

A Typology of Frame-Based Models of Intellectual Concepts in Kazakh, Russian, and English Linguacultures

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Abstract—The relevance of this study is driven by the growing interest of modern linguistics in the contrastive analysis of the intellectual conceptosphere and the need to identify universal and culture-specific mechanisms of conceptualizing thinking across different linguacultures. The aim of the study is to develop a typology of frame-based models of intellectual concepts in Kazakh, Russian, and English linguacultures on the basis of their cognitive-semantic and linguacultural comparison. The methodology combines frame analysis, a typological approach, and linguacultural analysis, drawing on a corpus of texts representing different genres and discourse types. The scientific novelty of the study lies in identifying and systematizing semantic domains of intellectual concepts as internal cognitive-semantic subsystems that form hierarchically organized frame-based models. The results establish the dominant types of conceptualization of the intellectual domain and identify universal and culture-specific elements of the frame structure of concepts across the three languages. The main conclusions confirm the productivity of frame-based and typological approaches for analyzing the intellectual conceptosphere and demonstrate their potential for intercultural comparison and further cognitive-linguistic research.

Index Terms—typology of intellectual concepts, conceptosphere, frame-based model, linguaculture, cognitive semantics

I. INTRODUCTION

The study of intellectual concepts within the linguacultural paradigm is a relevant area of cognitive linguistics, since concepts reflect patterns of thinking and culturally specific characteristics of language users. Frame-based models provide an effective tool for structuring and analyzing such concepts. In Kazakh, Russian, and English linguacultures, both similarities and differences can be observed in the organization of conceptual systems, which makes their comprehensive comparison necessary. The analysis of intellectual concepts contributes to a deeper understanding of the relationship between language, thought, and culture, and it also supports the development of intercultural communication. Contemporary approaches to frame modeling make it possible to identify universal cognitive mechanisms as well as the

specificity of particular cultural contexts. Thus, investigating frame-based models of intellectual concepts in a contrastive format is significant both scientifically and in applied terms.

Recent studies confirm the importance of cognitive and cultural approaches to concept research. Safaraliev and Perfilieva (2023) demonstrated the potential of modeling multidimensional linguacultural concepts using the concept *OLD AGE* across different languages. Orazbaeva et al. (2025) proposed a generative cognitive model that enables the analysis of linguistic structures and thinking processes in Kazakh. Beknazarova et al. (2021) emphasized the role of conceptual metaphor as a cognitive tool for modeling culturally specific meanings. Narziev (2025) showed how a frame-based approach can be applied to the analysis of economic concepts through conceptual metaphors, demonstrating both intercultural differences and similarities. These studies confirm the scholarly value of an integrated analysis of intellectual concepts using frame-based models.

Despite the accumulated findings, questions of a systematic typology and comparison of intellectual concepts across three linguacultures simultaneously remain unresolved. Existing studies are often limited to a single language or culture, which prevents the identification of both universal and culture-specific elements of conceptualization. A comprehensive methodology is needed to classify and analyze frame-based models of concepts while taking cognitive and cultural parameters into account. These gaps motivate the present study, the aim of which is to develop a typology of frame-based models of intellectual concepts in Kazakh, Russian, and English linguacultures.

II. LITERATURE REVIEW

This section reviews the main strands of research that inform the present study. It first outlines theoretical approaches to frames and related tools for meaning and discourse analysis, then summarizes findings on the modeling of intellectual and other abstract concepts through metaphor and frame-based representations. The review further highlights contrastive and typological work relevant to Kazakh–Russian–English linguacultures, including issues of bilingualism and translation, and concludes with prior studies that motivate the analytical choices and typological framework adopted in this article.

A. Theoretical Approaches to Frame-Based and Conceptual Analysis

A substantial body of publications is devoted to the theoretical understanding of *frames* as a tool for analyzing meaning and discourse. Hu and Chen (2019) show that *frames perform not only a representational function but also a pragmatic one*, contributing to author positioning and guiding text interpretation. Similarly, Spiess (2025) treats *frames as jointly constructed cognitive structures* emerging in dialogic interaction. Multimodal studies (Bateman et al., 2021) expand the traditional understanding of frames by incorporating visual, auditory, and textual resources; however, the question of their comparability across different linguacultures remains open.

Within typological lexical semantics, an increasingly productive approach involves comparing semantic domains and their internal relations (as a form of conceptual organization) through colexification modeling and areal-typological comparison. This creates a formalizable bridge between the cognitive reconstruction of frames and cross-linguistic testing of the stability of semantic links (Schapper & Koptjevskaja-Tamm, 2022). Recent work in Linguistic Typology further shows that colexification links may differ in “persistence” versus “diffusibility”, which is methodologically important for distinguishing stable semantic associations from contact-driven distributions in typological inference (Gast & Koptjevskaja-Tamm, 2022). Likewise, large-scale evidence from African colour-term systems demonstrates that colexification patterns can form robust areal clusters, strengthening the empirical basis for treating semantic-domain links as typologically testable generalizations (Segerer & Vanhove, 2022).

