

Kamar Aldasheva¹, Aibolat Nabidullin^{2*}, Dauren Abdrakhmanov³¹Doctor of Philosophy (PhD), Associate Professor, Postdoctoral Researcher,
Abai Kazakh National Pedagogical University, Kazakhstan, Almaty,
ORCID: 0000-0001-5292-6727 E-mail: aldash.kamar@gmail.com^{2*}Corresponding Author, Doctor of Philosophy (PhD),
Abai Kazakh National Pedagogical University, Kazakhstan, Almaty,
ORCID: 0000-0003-0331-9562 E-mail: anabidullin@vk.com³Doctoral Student, Abai Kazakh National Pedagogical University, Kazakhstan, Almaty,
ORCID: 0009-0001-6043-4607 E-mail: abdrahmanovdauren70@gmail.com**SOMATIC CONCEPTS IN THE KAZAKH LANGUAGE:
EMBODIED COGNITION AND CULTURAL CONCEPTUALIZATION**

Abstract. This study offers a comparative-cognitive analysis of somatic concepts in the Kazakh language within the framework of embodied cognition, one of the actively developing areas of contemporary cognitive linguistics. The theory's roots in early twentieth-century American pragmatism (W. James, J. Dewey) and its systematic elaboration by G. Lakoff and M. Johnson are outlined briefly as historical and theoretical background rather than as a sustained analytical framework in their own right. The study's central aim is to examine how the Lakoff-Johnson concept of the “unity of body and mind” is manifested through somatic metaphors in Kazakh, and to consider what this material suggests about the cross-cultural validity of image-schema models built largely on WEIRD (Western, Educated, Industrialized, Rich, Democratic) linguistic data. Drawing on lexicographic and corpus sources for English and Kazakh, the study applies conceptual metaphor analysis, a comparative cross-cultural method, and an author-developed three-stage procedure of cognitive mapping to compare somatic expressions built around the concepts of hand, heart/liver, stomach, back, head, foot, and eye. The comparative analysis indicates that the two languages share a set of underlying image schemas (CONTAINER, PATH, BALANCE, INSTRUMENT), while differing in how these schemas are culturally elaborated: the Kazakh material shows a comparatively stronger orientation toward kinship, social responsibility, and ethical evaluation. These findings extend the empirical base of embodied-cognition research beyond predominantly English-language material and offer a linguistically grounded starting point for culturally sensitive approaches to Kazakh-language natural-language processing.

Keywords: embodied cognition; somatic concepts; image schemas; conceptual metaphor; cognitive linguistics; comparative analysis.

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**Қамар Сағынғалиқызы Алдашева¹, Айболат Сарсенбайұлы Набидуллин^{2*},
Даурен Дәулеткелдіұлы Абдрахманов³**¹философия докторы (PhD), қауымдастырылған профессор, постдокторант,
Абай атындағы Қазақ ұлттық педагогикалық университеті, Қазақстан, Алматы қ.,
ORCID: 0000-0001-5292-6727 E-mail: aldash.kamar@gmail.com^{2*}автор-корреспондент, философия докторы (PhD),
Абай атындағы Қазақ ұлттық педагогикалық университеті, Қазақстан, Алматы қ.,
ORCID: 0000-0003-0331-9562 E-mail: anabidullin@vk.com³докторант, Абай атындағы Қазақ ұлттық педагогикалық университеті, Қазақстан, Алматы қ.,
ORCID: 0009-0001-6043-4607 E-mail: abdrahmanovdauren70@gmail.com**ҚАЗАҚ ТІЛІНДЕГІ СОМАТИКАЛЫҚ КОНЦЕПТІЛЕР:
ТӘНДІК ТАНЫМ ЖӘНЕ МӘДЕНИ КОНЦЕПТУАЛДАНУ**

Аңдатпа. Зерттеу жұмысы қазіргі когнитивтік лингвистиканың белсенді дамып келе жатқан бағыттарының бірі – тәндік таным (embodied cognition) теориясы аясында қазақ тіліндегі соматикалық концептілерге салыстырмалы-когнитивтік талдауды ұсынады. Теорияның XX ғасыр басындағы америкалық прагматизмдегі (У. Джеймс, Дж. Дьюи) тамыры мен Дж. Лакофф пен М. Джонсонның жүйелі тұжырымдамасы толыққанды талдау аппараты ретінде емес, қысқаша теориялық-тарихи негіз ретінде сипатталады. Зерттеудің басты мақсаты – Лакофф пен Джонсонның «тән мен ақыл бірлігі» тұжырымдамасының қазақ тіліндегі соматикалық метафоралар арқылы

калай көрініс табатынын анықтау және бұл материалдың негізінен WEIRD (Western, Educated, Industrialized, Rich, Democratic) тілдік деректеріне сүйенген бейнелік-схемалық модельдердің мәдениетаралық валидтілігі туралы не аңғартатынын саралау болып табылады. Ағылшын және қазақ тілдеріне қатысты лексикографиялық және корпусдық дереккөздер негізінде зерттеуде концептуалдық метафора талдауы, салыстырмалы-мәдениетаралық әдіс және авторлық үш кезеңді когнитивтік карталау рәсімі қолданылып, қол, жүрек/бауыр, іш, арқа, бас, аяқ және көз концептілері бойынша соматикалық қолданыстар салыстырылды. Салыстырмалы талдау екі тілде де ортақ бейнелік схемалардың (CONTAINER, PATH, BALANCE, INSTRUMENT) бар екенін, алайда бұл схемалардың мәдени толығында елеулі айырмашылықтар байқалатынын көрсетті: қазақ материалында туыстық, әлеуметтік жауапкершілік және этикалық бағалауға бағдарлану салыстырмалы түрде күштірек көрінеді. Бұл нәтижелер тән танымы зерттеулерінің эмпирикалық базасын ағылшын тілінен тыс материалдармен байытады. Сонымен бірге олар қазақ тіліне бағытталған, мәдени ерекшеліктерді ескеретін табиғи тілді өңдеу әдістеріне лингвистикалық негіз қалайды.

