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Article

Multilingual Crosswalks for Chinese Intangible Cultural Heritage: Mapping China's UNESCO-Inscribed Elements Across Wikidata, LCSH, and Getty AAT

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Abstract

Forty-four Chinese United Nations Educational, Scientific and Cultural Organization (UNESCO)-inscribed intangible cultural heritage (ICH) elements were examined against three very different systems: Wikidata, Library of Congress Subject Headings (LCSH), and the Getty Art & Architecture Thesaurus (Getty AAT). The issue was not simply whether these systems contained the terms, but how inscription-level heritage concepts were transformed once they entered systems built around different conceptual units. A manual crosswalk audit coded each case as exact, close, broad, narrow, related, or no direct match. The resulting pattern was uneven, though not in any simple "covered versus missing" sense. Wikidata most often preserved a named element in recognizable form. LCSH more often lacked a direct subject heading. Getty AAT frequently offered a usable concept, but usually at a higher and more generic level, making broadening common. The more stable cases involved bounded forms and festivals. More difficult cases included practice clusters, ritual complexes, knowledge formations, and safeguarding strategies. These cases did not simply disappear. More often, they were retained only in reduced form or shifted into adjacent categories that captured them only partially. In this corpus, the central problem is less one of simple absence than of conceptual displacement across systems organized around different descriptive units.

Keywords: multilingual crosswalks; intangible cultural heritage; knowledge organization systems; semantic interoperability; Getty AAT

1. Introduction

Interoperability is often described as a technical strength of cultural heritage vocabularies. It is also a site where conceptual strain becomes visible. The question is not only whether systems can be linked, but what kinds of concepts each system is prepared to hold, how relations are formalized, and how much semantic pressure a concept can bear before it is pushed upward into a broader category or sideways into something merely related. Scholarship on multilingual crosswalks has long worked in this space. Mapping across subject heading systems, thesauri, ontologies, and linked data has been pursued through manual, semi-automatic, and automatic methods. The same literature also shows that different types of knowledge organization systems, or KOS, do not have the same semantic

structure. Thesauri tend to model concepts and systematic relations in a more controlled way. Subject heading systems often reflect bibliographic and precoordinated subject access. Linked data environments may give greater visibility to named entities, but the presence of an item does not by itself guarantee close conceptual equivalence (Zeng and Chan, 2004; 2009; Martínez-González and Alvite-Díez, 2019; Baca and Gill, 2015).

That tension sharpens in the case of intangible cultural heritage. The descriptive unit is often neither a stable object nor a single subject heading. It may gather together practices, skills, social relations, performance settings, seasonal knowledge, and forms of transmission. Research on intangible cultural heritage (ICH) knowledge organization has repeatedly argued that metadata and conceptual description need to preserve those meanings rather than flatten them into a thin set of generic attributes. The difficulty is structural. Name, region, type, and subject often do not suffice. Reviews of digital work on embodied ICH show how quickly representational problems arise once living practice, associated objects, and cultural context have to be held in the same descriptive frame (Qing et al., 2022; Hou et al., 2022). Linked cultural heritage data has expanded rapidly. Conceptual adequacy has not expanded at the same rate.

In this article, intangible cultural heritage, or ICH, refers to living practices, expressions, knowledge, and skills recognized within the United Nations Educational, Scientific and Cultural Organization (UNESCO) ICH framework. UNESCO-inscribed elements refer here to the formally named inscription units included in UNESCO's intangible cultural heritage lists and register (UNESCO, n.d.). These units are not treated as ordinary keywords. They are treated as official heritage descriptions that may gather together practices, communities, objects, knowledge systems, places, and modes of transmission. The three target systems examined in this study are Wikidata, Library of Congress Subject Headings, or LCSH, and the Getty Art & Architecture Thesaurus, or Getty AAT. Wikidata is treated as an open item-based linked data environment. LCSH is treated as a subject heading system. Getty AAT is treated as a structured thesaurus used in art, architecture, and cultural heritage description.

Chinese UNESCO-inscribed ICH makes these pressures easier to see. Recent work on Chinese ICH has produced linked-data descriptions, metadata schemes, knowledge graphs, and multilingual alignment experiments, and that literature is technically ambitious (Fan, 2024; Hou et al., 2022; Wang et al., 2012). The picture becomes less reassuring once attention shifts from building infrastructures to preserving semantic fit. Research on multilingual vocabulary alignment and the English representation of Chinese ICH terminology has identified problems such as partial equivalence, lexical gaps, structural mismatch, and loss of cultural specificity when concepts move across languages and knowledge organization systems. The broader mismatch literature is even more direct: local or non-Western concepts often run into partial equivalence, lexical gaps, lack of structure, and hierarchical compression when they move across multilingual knowledge systems (Binding et al., 2018; Jiang et al., 2022; Mairal-Usón and Periñán-Pascual, 2016). Literal translation does not resolve that problem. A term may move into English without much lexical trouble and still fail to fit the target KOS without being narrowed, broadened, or split apart.

The concern here is more specific than the general question of whether Chinese heritage can be found in large vocabularies. Two issues guide the analysis. One is whether Wikidata, LCSH, and Getty AAT show different patterns when they receive the same inscription-level source concepts. The other is whether certain types of UNESCO-inscribed elements are more exposed to displacement than others. A bounded corpus of Chinese UNESCO-inscribed ICH makes those questions tractable. It also keeps the comparison at the point where semantic pressure is easiest to inspect: not "Chinese culture" in the abstract, but named inscription units moving across systems built around different conceptual assumptions.