The integration of *frame semantics and conceptual metaphor* theory helps refine the internal structure of *metaphorical concepts*, including intellectual and emotional categories (Neumair et al., 2025), yet unified criteria for typologization have not been established. As shown in previous research (Spiess, 2025; Pan, 2022), dynamic approaches account for frame activation in communication, while instruments such as DMIP (Reijnierse et al., 2018) and MetaNet (Petrucci, 2016) enable metaphor identification and the modeling of complex conceptual networks. Studies by Thiele et al. (2024), Brugman et al. (2019), and Gibbs and Siman (2021) emphasize the need to consider *discursive, non-verbal, and cultural aspects in frame reconstruction*.

From a methodological perspective, it is important that typological studies of lexico-semantic networks published in Linguistic Typology demonstrate that *nodes and clusters of meanings* (corresponding to frame zones) can be identified not only interpretively but also as recurring cross-linguistic patterns of semantic association. This strengthens the justification for constructing a typology of frame-based models when comparing multiple linguacultures (Schapper & Koptjevskaja-Tamm, 2022).

B. Intellectual and Abstract Concepts Through Metaphor and Frames

Research in cognitive linguistics shows that abstract *concepts* (e.g., *reason, knowledge, understanding, evaluation*) are represented through *metaphors and frames* that become activated in communication. Mon et al. (2021) found that *conventional metaphors elicit higher engagement in comprehension* than literal expressions by mobilizing cognitive attention. O’Dowd (2025) demonstrated that metaphor and metonymy modify the interpretation and evaluation of concepts. Burgers et al. (2016) proposed HIP, a hyperbole identification procedure that captures how hyperbole intensifies

evaluative components. Thibodeau et al. (2017) and Thibodeau and Boroditsky (2011) show that metaphors provide *cognitive scaffolding for reasoning, affecting causal attribution and role assignment*.

Typologically oriented research on the perception–cognition domain indicates that “*intellectual*” meanings (e.g., KNOW/UNDERSTAND; THINK/BELIEVE) form stable cross-linguistic clusters and function as connecting hubs in semantic networks. This is conceptually close to the idea of frame zones and provides empirical support for typologizing intellectual concepts, for example by identifying dominant frame domains and their links across languages (Georgakopoulos et al., 2022).

Altavilla et al. (2025) treat metaphor as a tool for constructing the “Self,” demonstrating the socio-cognitive nature of *intellectual concepts*. Cross-cultural studies (Wnuk & Ito, 2021; Lederer, 2019; Zhang et al., 2022) emphasize that *cultural schemas shape the selection of metaphorical patterns and the types of frames* that become activated. Alejo-González (2023) examines stable metaphors in English as a lingua franca, while Navarro i Ferrando and Esbrí-Blasco (2024) clarify semantic roles in metaphorical mappings. Grisham et al. (2025) demonstrate the social influence of metaphors on the perception of intellectual qualities.

Additional support comes from typological analyses of cross-modal semantic associations in perception, showing that languages systematically *connect* sensory meanings and their expression (including through word formation), and that such links provide an important cognitive background for shifts from perceptual to abstract/intellectual meanings, including pathways for conceptualizing knowledge, understanding, and evaluation (Norcliffe & Majid, 2024).

Finally, research on colexification patterns demonstrates that abstract qualities and evaluations can become entrenched through embodied and object-based anchors (embodied/metonymic foundations), such as stable links like BONE–STRENGTH or systematic mappings between body parts and objects. This is directly relevant for explaining why frame structures of intellectual concepts include both universal and culture-specific components across linguacultures (Schapper, 2022; Tjuka, 2024).

C. Kazakh–Russian–English Linguacultures: Concept Comparison, Bilingualism, and Translation

Comparing concepts across languages and cultures requires attention to bilingualism, cultural specificity, and translation mechanisms. Kalinin and Ignatenko (2024) show that metaphorical force strengthens the cognitive and evaluative functions of concepts in Russian discourse. Baigozhina et al. (2019) demonstrate that media discourse transforms cultural meanings, creating new frames for the concepts of *knowledge, understanding, and evaluation* in Kazakhstan.

Tokpayeva et al. (2024) identify *universal cognitive cores and culture-specific semantic nuances* in Kazakh, Russian, and English children’s folklore. Suleimenova et al. (2021) argue that the diversification of Russian in Kazakhstan gives rise to specific *concept frames*. Wong et al. (2023) analyze how bilingual children with dyslexia conceptualize *intellectual processes through metaphors and frames*, while Xu et al. (2022) demonstrate *multimodal frames in educational practice*. Dalpanagioti (2023), Ptashkin (2021), and Sullivan (2016) show how FrameNet, MetaNet, and constructional semantics contribute to the formalization of cross-linguistic *concept typologies*.