Тірек сөздер: тәндік таным; соматикалық концептілер; бейнелік схемалар; танымдық метафора; когнитивтік лингвистика; салыстырмалы талдау.

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**Камар Сагингалиевна Алдашева¹, Айболат Сарсенбаевич Набидуллин^{2*},
Даурен Даулеткельдинович Абдрахманов³**

¹доктор философии (PhD), ассоциированный профессор, постдокторант,
Казахский национальный педагогический университет имени Абая, Казахстан, г. Алматы,
ORCID: 0000-0001-5292-6727 E-mail: aldash.kamar@gmail.com

^{2*}автор-корреспондент, доктор философии (PhD),
Казахский национальный педагогический университет имени Абая, Казахстан, г. Алматы,
ORCID: 0000-0003-0331-9562 E-mail: anabidullin@vk.com

³докторант, Казахский национальный педагогический университет имени Абая,
Казахстан, г. Алматы, ORCID: 0009-0001-6043-4607 E-mail: abdrahmanovdauren70@gmail.com

СОМАТИЧЕСКИЕ КОНЦЕПТЫ В КАЗАХСКОМ ЯЗЫКЕ: ВОПЛОЩЕННОЕ ПОЗНАНИЕ И КУЛЬТУРНАЯ КОНЦЕПТУАЛИЗАЦИЯ

Аннотация. Данное исследование предлагает сравнительно-когнитивный анализ соматических концептов казахского языка в рамках теории «воплощённого познания» (embodied cognition) – одного из активно развивающихся направлений современной когнитивной лингвистики. Истоки теории в американском прагматизме начала XX века (У. Джеймс, Дж. Дьюи) и её систематическая разработка Дж. Лакоффом и М. Джонсоном представлены кратко, как историко-теоретический фон, а не как самостоятельный устойчивый аналитический аппарат. Основная цель исследования – рассмотреть, как концепция «единства тела и разума» Лакоффа и Джонсона проявляется через соматические метафоры в казахском языке, и проанализировать, что данный материал говорит о межкультурной валидности образно-схематических моделей, построенных преимущественно на данных WEIRD-обществ (Western, Educated, Industrialized, Rich, Democratic). На материале лексикографических и корпусных источников английского и казахского языков применены анализ концептуальной метафоры, сравнительно-кросскультурный метод и авторская трёхэтапная процедура когнитивного картирования; сопоставлены соматические выражения, организованные вокруг концептов, рука, сердце/печень, живот, спина, голова, нога и глаз. Сравнительный анализ показывает, что оба языка используют общий набор образных схем (CONTAINER, PATH, BALANCE, INSTRUMENT), однако существенно различаются в культурной элаборации этих схем: в казахском материале заметно более выражена ориентация на родство, социальную ответственность и этическую оценку. Эти результаты расширяют эмпирическую базу исследований воплощённого познания за пределы англоязычного материала, а также формируют лингвистический фундамент для разработки культурно-чувствительных методов обработки естественного языка для казахского языка.

Ключевые слова: воплощённое познание; соматические концепты; образные схемы; когнитивная метафора; когнитивная лингвистика; сравнительный анализ.

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Introduction

One of the fundamental issues facing contemporary cognitive linguistics is the tension between the universality of human cognition and its national-cultural specificity – a tension often discussed

under the heading “cognitive universalism versus cultural specificity.” Although human physiology is shared across cultures, the linguistic representation of bodily experience acquires distinct semantic nuances in different lingua cultures. Examining the cognitive parallels between the embodied-cognition framework developed largely in Western cognitive linguistics and the somatic worldview of the Kazakh language allows us to explore these deeper layers of human thought.

The early twentieth-century American pragmatist tradition, notably W. James (1907) and J. Dewey (1925), argued that direct experience – rather than abstract theorizing – is the primary basis of human cognition, understanding reality as arising from a person's physical and intellectual interaction with the environment. This experiential orientation is historically continuous with, though not identical to, the later theory of embodied cognition developed in cognitive linguistics by G. Lakoff and M. Johnson (Lakoff, Johnson, 1980), (Johnson, 1987), which provides the primary analytical apparatus used in this study. Because the Lakoff–Johnson image-schema model, like much of contemporary cognitive science, draws predominantly on data from WEIRD societies (Henrich, Heine, Norenzayan, 2010), its applicability to other cultural-cognitive environments – including that of the Kazakh people, as heirs to the Central Asian nomadic tradition – merits independent empirical study.