2. Literature Review

Crosswalk research in knowledge organization did not begin with cultural heritage, but heritage collections make its difficulties unusually easy to observe. Controlled vocabularies, subject heading systems, and linked data environments all promise retrieval and connection. Beneath that shared purpose lie substantial structural differences. Early work on interoperability treated semantic linking as a practical response to fragmentation across institutions and languages, especially where collections had been described through local vocabularies rather than through a shared conceptual scheme (Wang et al., 2012; Zeng and Chan, 2004). Simple Knowledge Organization System (SKOS) and linked data did not remove that problem. They made it more explicit. Mappings can be formalized more neatly; equivalence does not become easier simply because it is machine-readable. Getty's multilingual vocabularies were developed to support wider semantic reuse, while work on mapping authority data to Wikidata has warned that thesaurus concepts and Wikidata items do not align by default (Baca and Gill, 2015; Kempf, 2018; Martínez-González and Alvite-Díez, 2019). The structural difficulty remains inside interoperability itself.

Formal mapping guidance is useful here because it separates different degrees of correspondence rather than treating mapping as a binary decision. International Organization for Standardization (ISO) (International Organization for Standardization, 2013) discusses interoperability among thesauri and other vocabularies, including mappings between vocabularies with different structures and purposes. SKOS mapping properties make a similar distinction among exact, close, broad, narrow, and related

matches (2009). Recent archaeological infrastructure mapping work has also shown that vocabulary mapping frequently depends on the granularity, intended use, and internal organization of the systems being connected (Binding and Tudhope, 2024). These distinctions matter for this study because a target entry may be useful for retrieval while still failing to preserve the source concept at the same scope.

A further complication is compound equivalence. Some source expressions cannot be represented well by a single target concept but may be approximated through a combination of target concepts. This problem is familiar in multilingual subject mapping and in mappings among thesauri, subject heading systems, and other KOS. It is especially relevant to ICH because an inscription title may combine an activity, a material object, a social practice, a community, a place, and a safeguarding context. The present study therefore distinguishes between existing single target entries and possible compound expressions. The main audit records existing target-side items, headings, or concepts. Possible compound mappings are discussed as an interpretive issue rather than treated as direct matches in the main status counts.

Cultural heritage research approached the same problem from another direction. Much of the literature has concentrated on how heterogeneous heritage resources can be described, aggregated, and published so that they travel across collections. That is why metadata schemes, linked-data models, and ontology-based infrastructures occupy so much space in the field. The prevailing orientation is constructive: richer descriptive frameworks, extended metadata, linked environments, cross-repository interoperability (Baca, 2003; Díaz-Corona et al., 2019; Hyvönen, 2012). Within ICH research, that constructive tendency is even more pronounced. Intangible cultural heritage does not consist of a single stable object type. It joins practices, performers, contexts, associated things, and forms of transmission. Qing et al. (2022) make the point plainly: an ICH database cannot merely list items; it must reveal relationships among knowledge contents and resources. Fan (2024) advances a related position through linked-data description and knowledge fusion. This body of work is valuable, but it often treats the representational problem primarily as one of richer modeling. That helps explain the prominence of ontologies, metadata elements, and knowledge graphs. It does not answer a narrower question that matters here: what happens when a culturally specific heritage concept has to be aligned to an existing KOS that was not designed around that concept in the first place?

That question comes into sharper focus in studies that deal directly with vocabulary alignment in heritage settings. Research on semantic integration across multilingual archaeological data, vocabulary reconciliation for cultural heritage collections, and KOS profiling for linked cultural resources all show that alignment is possible, though never neutral. Matching depends on the depth of the source vocabulary, the granularity of the target system, and the assumptions each system makes about what deserves to count as a named concept (Binding et al., 2018; Díaz-Corona et al., 2019; Isaac et al., 2008; Van Hooland et al., 2013). Art & Architecture Thesaurus (AAT)-centered mapping projects and linked-data reconciliation studies are often presented as successes because they improve cross-search, enrichment, and service integration. That is true at the level of retrieval. It says less about conceptual fit. The same literature that values AAT and related vocabularies as semantic hubs also shows why they are useful precisely when local vocabularies can be drawn toward a more general shared structure (Baca, 2003; Binding and Tudhope, 2015). Heritage alignment research has been better at demonstrating utility than at specifying what happens when a local or inscription-level concept survives only as a broader generic category.

System-specific research makes the contrast clearer. LCSH, Getty AAT, and Wikidata all play active roles in cultural heritage work, yet they do not take in concepts in the same way. LCSH remains a major subject system and a frequent target for reconciliation. It has also been criticized for inherited terminology, slow revision, and poor fit with marginalized or culturally specific materials, which helps explain the recurrence of local thesauri, community vocabularies, and linked overlays in that literature (Bone and Lougheed, 2018; Hardesty and Nolan, 2021). Getty AAT is often treated more favorably, as a multilingual and linkable hub suited to art and heritage description, though even sympathetic accounts note continuing difficulty around translation, local specificity, and the tendency to route local terms through shared upper-level structures. Wikidata enters from a different angle. Its appeal lies in openness, scale, and alignment potential. Work on cultural heritage records in Wikidata has also raised questions about uncertainty and weak logical status once more formal vocabulary structures are mapped into an item-based linked data environment (Di Pasquale et al., 2024). The issue is therefore not merely differential coverage. These systems absorb concepts differently.