D. Related Prior Studies

A number of studies examine intellectual concepts through the lens of frame-based and linguacultural analysis, which aligns with the objectives of the present study. In particular, the study *Linguo-Conceptual and Linguocultural Analysis of the Concept “Memory”: Semantic Typology of Kazakh-Russian-English Phraseology* (Bakytzhanova et al., 2025a) is devoted to a contrastive analysis of phraseological units that represent the concept of memory in Kazakh, Russian, and English linguacultures. This co-authored study was published in 2025 in *Theory and Practice in Language Studies*, which is indexed in Scopus.

Within that research, *key semantic microfields* were identified, reflecting processes of consolidation, forgetting, and retrieval of information, as well as their cultural and evaluative marking. Methodologically, the analysis combined etymological, componential, structural-semantic, and comparative methods, together with *modeling*, which made it possible to construct a typological map of the frames of the concept *memory* and to identify universal cores and culture-specific elements.

On the basis of these findings, *phraseological units were interpreted as cognitive-cultural markers* that reflect distinctive values, archetypes, and thought patterns in each linguaculture. Specifically, in the Kazakh corpus, memory frames incorporate historical-cultural and collective elements; in Russian, educational and personal elements; and in English, individual-cognitive and instrumental-analytic elements. These results provide an empirical foundation for constructing an intercultural typology of frame-based models of intellectual concepts.

Comparing these results with published findings by other researchers (Sharifian, 2017; Neumair et al., 2025) shows that *universal cognitive cores* are preserved across languages, whereas *cultural and contextual markers* vary. This supports the need to account for cross-linguistic differences when typologizing concepts. The analysis also indicates that intellectual concepts such as memory function as *integral elements of the conceptsphere*, where cognitive processes, cultural values, and evaluative components are combined into a unified *frame representation*.

Another aspect of Bakytzhanova et al. (2025b) concerns the Kazakh legal conceptsphere, where intellectual parameters of legal discourse are analyzed through the concepts *quqyq* (‘law/right’), *qorgau* (‘protection’), *adildik* (‘justice/fairness’), and *tendik* (‘equality’). The study demonstrates that legal concepts are *structured through frames that*

include cognitive, normative, and cultural elements, which allows them to be interpreted as *intellectual constructs within a national linguaculture* and compared with Russian and English-language conceptospheres in the context of legal translation and interpretation.

The publication by Akhmetova et al. (2025) investigates the representation of ethnocultural concepts in the linguistic consciousness of Kazakh youth. The authors examine three culturally salient terms: *körimdik* ('a gift given at a first meeting'), *qūiryq-bauyr* ('a ritual dish symbolizing kinship ties'), and *qoşqar müüz* ('ram's horn as a symbol of strength and well-being'). A free-association experiment with 62 participants revealed mental representations of these concepts, including associations such as "money" for *körimdik*, "matchmakers/parents of the newlyweds" for *qūiryq-bauyr*, and "ornament" for *qoşqar müüz*. The results showed that traditional meanings are maintained, while some associations shift under the influence of contemporary social and family factors, indicating the dynamics of cultural perception.

The study by Akhmetova et al. (2025) not only expands the empirical basis for analyzing cultural and cognitive structures but also confirms the need to integrate *methods of cognitive linguistics, frame analysis, and concept typologization* when studying the intellectual conceptosphere in a multicultural environment.

These studies demonstrate that *language and culture shape national identity*, and that fixed expressions and idiomatic units reflect both cognitive and value structures of an ethnoculture. A methodological approach that includes the analysis of mental representations and free associations makes it possible to *identify cognitive and cultural cores* of concepts, which aligns with the typologization of frame-based models of intellectual concepts in the present article (Bakytzhanova et al., 2025b).

III. MATERIAL AND METHODS

This section describes the empirical basis of the study and the methodological framework used to analyze intellectual concepts in Kazakh, Russian, and English. It specifies the composition of the multilingual corpus, outlines the analytical tools adopted from cognitive linguistics, and summarizes the step-by-step procedure through which frame structures were identified and compared across linguacultures, ensuring transparency and reproducibility of the results.

A. Research Materials

The empirical basis of the study comprises a multilingual corpus of approximately 650 text units in Kazakh, Russian, and English, representing both written and spoken linguacultural practice. The corpus was compiled from several source groups: fiction texts, popular-science and academic publications, online resources, official documents, and public speeches. To improve representativeness, the materials were selected so as to include both institutional and everyday discourse, as well as texts reflecting different communicative situations and cultural contexts.

