains in metonymic and metaphoric constructions of FEAR.



Out of 14 875 instances of the lemma *strah* 'fear' 11,47% are derived from **exteroceptive, interoceptive** and **proprioceptive** domains (Fig 4.) via metonymical and metaphorical constructions while the profiling with the domains of the **bodily parts** involve 3,8% of the identified metaphorical patterns (Fig. 5).

Quantification results indicate strong connection to the **proprioceptive, somatosensory and visceral experience** of freezing and flight reaction, coldness and negative hedonic valence.

In terms of bodily parts, **heart, eyes** and **bones** are most frequent domains representing respectively the 1st, 2nd and 3rd person linguistic construal perspective.

Frequency results are **relative** to:  
a) **metaphorical-pattern analysis**  
→ elliptic variations, metonymic and metaphoric constructions without expressed source lexeme?

b) **scope and selection of corpus data**  
→ individual / situational / intracultural / sub-cultural / genre variations, ideological framing?

c) **specific language**  
→ intercultural conceptual variations, structural linguistic variations?

## Conclusion

Semantic value of an emotional lexical concept STRAH 'fear' is constructed from metonymic and metaphoric mappings forming a neural, conceptual and linguistic framework of cognitive domains and models that facilitate conceptualization, simulation and recreation of respective emotional affective experience.

Corpus-based studies of metonymic and metaphorical constructions, such as the presented study of the lexical concept of FEAR in Croatian language provide methodology and data for further cognitive research in conceptual organization, neural correlation, mental simulation, as well as for inter-cultural and cross-cultural studies of conceptualization of emotional categories.

## References

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Russel, J.A. and Feldman Barrett, L. (1999) Core Affect, Prototypical Emotional Episodes, and Other Things Called Emotion: Dissecting the Elephant. Journal of Personality and Social Psychology. 76:5: 805-819.  
Corpus resources: 1) Croatian language repository: <http://rtiznica.hij.hr/> 2) Croatian National Corpus: <http://www.hnk.hr/gz.hr/corpus.html>