A related strand of research shifts attention from system architecture to the movement of culturally loaded concepts across languages and classificatory structures. Here the recurring vocabulary includes partial equivalence, lexical gaps, hierarchy mismatch, lack of structure, and required expansion. Mairal-Usón and Periñán-Pascual (2016) are particularly helpful because they do not reduce multilingual conceptual modeling to translation trouble. Some concepts map directly, some only partially, some require expansion, and some do not find an adequate counterpart. That pressure is close to what appears in Chinese ICH as well. Work on the English translation of Chinese ICH terms has similarly argued that literal transfer is often too thin for culturally embedded meanings, and that more oblique

strategies, including metonymic or functionally adaptive ones, may be needed if cultural context is not to fall out of the term altogether (Jiang et al., 2022). The more critical literature raises the stakes further. Calzada (2023) treats knowledge organization as translation praxis, and Bennett (2023) discusses epistemicide in relation to multilingual knowledge transfer. Both are reminders that terminology transfer is never purely lexical. What sometimes fails is not a word, but the fit between one epistemic framing and another. Those perspectives matter here, though not to the same extent. The evidence available for this study is stronger on structural mismatch than on demonstrating epistemicide.

The literature, then, is not organized around a single clean gap. There is substantial work on KOS interoperability, linked heritage data, metadata, ontology construction, and multilingual alignment. Far less settled attention has been given to what happens when inscription-level, culturally specific heritage concepts enter systems whose preferred units are subject headings, art-and-architecture concepts, or open linked-data items. Technical frameworks and ontology alignment are better developed than work on cultural specificity, community-informed correction, or hierarchical compression in a corpus of this kind. That is enough to justify a bounded crosswalk audit without requiring a claim larger than the evidence can bear.

3. Materials and Methods

The source corpus consists of 44 Chinese elements inscribed on UNESCO's intangible cultural heritage lists and register. In the dataset used here, each entry is treated as an inscription-level unit. It is not treated as a local subtype, bearer, institution, event notice, or media record. The corpus was fixed from UNESCO's official ICH lists and register and from the corresponding Chinese-language UNESCO ICH listing used for data extraction (UNESCO, n.d.). Later status changes were noted separately rather than folded back into the source set. Entries belonging only to the national ICH inventory, local subentries under a broader UNESCO inscription, representative inheritors, news items, or institutional pages were excluded.

For each source unit, the dataset records the official Chinese name, the corresponding English inscription name, the UNESCO list or register type, and the year of inscription. Where relevant, a note was retained on later status changes recorded after the frozen corpus date. The corpus is therefore bounded and consists of officially named UNESCO inscription units, rather than an open-ended collection of Chinese heritage terms.

For reproducibility, the audit dates and validation stages are stated explicitly here. The source corpus was frozen on 4 April 2026, when the set of 44 Chinese UNESCO-inscribed ICH elements used in this study was fixed for analysis. The full working crosswalk table for UNESCO, Wikidata, LCSH, and Getty AAT was completed on the same date. The final validation of the audit decisions was completed on 23 May 2026. During final validation, borderline cases and affected mapping decisions were checked again against the relevant Wikidata item pages, LCSH authority records, and Getty AAT concept pages. One mapping status changed during this validation stage: the Getty AAT status for Kun Qu opera was changed from no direct concept verified to broad, and the aggregate Getty AAT counts were updated accordingly. No further mapping changes were made after 23 May 2026. The search and verification procedure used the official English inscription name, the Chinese source name where appropriate, and shorter known variant names when needed. Candidate entries were assessed according to label correspondence, scope or descriptive fit, and hierarchical position. A no direct match decision was assigned only when no existing target-side item, authorized subject heading, or thesaurus concept could be verified at a sufficient conceptual scale after checking direct names, variant names, and plausible broader, narrower, or related candidates. Very general access points were not counted as direct or broad matches unless they preserved a meaningful semantic route to the inscription-level source unit. The results therefore reflect the status of UNESCO, Wikidata, LCSH, and Getty AAT at the corpus freeze date and final validation date, rather than at the date of publication.

The comparison set comprises three target systems: Wikidata, Library of Congress Subject Headings, or LCSH, and Getty Art & Architecture Thesaurus, or Getty AAT. These were not treated as interchangeable vocabularies. The dataset records whatever could serve as the nearest existing target-side entry in each system: for Wikidata, usually an item identifier and its main labels; for LCSH, an authorized subject heading and its Uniform Resource Identifier (URI) where available; for Getty AAT, a preferred concept label and URI where available. When no direct match was available, broader, narrower, or related candidates were also recorded where needed to justify the final coding decision.

The main audit did not treat newly constructed headings, post-coordinated AAT expressions, or combinations of several target concepts as direct matches. This was a methodological boundary rather than a claim that such expressions would be useless. LCSH and AAT can support complex forms of subject expression, and compound equivalence can be valuable for retrieval. However, a newly constructed expression is not the same kind of evidence as an already existing item, authorized heading, or thesaurus concept. The main audit therefore asks a narrower question: whether the inscription-level source unit is already held, broadened, narrowed, displaced, or not directly represented by an existing target-side entry. The distinction is also consistent with the relevant documentation for these systems. Getty AAT records focus on concepts, while LCSH free-floating subdivisions are used under authorized conditions

as part of constructed subject access (Getty Research Institute, n.d.; Library of Congress, 2026).

The dataset is organized at two levels. One records source-side concept data together with system-side candidate data. The other records the audit decision for each source concept in each target system. The final coding vocabulary comprised six categories: exact, close, broad, narrow, related, and no direct item, subject heading, or concept verified. These labels were applied separately to Wikidata, LCSH, and Getty AAT. The wording differs slightly by system because the target entities are not of the same type. Below, the shorter form no direct match is used where the system-specific distinction is not analytically important.