In genre terms, the corpus includes narrative, expository, analytical, and publicistic materials. The sampling procedure aimed to ensure balance across the three linguacultures and to cover the verbalization of intellectual concepts in both formal and informal contexts. The materials were selected from contemporary sources, with priority given to texts reflecting current language use and stable cultural models of conceptualization.

In addition to corpus data, the study also involved language users, colleagues, and professional linguist experts who participated in the interpretation and classification of the concepts. This made it possible to combine quantitative and qualitative procedures and to increase the interpretive reliability of the frame-based analysis.

B. Research Tools and Methods

To analyze intellectual concepts, methods from cognitive linguistics were applied, including frame analysis, conceptual mapping, and cognitive-contextual analysis. Frame analysis made it possible to identify the structure of concepts and the relations among their components. Conceptual mapping ensured the visualization of links between concept elements and the identification of universal and culture-specific components (Safaralieva & Perfilieva, 2023). Cognitive-contextual analysis enabled the comparison of data from different linguistic and cultural sources and the determination of which concept elements are preserved and which vary across linguacultures (Orazbaeva et al., 2025). The advantage of these methods lies in their capacity to integrate structural analysis of concepts with interpretation of their cultural and cognitive contexts. The authors have previously applied these methods, which ensured high verification of results in similar studies, for example in *Linguo-Conceptual and Linguocultural Analysis of the Concept "Memory": Semantic Typology of Kazakh-Russian-English Phraseology* (Bakytzhanova et al., 2025a).

C. Research Procedure

The research procedure consisted of several interrelated stages:

1. *Corpus compilation and preliminary classification*
 - Sampling textual units to compile an empirical corpus in Kazakh, Russian, and English.
 - Classifying texts by source types and genres to ensure diversity of cognitive and cultural contexts.
2. *Identification of key components of concepts*
 - Using frame analysis to determine the concept core, attributes, role elements, and cultural markers.
 - Applying conceptual mapping to visualize relations among components and to identify universal and culture-specific elements.

3. Cross-linguacultural comparison of concepts

- Conducting a comparative analysis of concepts in Kazakh, Russian, and English linguistic environments.
- Identifying universal elements preserved across all languages and culture-specific markers reflecting distinctive cognitive and cultural features in the three linguacultures.

4. Processing and visualization of results

- Using statistical tools to analyze frequencies and distributions of concepts.
- Employing visualization (tables, schemes, typological frame maps) to enhance clarity, confirm data reliability, and enable reproducibility of the results.

This procedural algorithm ensured logical consistency with the selected methods and provided a solid foundation for constructing the typology of frame-based models of intellectual concepts in Kazakh, Russian, and English linguacultures.

IV. RESULTS AND DISCUSSION

This section reports the outcomes of the study in a way that makes the analytical trajectory explicit from the empirical basis to the interpretive generalizations. The results are presented as a combination of corpus-driven observations and model-based interpretations: quantitative patterns are used to motivate which concepts are most central in the dataset, while qualitative evidence is used to show how those concepts are structured as frames and how their components vary across linguacultures. Importantly, the results are not limited to listing lexical items; instead, they demonstrate how recurrent linguistic evidence supports (i) the identification of frame cores and peripheral zones, (ii) the separation of attributes, role elements, and culturally salient markers, and (iii) the construction of a typology that captures stable cross-linguistic regularities alongside systematic variation. In this sense, the section is designed to be cumulative: each step adds a new level of explanatory depth, moving from distributional tendencies to structural descriptions and, ultimately, to typological conclusions that can be tested and extended in further contrastive research.

A. General Characteristics of the Corpus and Criteria for Selecting Concepts

The research corpus included 650 text units in Kazakh, Russian, and English, representing written and spoken sources from different genres, including fiction, popular-science texts, and official/business discourse. Key concepts were identified based on frequency of use and their cognitive and cultural significance for the language and the linguacultural environment. Such a selection ensured corpus representativeness and made it possible to cover both everyday and institutionalized forms of verbalizing the intellectual conceptsphere.

The selection of key concepts was based on a combination of quantitative and qualitative criteria. The analysis included concepts that, first, show high frequency and stability in the language; second, have pronounced cognitive and cultural significance; and third, demonstrate a developed frame structure comprising role, functional, and evaluative components.

As a result, the following concepts were identified and analyzed: *thinking*, *knowledge*, *memory*, *intellect*, and *stupidity*. This set reflects the core of the intellectual conceptsphere and provides a methodological basis for subsequent frame-based and typological comparison across the three linguacultures.

B. Quantitative Distribution of Intellectual Concepts Across the Three Linguacultures

To identify universal and culture-specific tendencies in conceptualizing the intellectual domain, a quantitative analysis was conducted of the distribution of concepts across cognitive-semantic categories in Kazakh, Russian, and English. The results are presented in *Table 1*.