In the Kazakh linguistic worldview, the concept of “experience” is likewise conceptualized to a considerable degree through bodily organs, though the underlying elaboration differs from the English-language material discussed below. In the English-language material examined for this study, “belly” or “stomach” occur predominantly in expressions tied to physiological function or intuitive judgment (e.g., gut feeling), whereas in the Kazakh material the concept of *імі* (‘stomach/belly, inner self’) functions as a general container for a person's psychological and emotional interior. Expressions such as *імі тарт* (‘narrow inside’, roughly ‘ungenerous, envious’) and *імі кең* (‘spacious inside’, roughly ‘broad-minded, tolerant’) conceptualize a person's ethical and emotional capacity through what Lakoff and Johnson (1980) term the CONTAINER schema, in which the self is represented as a bounded interior space whose relative openness or restriction indexes moral disposition. This example illustrates the central problem addressed by the article: why does the same biological organ acquire different cognitive elaborations across linguacultures, and what does this variation suggest about the claimed universality of image-schema models?

The significance of the article lies in extending the empirical base of embodied-cognition theory with an ethnolinguistic dimension drawn from Kazakh somatic material, examined here alongside comparable English-language data (Bergen, 2012), (Noë, 2004). The goal is to draw a comparative cognitive map of Kazakh somatic concepts using image-schema theory as an instrumental starting point, and, through this, to explore the relationship between universality and cultural particularity in the linguistic representation of human thought (Di Paolo, Rohde, De Jaegher, 2010), (Gallagher, 2005). This research aims to situate Kazakh linguistics within the broader current of cognitive science and to contribute to the ongoing reinterpretation of the “language–body–culture” relationship (Clark, 2008).

The study proceeds from the working hypothesis that, although English-language and Kazakh somatic-cognitive material are likely to share a number of structural image schemas, they may differ substantially in semantic filling and axiological (value-based) evaluation (Bergen, 2012), (Gallagher, 2005). Examining these differences is intended to contribute to the theoretical basis for describing and preserving culturally specific cognitive patterning in the Kazakh language in the current context of globalization (Di Paolo et al., 2010).

The theoretical stakes of this comparison can be sharpened with reference to what Harnad (1990) termed the symbol grounding problem: the question of how a system that manipulates purely formal, arbitrary symbols could ever connect those symbols to the physical world they are supposed to represent. Harnad's proposed solution grounds symbolic meaning in sensorimotor categorization – in an organism's capacity to pick out, through direct bodily interaction, the perceptual invariants that a given symbol names. Embodied-cognition theory, as developed by Lakoff and Johnson, can be read as one linguistic elaboration of this grounding solution: abstract vocabulary is not arbitrarily attached to meaning but is scaffolded on image schemas abstracted from recurring bodily interaction with the physical environment. If this account is correct, somatic vocabulary – language that names the body directly – occupies a privileged position in the lexicon, since it stands closest to the sensorimotor

ground floor from which more abstract meaning is said to be built. Comparing how two typologically and culturally distant languages elaborate this ground-floor vocabulary therefore offers an unusually direct test of how far grounding in shared human physiology constrains, and how far it merely loosely constrains, the resulting semantic architecture.

This grounding perspective can be extended in two directions relevant to the present study. The first, associated with Clark (2008), holds that cognitive processes are not confined to the boundaries of the skull but routinely recruit external tools, artifacts, and social practices as functional extensions of the mind; culturally specific practices and material objects – a felt yurt, a herding route, a genealogical reckoning system – can thereby become as constitutive of a community's conceptual repertoire as any internal neural structure. The second, developed by Noë (2004) and by Di Paolo, Rohde, and De Jaegher (2010), locates cognition not in internal representations but in a dynamic, ongoing coupling between an active organism and its environment. Taken together, these positions suggest that the cross-cultural divergences documented below cannot be explained merely by positing a shared universal inventory of image schemas onto which different cultural labels are attached; the divergences may instead reflect genuinely different histories of embodied, environmentally embedded interaction – pastoral-nomadic versus industrial-urban, for instance – that shaped which bodily source domains became salient enough to lexicalize in the first place.

A further consideration bearing on the choice of somatic vocabulary as a research object concerns the observation, associated with Wierzbicka's program of semantic universals, that body-part terms are among the most cross-linguistically stable and translatable elements of the lexicon, in contrast with more culturally saturated domains such as kinship terminology or emotion vocabulary proper. This relative stability makes body-part terms a methodologically convenient anchor for comparison: because hand, heart, stomach, back, head, foot, and eye denote comparatively fixed physical referents in both languages, any divergence documented at the metaphorical level can be attributed with greater confidence to cultural elaboration rather than to referential mismatch at the source-domain level itself. Building on the considerations outlined above, the study is guided by three more specific questions: whether the same body-part source domains give rise to structurally comparable image schemas in the two languages; where such correspondence exists, whether the resulting schemas are elaborated toward comparable target domains or diverge systematically; and whether any such divergence tracks broader, independently motivated cultural dimensions – such as the individualism–collectivism axis or nomadic–pastoral versus industrial-urban ecological history – rather than appearing arbitrary.

Materials and methods

The methodological basis of the research is interdisciplinary, combining analytical tools from cognitive linguistics with methods of traditional comparative-contrastive linguistics. The primary aim is to examine how bodily experience is conceptualized in the linguistic systems of English and Kazakh.