Coding was done manually by the first author, who assembled the source corpus, searched the three target systems, recorded candidate entries, and assigned first-round status codes. The second author reviewed the coding principles, the distribution of status categories, and the borderline cases retained in the **Supplementary Material**. Disagreements or uncertain cases were resolved through repeated checking of the source inscription name, the target-side label, available authority information, scope or descriptive notes, and hierarchical position. The purpose of the review was not to calculate intercoder reliability for a large independent coding exercise, but to stabilize the boundary decisions used in a small expert audit. The audit was conducted by authors working in knowledge organization and cultural heritage metadata research.

Lexical similarity alone was never sufficient. Three features were checked together: name correspondence, scope or descriptive fit, and hierarchical position within the target system. Name correspondence functioned as a starting point, not as decisive evidence. When a culturally specific title could be linked to a familiar English label, the label was accepted only if the target entry could stand for the source unit at an appropriate conceptual scale.

Evidence notes were retained to document why a candidate was accepted, downgraded, or rejected. This was particularly important for cases near the exact and close boundary, cases where a generic term was available but too broad to stand as a useful broader match, and cases where a component term captured only one part of a larger inscription-level unit.

A target entry was coded as exact only when the source unit and target entry were judged to align closely in conceptual scope as well as wording. Close was used when the target entry captured the source unit with limited loss or shift but did not fully reproduce its scope. Broad was used when the target entry clearly stood above the source unit in scope and the source could still be treated as a recognizable instance, subtype, or component of that broader category. Narrow was used when the target entry covered only one part of the source unit. Related was reserved for cases where a clear semantic connection could be established, but the target entry could not substitute for the source unit and did not stand in a stable broader or narrower relation to it. No direct match was used when no sufficiently adequate existing target entry could be verified for that system.

A very general candidate was not automatically coded as broad. To be retained as a broad match, the candidate had to preserve a meaningful semantic route to the source unit. A generic term such as dance, music, ceremony, craft, China, or social life and customs could be too wide to identify the source unit at a useful scale. In such cases, the existence of a very broad access point did not by itself change a no direct match decision. This rule was applied especially to inscription titles that combine a community, practice, place, and social function in one expression.

When lexical similarity and scope fit pointed in different directions, scope and hierarchical position took precedence over label resemblance. This mattered especially in cases where a culturally specific inscription title could be paired with a familiar English label that nonetheless named a different conceptual unit. The same principle was applied across the three systems, although the target-side entities are not identical in type. The six-category framework was therefore not designed to collapse Wikidata items, LCSH headings, and Getty AAT concepts into the same kind of unit. Its purpose was comparative: to show how often each system retained, broadened, narrowed, displaced, or failed to host the same source concept.

Compound equivalence was considered as a separate interpretive issue. Some source units could plausibly be approached through two or more target entries. For example, Acupuncture and moxibustion of traditional Chinese medicine might be approached in LCSH through component terms for acupuncture and moxibustion. Chinese calligraphy might be approximated in Getty AAT by combining a cultural qualifier with calligraphy as a process. Such combinations may improve retrieval and may be appropriate in applied indexing.

They were not counted as direct matches in the main audit because the study compares existing target-side entries rather than newly assembled expressions. Treating a post-coordinated expression as equivalent to an existing authorized heading or thesaurus concept would mix two different forms of representation. The issue is therefore discussed in the results and discussion, and illustrative compound possibilities are listed in the **Supplementary Material**, but they do not alter the main status counts.

The audit was conducted in rounds rather than in a single pass. An initial pass assembled the source corpus and entered first-round candidates for each of the three systems. Later passes were used to strengthen the evidence base, correct overconfident early matches, and separate two situations that had to remain distinct: not yet verified and no direct match verified. That distinction matters in a manual audit. Empty cells may indicate either an incomplete search or the absence of a usable direct match. Later rounds removed that ambiguity. In the final dataset, all entries were fully reviewed and assigned a completed mapping status.

Table 1. Overall distribution of mapping outcomes across the three systems.

System	Exact	Close	Broad	Narrow	Related	No direct	Total
Wikidata	21	9	9	1	0	4	44
LCSH	7	2	8	2	1	24	44
Getty AAT	2	2	22	2	2	14	44

Note: LCSH, Library of Congress Subject Headings; Getty AAT, Getty Art & Architecture Thesaurus.

Table 2. Representative mapping patterns across the three systems.

Source concept	Wikidata	LCSH	Getty AAT	Pattern illustrated
Dragon Boat festival	Exact	Exact	Exact	Stable alignment
Chinese calligraphy	Exact	Exact	Broad	Loss of specificity in Getty AAT
Peking opera	Exact	Broad	Broad	Upward genericization
Chinese Zhusuan, knowledge and practices of mathematical calculation through the abacus	Exact	Narrow	No direct	Object/practice split
Mazu belief and customs	Exact	Related	Related	Composite concept split
The Twenty-Four Solar Terms, knowledge in China of time and practices developed through observation of the sun's annual motion	Close	No direct	No direct	No direct conceptual slot
Strategy for training coming generations of Fujian puppetry practitioners	No direct	No direct	Related	Safeguarding strategy problem
Farmers' dance of China's Korean ethnic group	No direct	No direct	No direct	Full cross-system failure

These notes also helped identify cases in which early provisional decisions needed revision after direct authority or concept pages were checked more carefully. The distinction between a direct heading and a broader heading in some LCSH cases is one example. The analysis reported here is based on the final coded dataset rather than on those provisional pilot decisions.