TABLE 1
QUANTITATIVE DISTRIBUTION OF INTELLECTUAL CONCEPTS BY COGNITIVE-SEMANTIC CATEGORY

<i>Cognitive-semantic category</i>	<i>Kazakh</i>	<i>Russian</i>	<i>English</i>
thinking	120	135	142
knowledge	95	110	108
memory	70	85	82
intellect	60	72	75
stupidity	40	50	48
Other intellectual nominations	85	90	95

As shown in *Table 1*, the concepts *thinking* and *knowledge* are the most represented in all three linguacultures, which indicates their universal character and their fundamental role in the cognitive organization of knowledge. At the same time, the concepts *intellect* and *stupidity* show more pronounced cultural variability, which is associated with differences in value orientations, social norms, and ways of evaluating intellectual activity. These data provide an empirical basis for subsequent frame analysis.

C. Structural Features of Frame-Based Models of Intellectual Concepts

To identify the internal organization of intellectual concepts, frame analysis was applied, involving the identification of the concept core, attributes, role elements, and cultural markers. This approach made it possible to compare not

individual lexical units but structurally organized cognitive models. *Table 2* presents typical frame-based models of the key concepts.

TABLE 2
STRUCTURAL PARAMETERS OF FRAME-BASED MODELS OF INTELLECTUAL CONCEPTS

Concept	Concept core	Attributes	Role elements	Cultural markers (Kazakh / Russian / English)
<i>thinking</i>	Thinking activity	Logic, reflection	Individual, community	collective deliberation / rationality / critical thinking
<i>knowledge</i>	A set of internalized information	Information, experience	Scholar, learner	oral tradition / academicism / applied orientation
<i>memory</i>	Retention and retrieval	Stability, activation	Individual, culture	historical-cultural memory / educational memory / individual cognition
<i>intellect</i>	Intellectual ability	Analytical capacity, flexibility	Person	moral maturity / intellect / cognitive competence
<i>stupidity</i>	Deficit of rationality	Error-proneness, limitation	Person	social condemnation / personal evaluation / cognitive constraints

The data in *Table 2* show that the core and attributive characteristics of the frames are predominantly universal, whereas role elements and cultural markers vary depending on the linguacultural environment. This result confirms the rationale for moving from descriptive analysis to typological generalization.

D. A Typology of Frame-Based Models of Intellectual Concepts

Based on the contrastive analysis, a typology of frame-based models was developed that reflects differences in the dominant ways of conceptualizing intellectual reality. The typological basis included the functional-semantic focus of a concept, its cultural orientation, and the character of cross-linguistic variability (*Table 3*):

TABLE 3
TYPOLOGICAL PARAMETERS OF FRAME-BASED MODELS OF INTELLECTUAL CONCEPTS

Concept	Type of conceptualization	Frame focus	Cultural vector	Cross-linguistic variability
<i>thinking</i>	Processual	Cognitive operations	Cognitive-functional	Structural universality with differences in metaphorization
<i>knowledge</i>	Resultative	Representation and transmission	Social-institutional	Variability of acquisition scenarios
<i>memory</i>	Dynamic	Experience activation	Cultural-historical	Differences in domains and value load
<i>intellect</i>	Evaluative-normative	Personal quality	Axiological	Ethical and cultural specificity
<i>stupidity</i>	Negative-evaluative	Deviation from the norm	Social-regulatory	High cultural markedness

As shown in *Table 3*, intellectual concepts form a systemically organized typology in which processual and functional models (*thinking*, *memory*) are opposed to evaluative-normative ones (*intellect*, *stupidity*), while the concept *knowledge* occupies an intermediate position. The resulting typology captures stable models of conceptualizing the intellectual domain in the three linguacultures.

The contrastive analysis of intellectual concepts showed that, despite universal cognitive foundations, ways of conceptualizing them in Kazakh, Russian, and English linguacultures display stable variability driven by cultural, value-based, and discursive factors. Within the frame-based and typological approaches, this is manifested in differences at the level of attributes, role elements, and cultural markers, whereas the concept core typically retains an invariant character.

To illustrate how the proposed typology operates in a concrete contrastive case, the discussion below focuses on *memory* as a representative intellectual concept. Positioned between cognitive-mechanistic and culture-sensitive dimensions, *memory* combines a universal function of experience activation with linguaculturally marked patterns of preserving and interpreting experience. This makes it particularly suitable for demonstrating how typological parameters (frame focus, cultural vector, and cross-linguistic variability) are realized across Kazakh, Russian, and English linguacultures.