As the object of analysis, somatic phraseological units, *paremias* (proverbs and sayings), and idioms of English and Kazakh were selected. The following lexicographic and corpus resources were used as primary sources: for English, the Oxford Dictionary of English Idioms, together with data from the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA) for contemporary usage; for Kazakh, I. Kenesbayev's Phraseological Dictionary of the Kazakh Language (1977), A. Qaidar's ethnolinguistic dictionary *Qazaqtar: ana tili aleminde* (2009-2013, 3 vols.), and the National Corpus of the Kazakh Language (NCKL) for contextual verification.

When selecting materials, the primary focus was on dominant somatisms that recur across both languages as high-productivity sources of metaphor: hand (қол), heart/liver (жүрек/бауыр), stomach (іш), back (арқа), head (бас), foot (аяқ), and eye (көз). This choice is justified by the high metaphorization potential of these body parts in both cultures and by their role in the comparative cognitive-mapping analysis reported in Table 1 of the Results and Discussion section.

The following methods were used:

1. Conceptual Metaphor Analysis. Following G. Lakoff and M. Johnson, this method was used to identify the cognitive models underlying idiomatic expressions and to explain how they structure abstract concepts in human thought.

2. Comparative Cross-Cultural Method. This method was used to distinguish isomorphic (similar)

and allomorphic (distinctive) features between the English-language and Kazakh material, making it possible to characterize the distinct cognitive profiles reflected in each body of data.

3. Cognitive Mapping. In this study, cognitive mapping is used as an author-developed analytical procedure – informed by, but not identical to, the source-domain/target-domain apparatus of conceptual metaphor theory (Lakoff, Johnson, 1980) – consisting of three stages, described below.

Stage I – *Lexical inventory*. Somatic phraseological units, idioms, and paremias were compiled from the lexicographic and corpus sources listed above for the seven body-part domains identified. To make the empirical boundaries of the study explicit, the size and composition of this inventory are reported directly rather than left unspecified. Initial compilation yielded 184 Kazakh and 146 English-language somatic expressions across the seven domains, distributed as follows (Kazakh / English-language): hand – қол, 34/28; heart–liver – жүрек/бауыр, 41/25; stomach – іш, 22/19; back – арқа, 18/14; head – бас, 26/22; foot – аяқ, 24/21; eye – көз, 19/17. After applying the inclusion criteria detailed below – independent dictionary attestation, corpus-checked currency, and exclusion of fully literal, non-metaphorical uses – a subset of 71 Kazakh and 53 English-language expressions was retained for the detailed qualitative-comparative analysis. These are reported in the Results and Discussion section and summarized in Table 1. The remainder were set aside as near-synonymous duplicates, marginal or archaic forms not confirmed in the relevant corpus, or literal, non-metaphorical uses falling outside the analytic scope of the study. This reporting is intended to make transparent, even within a qualitative and illustrative rather than exhaustively quantified design, the empirical base from which the comparative claims below are drawn; a fully frequency-based corpus count, capable of supporting statistical claims about the relative productivity of each domain, is left for subsequent follow-up research.

Stage II – *Projective analysis*. A mapping was established between the physical property of a body part (e.g., the heartbeat) and its metaphorical meaning in the language (e.g., fear or love).

Stage III – *Schematic modeling*. The action/function-oriented mapping salient in the English-language material was compared with the spirit/relation-oriented mapping salient in the Kazakh material.

For example, according to the [BODY PART] IS A CONTAINER schema, a cognitive map of “storing inside” models were constructed for English (e.g., bottling up emotions) and Kazakh. On the basis of the lexicographic material examined, the English-language expressions in this domain appear to privilege technological/functional containers (bottle, machine), whereas the Kazakh expressions appear to privilege natural/internal space (stomach, bowels); confirming this pattern statistically would require a dedicated frequency-based corpus study beyond the scope of the present analysis.

This methodology, applied in the comparative analysis reported below, is intended to support the transparency of the results and the interpretability of the conclusions. The combination of methods used provides a workable instrument for examining embodied-cognition theory in the Kazakh linguistic context, while the illustrative (rather than exhaustively quantified) nature of the sample is treated explicitly as a limitation in the Conclusion.

Because the lexicographic sources drawn upon in this study vary considerably in scope, register, and compilation date, an explicit set of inclusion criteria was applied before an expression was accepted into the illustrative comparative set analyzed in the Results and Discussion section. First, an expression had to be independently attested in at least one of the primary dictionary sources listed above (the Oxford Dictionary of English Idioms for English; Kenesbayev's phraseological dictionary or Qaidar's ethnolinguistic dictionary for Kazakh), rather than being drawn solely from the analyst's own linguistic intuition. Second, where an expression's currency in contemporary usage was in question, its presence was checked against the relevant corpus – the Corpus of Contemporary American English (COCA) for expressions treated as characteristically American, the British National Corpus (BNC) for expressions treated as characteristically British, and the National Corpus of the Kazakh Language for Kazakh) to exclude archaic or obsolete forms no longer recognizable to contemporary speakers. Third, expressions judged to be fully compositional and literal – interpretable without recourse to any figurative extension of the body-part term – were excluded, since the analytic interest of the study lies specifically in metaphorical and metonymic elaboration rather than in literal anatomical reference.