The analysis remained at the level of crosswalk status and documented evidence. A separate mismatch taxonomy was considered during study design, but it was not implemented as a consistently coded variable across the full dataset. For that reason, the article does not claim a fully independent coded variable for every subtype of mismatch. The most stable analytical dimensions in the dataset were source concept identity, target-system candidate identity, final mapping status, and supporting note or authority evidence.

No automated matching model was used in the empirical audit reported here. Research on ontology alignment, semantic compression, multilingual artificial intelligence (AI), and knowledge graph construction functions here as background rather than as part of the implemented procedure.

Three tabular devices accompany the analysis. Table 1 presents the overall distribution of mapping outcomes across the three systems. Table 2 presents representative cases by mapping pattern. **Supplementary Table 1** provides the full 44 × 3 audit matrix, including matched entries, URIs or Wikidata identifiers (QIDs) where available, and final status codes. **Supplementary Table 2** isolates borderline cases in which the distinction between exact and close, broad and exact, related and no direct match, or narrow and exact required explicit justification, and records the brief rationale for each decision. **Supplementary Table 3** presents illustrative compound or constructed mapping possibilities.

4. Results

4.1 Overall Mapping Distribution Across the Three Systems

The corpus contains 44 Chinese UNESCO-inscribed ICH elements. Of these, 39 belong to the Representative List (RL), 4 to the Urgent Safeguarding List (USL), and 1 to the Register of Good Safeguarding Practices (GSP). The aggregate distribution of final status codes across the three systems is summarized in Table 1.

In Wikidata, 21/44 entries were coded as exact, 9/44 as close, 9/44 as broad, 1/44 as narrow, and 4/44 as no direct item verified. Exact or close alignment therefore accounts for 30/44 entries (68.2%). The four entries without a directly verified Wikidata item were Strategy for training coming generations of Fujian puppetry practitioners, Chinese traditional architectural craftsmanship for timber-framed structures, Farmers' dance of China's Korean ethnic group, and Sericulture and silk craftsmanship of China.

In LCSH, the largest group was no direct subject heading verified: 24/44 entries (54.5%). The remaining entries were coded as exact (7/44), broad (8/44), close (2/44), narrow (2/44), and related (1/44). The seven exact LCSH cases were Kun Qu opera, Uyghur Muqam of Xinjiang, Chinese calligraphy, Dragon Boat festival, Nanyin, Taijiquan, and Spring festival, social practices of the Chinese people in celebration of traditional New Year.

Getty AAT shows a different distribution. Broad was the dominant outcome, with 22/44 entries (50.0%). Another 14/44 entries (31.8%) had no direct concept verified. The remaining entries were exact (2/44), close (2/44), narrow (2/44), and related (2/44). Only two entries reached exact alignment in Getty AAT: Dragon Boat festival and Spring festival, social practices of the Chinese people in celebration of traditional New Year.

Across the three systems together, 16 entries had no unresolved system at all, 15 had one system without a direct match, 12 had two such systems, and 1 had no direct match in any of the three systems. That last case was Farmers' dance of China's Korean ethnic group.

4.2 Cases of Relatively Stable Alignment

A small group of entries remained comparatively stable across all three systems. The clearest cases are the two festival entries that reached exact status everywhere. Dragon Boat festival aligns with Duanwu Festival in Wikidata, Dragon boat festivals in LCSH, and Dragon Boat Festival in Getty AAT. The labels are not identical, but they point to the same festival unit rather than to a broader genre or associated object. Spring festival, social practices of the Chinese people in celebration of traditional New Year shows the same pattern. In the dataset it aligns with Chinese New Year in Wikidata, Chinese New Year in LCSH, and Chinese New Year in Getty AAT. This is the only long-form UNESCO inscription title in the corpus whose system-side matches all collapse cleanly to the same shorter festival name without being downgraded to broad, related, or no direct match. A second group holds in two systems but not in the third. Chinese calligraphy is exact in Wikidata and exact in LCSH through Calligraphy, Chinese, but Getty AAT does not keep that level of specificity. There it resolves to calligraphy (process) and is coded as broad. One side names a culturally bounded practice. The other names a generic process. Kun Qu opera shows a related boundary pattern. It is exact in Wikidata and exact in LCSH through Kunqu, while Getty AAT provides only opera (music genre). In the revised audit, this Getty AAT case is coded as broad for consistency with the other named opera traditions. The status is not exact or close because the AAT entry preserves only a generic genre route and does not name Kunqu or a Chinese opera form directly. Some entries remain stable in a looser sense. Nanyin is close in Wikidata through nanguan, exact in LCSH through Nanyin, and broad in Getty AAT through music (performing arts genre). The three decisions show different levels of retention. Wikidata preserves a closely associated name, LCSH preserves the named tradition directly, and Getty AAT moves the source unit upward to a generic performing arts genre. Tibetan opera is close in Wikidata, close in LCSH through Achi lhamo (Dance), and broad in Getty AAT through opera (music genre). These are not exact across systems, but they remain legible. Cases near the exact-close boundary are listed separately in **Supplementary Table 2**.