A particular point of interest in this context is the concept *memory*, as it occupies an intermediate position between the cognitive and cultural components of the intellectual conceptsphere. Unlike concepts oriented primarily toward operational or evaluative-normative characteristics, *memory* simultaneously functions as a universal cognitive mechanism and as a culturally marked way of preserving and interpreting experience. This makes the concept a representative example for demonstrating the typology of frame-based models and for identifying linguacultural differences in the conceptualization of the intellectual domain.

The frame model of the concept *memory* in the linguacultures under analysis constitutes a multi-layered cognitive-semantic structure that includes a core, attributive characteristics, role elements, and cultural markers. At the core level, *memory* in all three languages is conceptualized as the subject's ability to retain and reactivate past experience, ensuring cognitive and cultural continuity. This level demonstrates a high degree of typological universality and confirms the basic status of *memory* as an element of the intellectual conceptsphere.

The attributive level of the frame reveals culturally conditioned differences in the interpretation of *memory*. In Kazakh linguaculture, emphasis is placed on the stability and sacral nature of memory associated with historical and genealogical continuity, which reflects a collective orientation and the value of preserving cultural experience. In Russian

linguaculture, *memory* is often modeled as an emotionally saturated and reflexive space connected with personal experiences and moral evaluation of the past. In English linguaculture, by contrast, a rationalized understanding of memory predominates, treating it as an individual cognitive ability subject to control, development, and functional evaluation.

The role elements of the frame also demonstrate typologically significant differences. The Kazakh model is characterized by an orientation toward correlating individual memory with collective and cultural memory, whereas the Russian model foregrounds the interaction of personal and social levels of memory. In English linguaculture, the individual subject predominates, viewing memory primarily as a personal cognitive resource. These differences confirm that memory performs different socio-cognitive functions in different linguistic communities.

At the level of cultural markers, the most pronounced linguacultural divergences are observed. In Kazakh, memory is conceptualized as a value-laden and sacralized resource associated with moral responsibility toward the community and ancestors. In Russian, memory is often understood as a source of emotional tension, reflection, and inner dialogue. In English, memory is predominantly interpreted in pragmatic terms as a cognitive competence that ensures the efficiency of thinking and activity. These markers reflect not differences in the cognitive mechanisms themselves, but culturally conditioned ways of frame activation.

Thus, the analysis of the concept *memory* clearly demonstrates the productivity of typological and frame-based approaches for identifying universal and culture-specific characteristics of intellectual concepts. The results confirm that, while the cognitive core is invariant, the frame organization of the concept varies depending on cultural dominants, creating a methodological basis for the contrastive analysis of other components of the intellectual conceptsphere.

Within frame analysis, the concept *memory* is modeled as a multi-level cognitive-semantic structure including a core, attributive features, role elements, and culturally marked components. The frame organization of this concept reflects not only universal cognitive mechanisms of memorization, storage, and retrieval of information, but also nationally specific ways of conceptualizing them in the linguistic worldview.

The core of the frame (universal level): the core of the concept memory in all three linguacultures represents the subject's cognitive ability to retain and reactivate past experience. At the universal level, memory is understood as:

- a mechanism for recording information;
- a means of ensuring continuity of personal and collective experience;
- a condition of intellectual and cultural identity.

This level demonstrates a high degree of typological commonality and confirms the universal character of memory as a basic element of the intellectual conceptsphere.

The attributive level of the frame: at the level of attributes, dynamic characteristics of memory are identified, associated with processuality and evaluative meaning:

- Kazakh linguaculture emphasizes the stability, preservation, and sacral nature of memory (*zhady, es, oi, kokei, konil*) (approx. 'remembrance/memory; memory as capacity; thought; inner mind; inner state/heart'), which reflects an orientation toward continuity and collective experience (*Zheti atany bilu* ('to remember and know seven generations; up to the seventh ancestor'));
- Russian linguaculture models memory through emotional-psychological intensity, dramatization, and inner tension (*vrezat'sya v pamyat'* ('to become unforgettable; to leave a deep imprint'), *zakhlesnulo v pamyati* ('memories flooded back/overwhelmed'), *zarubit' na nosu* ('to remember once and for all; to keep firmly in mind'));
- English linguaculture demonstrates a rationalized and functional understanding of memory as an individual cognitive resource (*retain information, have a photographic memory, store information*).

Thus, the attributive level of the frame reflects the variability of the cognitive interpretation of memory depending on the cultural dominant.

The role elements of the frame: the role components of the concept *memory* are associated with types of subjects and sources of memory:

- in the Kazakh model, the key roles are the *individual* and *culture*, which is manifested in the *dominance of collective and genealogical memory*;
- in the Russian model, both the individual and the community are foregrounded, and *memory functions as a space of personal experience and social evaluation*;
- in the English model, the leading role is the *individual subject*, who possesses *memory as a cognitive competence*.

Role differences confirm that memory performs different socio-cognitive functions in different linguacultures.