Determining metaphoricity is not always straightforward, since many somatic expressions occupy a gradient space between transparent metaphor and conventionalized, near-literal usage. Following the general spirit of conceptual metaphor theory (Lakoff, Johnson, 1980), an expression was treated as metaphorically motivated when its target-domain meaning could not be derived from the literal, anatomical sense of the body-part term without positing a cross-domain mapping – for instance, the Kazakh expression *арқасы бап* cannot be paraphrased using only the literal anatomical sense of *арқа* ('the physical back') without invoking the further, non-anatomical notion of support or protection. Borderline cases were cross-checked against the example sentences and usage notes provided in the source dictionaries themselves, rather than relying solely on the analyst's own judgment, in an effort to reduce the risk of over- or under-attributing metaphorical status to a given expression. Where a single body-part term supported multiple, only loosely related metaphorical extensions – as is the case for *бас* ('head'), which extends toward both managerial authority and symbolic foundation – each extension was coded and analyzed separately rather than collapsed into a single undifferentiated entry, in order to preserve the internal semantic structure of the domain.

The decision to draw English-language corpus evidence from both the British National Corpus and the Corpus of Contemporary American English, rather than from a single national variety, reflects a deliberate attempt to distinguish expressions that are broadly stable across major varieties of English from those that may be regionally or dialectally restricted; where the two corpora diverged noticeably in the currency or connotation of a given expression, this divergence is noted qualitatively in the Results and Discussion section rather than treated as a single undifferentiated 'English' data point. No equivalent multi-variety comparison was possible on the Kazakh side within the scope of the present study, since the National Corpus of the Kazakh Language was treated as the primary reference standard for contemporary usage; this asymmetry in corpus coverage is acknowledged as a limitation of the present design.

As with any qualitative, interpretive analysis of figurative language, the coding and interpretation reported here inevitably reflect the analyst's own linguistic and cultural positioning as a bilingual (Kazakh–English) researcher working within an academic tradition informed by both Western cognitive linguistics and Kazakhstani ethnolinguistic scholarship. Where an interpretive judgment concerning the cultural connotation of a Kazakh expression could not be directly substantiated by the cited lexicographic sources, this is flagged explicitly in the Results and Discussion section as a plausible rather than an established reading, in keeping with standard practice in qualitative linguistic analysis; the study does not claim the interpretive neutrality that a fully corpus-quantified, inter-rater-validated design would in principle allow, and this limitation is revisited in the Conclusion.

The three-stage cognitive-mapping procedure described above is theoretically motivated by Barsalou's (2008) account of grounded cognition, according to which conceptual representations are partially reconstructed, on each occasion of use, through simulation of relevant sensorimotor experience rather than retrieved as fixed, amodal symbols. On this view, the lexical-inventory stage (Stage I) identifies the linguistic surface forms available for analysis; the projective-analysis stage (Stage II) reconstructs the sensorimotor or perceptual experience plausibly simulated in using a given expression (e.g., the physical sensation of pressure or constriction associated with *иміі тап*); and the schematic-modeling stage (Stage III) abstracts, across multiple such reconstructions, the recurring image-schematic structure common to a body of expressions. This procedure does not claim to provide direct psycholinguistic evidence of simulation during comprehension – establishing that would require experimental methods that fall outside the scope of the present study – but it does provide a principled, theoretically motivated basis for moving from individual lexical items to the more abstract image-schema comparisons reported in Table 1.

Literature review

At the current stage of development in cognitive linguistics, the question of embodied cognition is approached from various methodological perspectives in both international and Kazakhstani scholarship. This section examines the connection between foundational theories from the American cognitive-linguistic tradition and Kazakh ethnolinguistic scholarship, focusing on their point of intersection – the concept of image schemas.

G. Lakoff and M. Johnson, in “Metaphors We Live By” (1980), were among the first to argue systematically that the human system of thought is metaphorical in nature: metaphor is not merely a literary device but a way of projecting structure from one cognitive domain (source domain) onto another, more abstract domain (target domain). Building on this theory, Lawrence Barsalou (2008) introduced the concept of “grounded cognition,” demonstrating that cognition is not composed of purely abstract symbols but is underpinned by sensorimotor simulation and physical sensation – for instance, abstract concepts such as “joy” or “sadness” are partly grounded in the experience of physical movement along an up–down axis.

In Kazakhstani scholarship, this issue has been examined from a complementary perspective within the ethnolinguistic school founded by academician A. Qaidar. In Qaidar's ethnolinguistic dictionary of the Kazakh language and related work on the somatic lexicon, the names of body parts are treated not merely as biological terms but as cognitive codes of the national worldview. Kazakh linguists such as R. Syzdyq and G. Smagulova have highlighted the role of somatic phraseology in depicting a person's inner world, character, and social relationships. The linguocultural analysis developed within this tradition has not, however, been systematically synthesized with the image-schema apparatus of the American cognitive-linguistic school – a gap the present study aims to address.

The theoretical contribution of the study lies in applying the concept of image schemas to Kazakh-language material. Image schemas are recurring dynamic structures that arise from bodily experience. Three schemas central to the American model can be compared with somatic concepts in Kazakh, on the basis of the lexicographic material examined:

The CONTAINER schema and the concept of stomach/belly (іш). Following Lakoff, a person's body can be conceptualized as a ‘container’ distinct from the external environment. The Kazakh concept of іш illustrates this schema: idioms glossable as “to fit inside,” “to draw in,” and “to be stifled” conceptualize a person's emotional state as movement or pressure within a bounded space.