4.3 Broad Matches and Upward Genericization

Broad alignment is not distributed evenly across the three systems. It appears in Wikidata and LCSH, but it is most visible in Getty AAT. Several entries are broad in all three systems. Guqin and its music are mapped to guqin in Wikidata, Guqin in LCSH, and qin (long zithers) in Getty AAT. None of those target-side entries reproduces the UNESCO framing of the element as both instrument and musical practice. Traditional firing technology of Longquan celadon shows the same pattern, but the nature of the broadening is more specific. Wikidata records Longquan celadon, while LCSH and Getty AAT record Longquan ware. These entries preserve the ceramic ware or celadon tradition, but they do not preserve the firing technology as the organizing focus of the UNESCO source unit. The broad status therefore reflects a shift from a technical heritage practice to a ware or object-centered category. Other cases split differently by system. Peking opera is exact in Wikidata, but broad in LCSH and broad in Getty AAT. In LCSH, the relevant label is Operas, Chinese, not a direct heading for Peking opera alone. Kun Qu opera is exact in Wikidata and LCSH, but broad in Getty AAT because only the generic opera (music genre) concept was retained. In Getty AAT, both named opera cases move upward to a generic genre term. Chinese calligraphy undergoes a similar loss of specificity in Getty AAT. The UNESCO entry and the Wikidata and LCSH entries all name Chinese calligraphy directly. Getty AAT does not. It returns calligraphy (process). Uyghur Muqam of Xinjiang is exact in LCSH through Muqam (Uighur music), but broad in Wikidata and broad in Getty AAT. Nanyin behaves similarly, though Wikidata remains somewhat closer. Hua'er, Grand song of the Dong ethnic group, and Tibetan opera also move toward broader music or opera categories outside Wikidata.

Broadening also appears when the UNESCO source unit combines object and practice. Chinese Zhusuan, knowledge and practices of mathematical calculation through the abacus is exact in Wikidata as Zhusuan, but in LCSH it narrows to Abacus, and Getty AAT has no direct concept verified. What survives in LCSH is the instrument. The larger UNESCO formulation, knowledge and practices of mathematical calculation through the abacus, does not survive there as such. Borderline decisions between broad, related, narrow, and no direct match are documented in **Supplementary Table 2**, where the matched entry, URI or QID where available, and brief rationale are shown side by side.

4.4 Narrow and Related Matches

Narrow and related matches are relatively rare in the final table, but they mark a distinct set of cases. There is only one narrow match in Wikidata: Acupuncture and moxibustion of traditional Chinese medicine, which was linked to acupuncture. The same entry is also narrow in LCSH through Acupuncture and has no direct concept verified in

Getty AAT. The UNESCO source names a paired medical practice. The matched concept isolates only one part of it. A compound LCSH approach using both acupuncture and moxibustion-related access points could be useful for retrieval, but it would still be a constructed expression rather than a single existing heading for the paired inscription-level practice. For that reason, the main audit retains the narrow status rather than treating the combination as an exact or close direct match. Getty AAT contains two narrow cases. Sericulture and silk craftsmanship of China were coded as narrow, and so was Traditional Li textile techniques: spinning, dyeing, weaving and embroidering. In both cases, the AAT-side concept records only part of the larger UNESCO element.

Related matches are fewer still. In LCSH, Mazu belief and customs is the only related case, linked to Mazu (Chinese deity). Getty AAT also treats Mazu belief and customs as related, but through ceremonies rather than through a named deity. The two systems connect the source unit to different parts of the complex. One points to the deity. The other points to ritual performance. The only other Getty-related case is the corpus' single GSP entry, Strategy for training coming generations of Fujian puppetry practitioners. Getty AAT provides puppetry (performing art), but the final status remains related, not broad or exact. The source unit is a safeguarding strategy. The candidate concept is the art form itself.

4.5 No Direct Match Cases

Cases without a direct match are concentrated in LCSH and Getty AAT, not in Wikidata. In Wikidata, only four entries ended with no direct item verified. One is the safeguarding-programme case already noted above. Two others are craft or architecture entries: Chinese traditional architectural craftsmanship for timber-framed structures and Sericulture and silk craftsmanship of China. The fourth is Farmers' dance of China's Korean ethnic group. This last entry is the only one in the corpus with no direct match in any system.

In LCSH, no direct subject heading was verified for 24/44 entries. The set includes technical practices such as Wooden movable-type printing of China and Chinese paper-cut; oral and musical traditions such as Hezhen Yimakan storytelling, Urtiin Duu, traditional folk long song, and Xi'an wind and percussion ensemble; and several compound-practice entries such as The Twenty-Four Solar Terms, Lum medicinal bathing of Sowa Rigpa, Ong Chun/Wangchuan/Wangkang ceremony, and Traditional tea processing techniques and associated social practices in China.

In Getty AAT, no direct concept was verified for 14/44 entries. This includes some cases that align directly elsewhere. Taijiquan is exact in Wikidata and LCSH, but Getty AAT still has no direct concept verified in the final table. The same is true for Acupuncture and moxibustion of traditional Chinese medicine, The Twenty-Four Solar Terms, and Traditional tea processing techniques and associated social practices in China.

A few entries show a particularly sharp split across systems. Meshrep is exact in Wikidata, but there is no direct subject heading verified in LCSH and no direct concept verified in Getty AAT. The Twenty-Four Solar Terms, knowledge in China of time and practices developed through observation of the sun's annual motion is only close in Wikidata, through solar term, and has no direct match in the other two systems. Traditional tea processing techniques and associated social practices in China are broad in Wikidata through Chinese tea culture, and again have no direct match in LCSH or Getty AAT.

Farmers' dance of China's Korean ethnic group remains unmatched in all three systems. No direct Wikidata item was verified. No direct LCSH subject heading was verified. No direct Getty AAT concept was verified. This does not mean that the target systems contain no terms connected with dance, China, Korean communities, farmers, or social customs. Such terms may support very general retrieval. They were not retained as broad matches because they do not provide a stable semantic route to the named UNESCO source unit. They identify broad domains around the source unit rather than the heritage element itself.