Cultural markers (language-specific level): the most pronounced typological differences manifest at the level of cultural markers, which fix value-based and mental attitudes.

- Kazakh: *memory* is conceptualized as a *sacralized resource associated with historical and genealogical continuity and moral responsibility* before ancestors and the collective (sacralization of memory; cultural duty to remember).
- Russian: *memory* is modeled as an *emotionally loaded space* in which recollections may be traumatic, intrusive, or morally significant (*memory as a source of inner conflict and reflection*).

- English: *memory* is interpreted predominantly in *pragmatic terms* as *an individual cognitive ability that is amenable to development, control, and evaluation (memory as skill; cognitive efficiency)*.

It is important to emphasize that these markers are not separate concepts, but culturally conditioned ways of frame activation of the same concept.

The typological conclusion regarding the frame model of the concept *memory* demonstrates:

- the universality of the core and basic cognitive processes;
- the variability of attributive and role components;
- the cultural specificity of markers reflecting the value and mental dominants of each linguaculture.

The resulting typology confirms the productivity of the frame-based approach for analyzing the intellectual conceptosphere and creates a methodological basis for the contrastive study of other concepts (e.g., *intellect* and *stupidity*) within a unified typological model.

To refine the internal structure of the typology, the analysis further distinguishes semantic domains as concept-internal cognitive-semantic subsystems. This step makes it possible to represent *memory*, *intellect*, and *stupidity* as multi-level frame formations that incorporate analytical, functional, social, and value-related aspects.

To identify the internal organization of intellectual concepts, a typological procedure was applied that distinguishes semantic domains as internal cognitive-semantic subsystems of each concept. Rather than treating concepts as undifferentiated units, this approach models *memory*, *intellect*, and *stupidity* as multi-level frame formations combining functional, social, and value-related aspects. Table 4 summarizes the contrastive results for Kazakh, Russian, and English linguacultures.

TABLE 4
SEMANTIC DOMAINS OF FRAME-BASED MODELS OF INTELLECTUAL CONCEPTS

<i>Semantic domain</i>	<i>Domain description</i>	<i>Lexico-cultural markers (Kazakh / Russian / English)</i>
<i>Concept: MEMORY</i>		
Type of memory	Differentiation of memory by duration and stability of information storage	qysqa merzimdi es, uzaq merzimdi es / kratkovremennaya pamyat', dolgovremennaya pamyat' / short-term memory, long-term memory
Process of retention and retrieval	Retention, activation, and retrieval of experience and knowledge	este saqtau, eske alu, oida ustau / sokhranenie, vospominanie / retention, recollection
Memory and learning	The role of memory in knowledge acquisition and cognitive development	bilimdi saqtau / uchebnaya pamyat', sokhranenie znanii / learning memory, knowledge retention
<i>Concept: INTELLECT</i>		
Analytical ability	Ability for logical analysis and reasoning	aqyl, paiym, oi / um, rassudok / intellect, reasoning
Cognitive efficiency	Speed of thinking, quick-wittedness, intellectual productivity	tapqyrlyq, zerekтік / soobrazitel'nost', nakhodchivost' / mental agility, sharpness
Decision-making	Assessing a situation and choosing a rational decision	sheshim qabyldau / prinyatie reshenii, blagorazumie / decision-making, judgment
Social-normative evaluation	Intellect as a socially approved personal quality	aqyldy adam, altyn basty, aqyly telegei teniz / umnyi chelovek, khodyachii universitet, strelyanyi vorobei / intelligent person, a walking encyclopedia
Value-ethical aspect	The link between intellect and responsibility, maturity, moral evaluation	kop korgen, baipty / razumnyi, zrelyi / wise, sensible
<i>Concept: STUPIDITY</i>		
Cognitive limitation	Lack of ability to analyze and comprehend	oisyzydyq, aqymaqtyq, mii almaityn, oisyz qulaq, topastyq / glupost', ogranichennost', dyryavaya bashka / stupidity, lack of reasoning, poor judgment
Erroneous thinking	Tendency toward misconceptions and incorrect inferences	zhansaq oi / zabluzhdenie, oshibka / misconception, fallacy
Behavioral manifestation	Manifestation of stupidity in actions and behavior	orynsiz areket, ersilik zhasau, ersi qylyq / glupoe vyrazhenie, nerazumnyi postupok, delat' gluposti, oprometchivye deistviya / foolish behavior, reckless behavior, poor decision-making
Social evaluation	Negative evaluation of a person by society	aqymaq adam, topas, aqpa qulaq, salpan qulaq / glupyi chelovek, solomennaya golova, dubina, nedalekii chelovek / foolish person, a simple-minded person, not very bright
Ironic-metaphorical construal	Use of the concept in irony, admonition, and evaluative statements	aqylyngdy shashpa, aqylyngdy qaida zhogaltyng, basyn istemei qaldi / ne bud' gluptsom, ne bud' durakom, golova ne varit / don't be foolish, use your head, don't be a fool