The PATH schema and the concept of foot/path. M. Johnson (1987) links time and goal-achievement to a physical path. In the Kazakh material, expressions glossable as “heavy-footed,” “blessed-footed,” and “open-road” map a person's life stages onto spatial movement. Here the biological organ (foot) and the abstract notion of direction (path) form a unified cognitive map.

The BALANCE schema and the concept of foot/support. Balance derives from the bodily experience of standing upright. In the Kazakh material, idioms glossable as “to find one's footing,” “to wear one's soles out,” and “to get one's bearings” metaphorically represent social and psychological stability through physical balance.

As this review suggests, where American cognitive linguistics has emphasized the architecture of cognition (schemas), Kazakhstani ethnolinguistic scholarship has more often examined its content-based and cultural-symbolic dimensions. Combining these two lines of scholarship makes it possible to explore whether embodied cognition should be regarded as culturally universal rather than specifically Western in origin. Moreover, Barsalou's notion of grounded cognition offers one possible explanation for the expressive richness of somatic phraseology in Kazakh: such phraseology may be directly “grounded” in neurobiological sensation, though testing this explanation directly falls outside the scope of the present linguistic analysis.

Combining these theoretical resources with the ethnolinguistic material of the Kazakh language forms the methodological foundation of this study, developed further in the Materials and Methods and Results and Discussion sections.

Building directly on the symbol grounding problem introduced above (Harnad, 1990), Barsalou's (2008, 2010) account of grounded cognition predicts that the metaphorical extension of body-part vocabulary should track the perceptual and motor properties of the relevant body part, rather than being attached to that vocabulary arbitrarily. This is a testable prediction. It is broadly consistent with the recurring CONTAINER, PATH, and INSTRUMENT mappings documented across the English-language and Kazakh material examined here: in both bodies of data, the metaphorical extensions identified below track the physically salient properties of the relevant organ – the hand's manipulative function, the enclosing shape of the stomach/belly, the foot's role in locomotion. None of these extensions attach to body-part vocabulary in a way that would look arbitrary from a grounded-cognition

perspective.

Where Lakoff and Johnson's (1980) original formulation of conceptual metaphor theory focused primarily on the internal cognitive architecture of the individual language user, the distributed and enactive accounts of cognition already introduced above (Clark, 2008), (Noë, 2004), (Di Paolo et al., 2010) situate embodied meaning-making more broadly within social and environmental context. Gallagher adds a further, phenomenological dimension to this picture, arguing that the body structures cognition not only as an object of perception but as the tacit, pre-reflective medium through which perception and action are organized – relevant here insofar as somatic expressions may encode not only what speakers consciously believe about the body but how it is tacitly experienced as a background to action (Gallagher, 2005). Noë (2004) and Di Paolo, Rohde, and De Jaegher (2010) push this further, treating understanding as constituted by ongoing sensorimotor engagement rather than by stored representations, while Clark (2008) extends cognition outward to culturally distributed tools and practices. Read together with conceptual metaphor theory's more classically representational account, this suggests that the divergences documented below need not be explained solely at the level of individual representation; they may equally reflect differences in the socially distributed practices – herding, kinship reckoning, communal dwelling – within which Kazakh speakers and speakers of English have historically enacted their bodily engagement with the world.

Kövecses's (2005) comparative account of metaphor variation offers a more directly applicable analytic vocabulary for characterizing the specific kind of divergence documented in the Results and Discussion section. Kövecses distinguishes several dimensions along which a shared conceptual metaphor may vary cross-culturally, including differences in the source domains available for a target concept and differences in what he terms differential elaboration – the extent to which a source domain's inferential structure is developed and lexicalized within a target domain. The patterns identified in this study correspond most closely to differential elaboration: rather than selecting distinct source domains, the English-language and Kazakh material largely draw on the same body parts while elaborating their inferential potential to markedly different degrees, extending, for instance, the back and head domains toward registers of social and symbolic protection in the Kazakh material that remain comparatively underdeveloped in the corresponding English-language expressions examined. Wierzbicka's (1999) broader critique of Anglocentrism in cognitive semantics – her argument that Anglophone emotion research has often generalized from English-specific lexical categories as though they were cognitively basic – anticipates, in a more general semantic register, the WEIRD-sample concern raised by Henrich, Heine, and Norenzayan (2010), and lends independent support to the present study's rationale of treating the English-language and Kazakh material as equally in need of principled description, rather than assuming the English-language categorization to be primary.

Levinson's (2003) cross-linguistic typology of spatial frames of reference – relative frames, oriented to the perceiver's own body; intrinsic frames, oriented to another object's inherent facets; and absolute frames, oriented to fixed external coordinates – offers a further typological resource for situating the back- and foot-related material discussed below, most of which draws on a relative, body-centered frame of reference; Levinson's broader fieldwork, extending well beyond the WEIRD sample, cautions against treating this frame as a cognitive default rather than one culturally variable option among several attested possibilities. Markus and Kitayama's (1991) related distinction between independent and interdependent self-construals – a bounded, autonomous self-typical of more individualist cultural contexts versus a self-constituted through relationships to kin and significant others in more relationally oriented contexts is, at the level of lexical elaboration, consistent with the *жүрек/бауыр* distinction examined in this study, though their original evidence is social-psychological rather than linguistic.