These no-direct cases are not all of the same kind. Some are named ritual complexes. Some are practice clusters. Some are safeguarding programmes. Some are regionally bounded performance traditions. The final table does not collapse them into a single failure type. That distinction is preserved at the level of case analysis and evidence notes, but it was not operationalized as a separate corpus-wide coded variable in the finalized workbook.

5. Discussion

The results confirm that interoperability is uneven in a more concrete sense than the general literature usually implies. Across the same set of 44 inscription-level concepts, the three systems do not fail or succeed in the same way. Wikidata more often retains a recognizable named entity. Getty AAT more often absorbs the source concept at a higher level. LCSH more often offers no direct heading at all. That pattern supports earlier work showing that semantic interoperability can improve access without eliminating structural differences among knowledge organization systems (Baca, 2003; Wang et al., 2012; Zeng and Chan, 2004). What this corpus makes especially visible is where those differences accumulate: not at the level of abstract interoperability claims, but at the point where inscription-level concepts are forced into systems organized around different descriptive units.

The mapping results also raise a more basic question about the unit being mapped. Many UNESCO ICH elements are not atomic concepts in the sense usually assumed by a thesaurus concept. They are closer to multi-concept

descriptors or precoordinated heritage expressions. A single inscription title may combine a practice, an object, a community, a place, a body of knowledge, and a mode of safeguarding. Treating these titles as inscription-level units was necessary for this study because UNESCO inscription is the source frame being audited. It also means that the source units are not always equivalent to the preferred units of the target systems.

This point helps explain several of the results. Getty AAT often provides atomic or more general concepts that can be applied in combination, consistent with its concept-based thesaurus structure (Getty Research Institute, n.d.). The main audit asked whether an existing AAT concept already represented the inscription-level unit. LCSH can also support precoordinated subject access and constructed headings, including the use of free-floating subdivisions under authorized conditions (Library of Congress, 2026). A constructed heading is not the same evidence as an existing authorized heading that names the source unit. Wikidata, by contrast, often makes it easier for a named heritage unit to appear as an item. That visibility is useful, but it does not guarantee a more stable or more carefully bounded conceptual relation.

Compound mappings would change the retrieval picture. Chinese calligraphy could be approximated in AAT by combining a cultural qualifier with calligraphy as a process. Acupuncture and moxibustion of traditional Chinese medicine could be approached through separate medical practice terms. Mazu belief and customs could be approached through a deity term and a ceremony or custom term. These compound routes may be helpful for applied metadata work, especially when the purpose is discovery rather than conceptual equivalence. They do not remove the finding that the inscription-level unit is not already held as a single concept, heading, or item in the same way across the three systems.

The intended use of ICH metadata therefore matters. If the goal is broad retrieval, compound expressions may be adequate or even preferable. If the goal is to preserve the official inscription as a culturally specific heritage unit, a broad or compound expression may still be semantically incomplete. The present study is closer to the second problem. It does not test user retrieval or propose a new ICH thesaurus. It shows how far existing target systems preserve inscription-level units without newly constructing the expression for them.

This should not be read as a deficiency of AAT or LCSH. Their purposes and structures are different from a dedicated list of ICH inscriptions. AAT and LCSH are hospitable to complex expression in different ways, including combinations of more general concepts, constructed headings, and faceted or precoordinated access. Faceted classification work also shows that complex subject content can be expressed by combining concepts rather than by enumerating every compound topic as a separate single term (Broughton, 2024). The compound-expression issue therefore points to the limits of a single entry audit, not to the general inadequacy of these vocabularies. Future work could compare at least two complementary pathways. One would develop a more specific ICH vocabulary or set of inscription-level authority records. Another would test how compound, faceted, or constructed expressions in widely used vocabularies can support discovery and interoperability. That second pathway would require clear mapping rules, cataloger expertise, appropriate application support, and user-oriented evaluation.

A second issue also becomes clearer in this corpus. Heterogeneous systems are part of the story, but so is the character of the source concept itself. Qing et al. (2022) argue that ICH resource construction must do more than list items; it needs to reveal relationships among knowledge content and resources, and its descriptive content has to reflect the uniqueness and specificity of intangible cultural heritage. Hou and Wang (2019), and Hou et al. (2022) from a related direction, press toward the same conclusion: ICH is poorly handled when reduced to isolated objects or flat descriptive units. The harder cases in this study support that argument, though in a bounded way. Mazu belief and customs, The Twenty-Four Solar Terms, and Traditional tea processing techniques and associated social practices in China are difficult cases not only because they are culturally specific labels. They are difficult because the inscription itself gathers practice, knowledge, social context, and ritual or seasonal organization into a single unit. That difficulty is not reducible to translation alone. In several of the hardest cases, the source unit is already more composite than the object, genre, or subject slots most readily available on the target side.

Getty AAT is the place where this pressure most often appears as broadening rather than disappearance in the single entry audit. The literature on AAT emphasizes its value as a multilingual linked semantic hub for museums and cultural heritage work (Baca and Gill, 2015; Getty Research Institute, n.d.). That characterization remains justified. At the same time, AAT's strength as a structured thesaurus also means that complex heritage descriptions may be represented through combinations of more atomic concepts rather than through one inscription-level concept. The present corpus turns that design difference into something concrete. Getty often supplies a usable concept, but when only existing single concepts are counted, the result is frequently upward movement: a named opera becomes opera (music genre), a culturally bounded writing tradition becomes calligraphy (process), and a knowledge-practice complex such as Chinese Zhusuan is not reassembled as such on the Getty side. A broad match is not useless for retrieval. In this corpus, broadening is therefore best understood as an effect of single concept mapping against a structured thesaurus, rather than as a general limitation of AAT.