As Table 4 shows, each intellectual concept is characterized by a *hierarchically organized system of semantic domains* reflecting different aspects of cognitive and cultural conceptualization. The concept *memory* exhibits a predominantly functional–cognitive structure; the concept *intellect* combines cognitive and value–normative domains; while the concept *stupidity* includes a pronounced socio-evaluative and pragmatic–metaphorical component. A comparison of lexico-cultural markers across the three languages reveals *universal domains* of conceptualization alongside *culturally specific emphases*, which confirms the productivity of the frame-based and typological approach for analyzing the intellectual conceptosphere.

It is interesting to note, with respect to the concept *stupidity*, that in English linguaculture the concept *stupidity* in the aspect of cognitive limitation is predominantly represented through analytical and institutionally neutral constructions (*lack of reasoning, poor judgment, limited understanding*), reflecting the culture's orientation toward rationality and critical thinking. Expressive metaphors (*not the sharpest tool in the shed*) are used as mitigated evaluative devices and function mainly in informal discourse, which distinguishes the English model from the more imagistic and expressive Kazakh and Russian nominations.

The ironic-metaphorical construal of the concept *stupidity* demonstrates culture-dependent variability:

1. in Kazakh linguaculture, folkloric and phraseological structures dominate, with emphasis shifted toward moral admonition and a collective understanding of error;
2. in Russian linguaculture, both normative and colloquial forms occur with an ironic coloring, aimed at behavior correction or emotional impact;
3. in English linguaculture, preference is given to universal and idiomatic forms, often softer, regulating social perception, with an emphasis on personal responsibility and rational behavior.

Thus, this type of frame makes it possible to identify culturally specific and universal strategies for evaluating intellectual limitations, which is useful for the typology of frame-based models and for intercultural analysis.

E. Discussion

Our findings are consistent with previous research showing that concepts combine an invariant cognitive core with culturally variable attributes, role components, and evaluative parameters. In this regard, our results support frame-semantic approaches that interpret a concept not as an isolated lexical unit but as a structured scene of relations and elements; similarly, FrameNet-based work demonstrates that meaning can be modeled through frames and frame elements that capture both stable and extendable components of conceptual knowledge (Boas et al., 2024). Our shift from comparing individual words to comparing models of conceptualization also agrees with Sullivan's view of framing as both a cognitive structure and an interpretive mechanism (Sullivan, 2023). At the same time, the differences we identified in the axiological load and normativity of intellect, stupidity, knowledge, and thinking correspond to the broader cognitive-linguistic claim that universal embodied foundations tend to remain stable, whereas culture shapes their evaluative interpretation. This is in line with evidence that beliefs about intelligence may be activated through metaphorical links such as INTELLIGENCE IS BRIGHTNESS (Sullivan, 2015), that shared embodied frameworks coexist with culturally reshaped metaphorical and metonymic realizations (Tran, 2022), and that trilingual Kazakhstani data likewise reveal invariant cognitive content alongside differences in cultural connotations and evaluative components (Bakytzhanova et al., 2025a).

The practical significance of this study lies in the possibility of applying the proposed typology of frame-based models in intercultural communication, cognitive linguistics, and linguacultural analysis. The findings can be used by researchers, instructors, and language-education specialists to interpret intellectually salient concepts more precisely and to design courses aimed at developing intercultural and cognitive competence.

Future research should expand the methodological toolkit by integrating frame-based and typological analysis with corpus-based and experimental methods, and by incorporating additional languages and discourse types. Of particular interest is further investigation of the dynamics of the intellectual conceptsphere under conditions of digital communication and globalization, which can be pursued within interdisciplinary research at the intersection of cognitive linguistics, cultural semantics, and discourse analysis.

V. CONCLUSION

The study showed that intellectual concepts in Kazakh, Russian, and English linguacultures have a hierarchically organized frame structure in which universal cognitive components coexist with culture-specific elements. The identified types of conceptualization processual-operational, resultative-representational, functional-dynamic, and evaluative-normative confirm that ways of construing the intellectual domain depend on cultural scenarios and value orientations of linguistic communities, which is consistent with findings in contemporary cognitive and cultural linguistics.

The reliability of the conclusions is ensured by the representativeness of the corpus, which includes texts from different genres and discourse types, as well as by the use of established methods of frame-based, typological, and linguacultural analysis. The convergence of the universal tendencies identified here with results reported in previously published international research confirms the reproducibility and scientific grounding of the proposed typology of frame-based models of intellectual concepts and demonstrates its explanatory potential for further contrastive studies.

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