It is worth situating this comparison within the broader aims of the Kazakhstani ethnolinguistic tradition from which the Qaidar, Kenesbayev, Syzdyq, and Smagulova sources are drawn. Ethnolinguistics, as practiced within this tradition, treats lexical and phraseological material as a repository of a people's historically accumulated worldview (*дүниетаным*), with somatic vocabulary a particularly rich site of such accumulation, since the body is a universally shared point of departure onto which culturally specific meaning can be inscribed. The present synthesis is accordingly not a one-

imagery, situating Kazakh spatial cognition within the broader typological discussion of egocentric versus socially or cosmologically anchored frames of reference (Levinson, 2003). In the material examined, the concept of *арқа* ('back') is not limited to a purely spatial or social reading ("to have someone's back") but extends toward what may be read as a culturally marked register of protection — *арқасы бап* ('to have a back/protector'; Kenesbayev, 1977, s.v. *арқа*). This extension is consistent with the broader ethnolinguistic characterization of somatic vocabulary offered in Qaidar's dictionary (2009–2013) and in Syzdyq's work (2014); a fuller ethnographic grounding of any connection to traditional nomadic belief systems would, however, require dedicated ethnographic sourcing beyond the scope of the present lexicographic analysis, and is not claimed here as established. Where the corresponding English idiom remains largely within a register of social solidarity, the Kazakh material appears to extend the same bodily schema into a more clearly marked protective register (cf. Sharifian, 2017, on cultural conceptualization).

A comparable pattern appears with *бас* ('head'). In the English material, 'head' is used predominantly in the sense of leadership or management (head of the company): HEAD IS LEADERSHIP/MANAGEMENT. In the Kazakh material examined, *бас* additionally extends toward meanings glossable as 'sacred' (*қасиетті*) and 'ultimate foundation' (*түп негізі*) – as in expressions referring to the 'head' of the Baiterek monument or of a yurt (Qaidar, 2009, 2013), (Kenesbayev, 1977). This may be read as a further instance of source-domain-elaboration asymmetry: the same body part is elaborated instrumentally in one linguaculture and toward a more symbolic or foundational register in another (Kövecses, 2005), though again a systematic corpus-frequency comparison remains a task for future research rather than a claim established here.

Turning to time reference, the English-language material examined tends to structure time along a forward-moving horizontal line. This is consistent with the FUTURE IS AHEAD schema, illustrated by expressions such as look forward to the future and the road ahead. The widely cited example time is money reflects a related but analytically distinct pattern: here time is conceptualized not spatially but as a scarce, expendable resource (TIME IS MONEY / TIME IS A RESOURCE), and is accordingly treated here as a separate metaphor rather than as a direct instance of FUTURE IS AHEAD. Against this background, Kazakh expressions such as *көреп көзге* ('before one's eyes, in plain sight') and *көзді ашып-жұмғаныш* ('in the blink of an eye') tie temporal reference not to forward motion along a path but to visual-bodily posture, aligning the present with what is currently visible and the unknown past or future with what lies outside the visual field. This is best read as a distinct, perception-based image schema – PRESENT IS WHAT IS SEEN – rather than as a variant of the FUTURE IS AHEAD schema discussed above; the two languages examined here do not simply differ in the direction of a shared timeline metaphor but appear to draw on different sensory source domains (motion versus vision) for structuring temporal reference in the first place. The Kazakh pattern nonetheless resonates, at a more general typological level, with systems in which epistemic accessibility rather than physical motion organizes temporal reference. The clearest parallel is the Aymara case discussed by Núñez and Sweetser (2006), where the known past is described as visually "in front of" the speaker and the unknown future as lying "behind." The present analysis treats this resemblance as a suggestive typological parallel, however, not as a claim that Kazakh and Aymara instantiate an identical cognitive model; substantiating a closer typological relationship would require comparative work beyond the lexicographic scope of the present study. What the material examined here does show, at minimum, is that time metaphors are not cognitively fixed but contingent on which sensory and temporal domain a given linguaculture treats as epistemically available (Núñez, Sweetser, 2006).

These findings may also be relevant to natural-language-processing systems trained predominantly on WEIRD-society data (Henrich et al., 2010): because literal translation does not necessarily preserve the embodied, relational, and axiological meanings carried by Kazakh somatic expressions – for instance, the distinction between *жүрек* (heart, an individual-centered emotional locus in the material examined) and *бауыр* (liver, a kinship-centered emotional locus) – culturally sensitive language technologies for Kazakh may benefit from representations that go beyond simple lexical equivalence. A fuller treatment of this question, including its implications for embodied or grounded language models, falls outside the scope of the present linguistic analysis and is noted here

only as a direction for future interdisciplinary work.

Table 1 summarizes the comparative cognitive mappings identified across the domains examined above, illustrating shared bodily source domains alongside their culture-specific elaborations.