LCSH behaves differently. The revealing comparison is not Getty's rate of broadening but LCSH's lower rate of existing direct headings for the inscription-level units in this corpus. This should not be read simply as absence or failure. LCSH is a bibliographic subject heading system with its own conventions for authorized headings, precoordinated access, and constructed headings. The literature already contains a related tension. LCSH remains central in cultural heritage description and reconciliation, but it has also been criticized for inherited terminology, slow change, and poor fit with some marginalized or culturally specific realities, which is why community vocabularies and linked overlays have been proposed around it (Bone and Lougheed, 2018; Hardesty and Nolan, 2021). This article does not test repair strategies of that kind and cannot say whether they would resolve these particular cases. It can say something more limited. In the main audit, many inscription-level Chinese ICH units did not have an existing direct LCSH heading that named the unit at the same scale. That finding points to a mismatch between official inscription units and existing headings, not to an inability of LCSH to support all future forms of subject expression.

Wikidata stands apart, though not because it resolves the problem. Its relative advantage here is practical. It is more willing to host a named item that approximates the inscription, even when the fit is not fully exact. That advantage is linked to its open wiki character. Wikidata can make culturally specific or recently formalized entities visible more quickly than a more tightly edited thesaurus or subject heading system. The same openness also means that the existence of an item should not be mistaken for a carefully controlled equivalence relation. Recent work on Wikidata in cultural heritage moves in a similar direction. Di Pasquale et al. (2024) stress the need to handle weaker logical status claims more carefully in Wikidata cultural heritage records, which is close to what the table in this study suggests. Wikidata is often the easiest place to keep an inscription visible as a recognizable entity. It is less reliable as evidence of exact conceptual equivalence. What Wikidata does more often in this corpus is preserve a named inscription-level entity in visible form. That is not the same as securing the tightest conceptual fit.

The hardest cases are better understood as problems of conceptual fit than as simple translation failures. Farmers' dance of China's Korean ethnic group is not missing because its title cannot be rendered in English, and The Twenty-Four Solar Terms does not disappear outside Wikidata because no English wording is available. In both cases, the problem lies in the target system's inability to hold the source concept at the same scale. That is where the mismatch literature is useful. It helps explain why some inscription-level concepts remain visible only in broadened form, why others break into adjacent concepts, and why some fail to secure a direct slot at all.

The article can show the comparative distribution of exact, close, broad, narrow, related, and no-direct outcomes across the three systems, and it can show where inscription-level units built around practice, knowledge, ritual, or safeguarding come under the most pressure. It is less informative about remedies. The study does not test a micro-thesaurus, community validation, user retrieval, or machine-assisted alignment, so those questions remain open. Even so, the results suggest that ICH metadata systems need to decide what inscription-level units are meant to do. They may serve as retrieval access points, in which case compound expressions and broader routes may be acceptable. They may also serve as evidence of cultural recognition and conceptual specificity, in which case the official inscription unit needs to be preserved more directly. These two purposes are related, but they are not the same.

That narrower conclusion is sufficient. Chinese UNESCO-inscribed ICH does not enter these three systems under a single shared logic. In this corpus, the strain is clearest where concepts are not easily held as single objects, single subjects, or single genres. Some are broadened into more generic categories. Some are only partially retained. Some do not find a direct home. The claim is limited, but the audit supports it directly.

6. Conclusions

This study shows that the main crosswalk problem in this corpus is not simple absence. It lies in what happens to inscription-level units after they enter systems built around different descriptive units. Some remain recognizable, some are absorbed only in broader or thinner form, and some do not secure a direct slot at all.

The pattern is clearest when bounded festivals or named forms are compared with practice complexes, knowledge formations, and safeguarding strategies. The former travel more easily across systems. The latter are more likely to be broadened, fragmented, or left without a direct match. Compound mappings may improve retrieval for some of these cases, but they also confirm the central problem: many UNESCO ICH inscriptions are multi-concept heritage expressions rather than atomic vocabulary terms. That conclusion is limited to this corpus of 44 UNESCO-inscribed Chinese ICH elements and to the three target systems examined here, but the audit supports it directly.

Abbreviations

AAT, Art & Architecture Thesaurus; GSP, Register of Good Safeguarding Practices; ICH, intangible cultural heritage; ISO, International Organization for Standardization; KOS, knowledge organization systems; LCSH, Library of Congress Subject Headings; QID, Wikidata identifier; RL, Representative List; SKOS, Simple Knowledge Organization System; URI, Uniform Resource Identifier; USL, Urgent Safeguarding List.

Availability of Data and Materials

The data supporting the conclusions of this article are available in the article and its **Supplementary Material**. The source records used in the audit were drawn from publicly available UNESCO, Wikidata, LCSH, and Getty AAT records. Additional compiled audit files are available from the corresponding author upon reasonable request.

Author Contributions

JZ designed the research study and performed the research. JZ also analyzed the data and drafted the manuscript. XY provided validation, supervision, project administration, and help and advice on data curation, formal analysis, and manuscript development. JZ and XY wrote the manuscript. Both authors contributed to editorial changes in the manuscript. Both authors read and approved the final manuscript. Both authors have agreed to be accountable for all aspects of the work.

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Declaration of AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the authors used ChatGPT-5.3 in order to check and improve the readability and language of the manuscript. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Supplementary Material

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