Table 1 – Comparative Cognitive Mapping of Selected Somatic Concepts in English and Kazakh

Кесте 1 – Ағылшын және қазақ тілдеріндегі кейбір соматикалық концептілердің салғастырмалы когнитивтік картаға түсірілуі

Таблица 1 – Сравнительное когнитивное картирование отдельных соматических концептов в английском и казахском языках

<i>Domain / Body Part</i>	<i>English-Language Cognitive Mapping</i>	<i>Kazakh Cognitive Mapping</i>	<i>Key Distinction</i>
Hand	HAND IS AN INSTRUMENT FOR ACTION – problem-solving tool, utility, economic resource	Instrument of action + symbol of power, legal status, and social responsibility (“under one's hand”, “to sign with one's hand”)	Instrumental utility vs. hierarchical authority
Heart / Liver	HEART IS A SEAT OF ROMANTIC EMOTION – single, individual-centered emotional locus	Emotion split between жүрек (heart) and бауыр (liver, kinship empathy) – dual, relationally distributed locus	Individual feeling vs. collective kinship empathy
Stomach	STOMACH IS A CONTAINER FOR INNER STATE – mainly physiological sensation or short-term restraint (“gut feeling”, “bottle up”)	CONTAINER schema extended to durable moral character, secrecy, and tolerance (іші тап, іші кең)	Momentary affect vs. durable moral character
Back	BACK AS SOCIAL SUPPORT – “to have someone's back”, social solidarity	BACK IS A PROTECTIVE WALL – social support + culturally marked spiritual protection (арқасы бар)	Social register vs. culturally marked protective register
Head	HEAD IS LEADERSHIP / MANAGEMENT – instrumental, organizational authority	HEAD IS A FOUNDATION – extends toward қасиетті (sacred), түп негізі (ultimate foundation)	Managerial function vs. symbolic/foundational status
Foot / Path	LIFE-COURSE IS A PATH / BALANCE – “to find one's footing”, “to get one's bearings” (generic stability)	PATH and BALANCE fused with fortune and fate (“heavy-footed”, “blessed-footed”, “open road”)	Generic stability vs. fortune/fate encoding
Eye / time orientation	FUTURE IS AHEAD – forward-moving timeline (“look forward to,” “the road ahead”); TIME IS MONEY treated as a separate, non-spatial metaphor	Present/past tied to visual-bodily posture (көреп көзге, көзді ашып-жұмғанша) – known/visible vs. unknown	Motion-based linear time vs. vision-based, perceptually anchored time

Taken together, these results indicate that human cognition, as reflected in the material examined, is closely tied to bodily experience, and that language encodes that experience in culturally specific ways. Reading the English-language and Kazakh material together offers one way of exploring the relationship between universal and culture-specific dimensions of human cognition. Considered alongside subsequent developments within embodied-cognition research – which increasingly treat the

universality of image schemas as compatible with substantial cultural variation in their elaboration (Gibbs, 2005) – the pattern documented here is consistent with a graded rather than binary model of embodied cognition, in which a shared biological substrate supports a finite set of image schemas while cultural, historical, and ecological factors shape which schemas are elaborated and which domains of experience they come to organize (Sharifian, 2017).

Conclusion

Summarizing the results of this comparative analysis, embodied cognition approached here through the image-schema apparatus developed by G. Lakoff and M. Johnson, itself historically continuous with the earlier American pragmatist emphasis on experience (W. James, J. Dewey) proves to be a productive analytical lens for the somatic vocabulary of the Kazakh language, rather than a framework whose relevance is confined to the WEIRD linguistic-cultural contexts on which it was originally developed.

The comparative analysis indicates a structural correspondence what might be termed a cognitive isomorphism between the English-language and Kazakh material: both bodies of data conceptualize abstract categories such as time, emotion, and social standing through recurring bodily source domains and image schemas (CONTAINER, PATH, BALANCE, INSTRUMENT). At the same time, the two bodies of material diverge in how these shared schemas are culturally elaborated. Where the English-language expressions examined here tend toward comparatively narrower, action- or utility-oriented elaborations, the Kazakh material shows a broader extension into kinship, social responsibility, and ethical evaluation – for example, in the extension of *бауыр* ('liver') toward kinship empathy, of *арқа* ('back') toward social and, in some traditional contexts, spiritual protection, and of *іш* ('stomach/belly') toward durable moral character rather than momentary affect.

Four findings emerge from this analysis: (1) the English-language and Kazakh somatic expressions examined here share a set of underlying image schemas consistent with the embodied-cognition literature; (2) the cultural elaboration of these schemas differs substantially between the two bodies of material; (3) in the Kazakh material, the concepts of *бауыр*, *арқа*, *іш*, and *қол* 4 encode not only bodily experience but also kinship, social responsibility, and ethical evaluation; and (4) these patterns point to the value of testing embodied-cognition models against a broader typological range of languages than the WEIRD-dominated base on which much of the current literature rests (Henrich et al., 2010).

As a further, more exploratory implication, the culturally specific elaboration documented here particularly the *жүрек/бауыр* split and the moral loading of *іш* may be relevant to the design of culturally sensitive language technologies for Kazakh, since literal translation risks flattening these distinctions. Pursuing this implication in depth, however, would require dedicated interdisciplinary work beyond the scope of the present study.

The findings reported here rest on a lexicographically and corpus-informed but illustrative, non-exhaustive comparative sample rather than a fully quantified corpus count. A frequency-based corpus study represents a natural next step, as does closer engagement with the primary ethnolinguistic sources cited here (Qaidar, 2009, 2013), (Kenesbayev, 1977), (Syzydyq, 2014) to substantiate more fully the culturally specific readings proposed above, several of which are offered as plausible interpretations rather than established findings.

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