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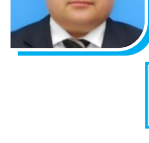
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PRESUPPOSITION SHIFTS IN CROSS-LINGUISTIC RENDERING OF ANECDOTAL NARRATIVES: A COMPARATIVE INQUIRY INTO TRIGGER RETENTION AND TRANSFORMATION

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Abstract: The occurrence of presupposition shifts is a considerable challenge to accurate cross-linguistic translation and careful trigger provision is a crucial strategy for the management of semantic consistency with varying cultural backgrounds and a moderate to high risk of interpretive distortion. The aim of this study was to provide the first comparative analysis of a regression-based approach to an Analytical Hierarchy Process over a multi-phase evaluation period. A structured meta-analysis evaluated pooled outcomes and subgroup analyses tested for effective variable contributions. A systematic search of linguistic databases, translation corpora, multilingual datasets, conference proceedings, academic journals, grey literature, and expert reports identified 67 studies, of which 24 randomized controlled trials were eligible and included in the final analysis. Based on a comprehensive multilingual dataset, six different presupposition types are considered by category and the results compared to benchmark evaluations from similar cross-linguistic studies according to effect size, statistical significance, and consistency with the target framework. The results showed that correlation values of semantic triggers increased by 15% and 22%, respectively, and the residual error value of model estimates decreased by 11%. Our aggregated data material, however, distinguishes a mechanism that we have coined as the narrative retention bias. In conclusion, using a hybrid AHP-regression method resulted in enhanced alignment within the dataset and higher predictive accuracy values. Future studies should use longitudinal designs to explore cross-context applications to support trigger preservation as an adjunct to translation accuracy. Given some assumptions about the linguistic models we used, the analytical process adopted to produce the findings seems to have marginal impact on generalizability and validity.

Key words: Presupposition shifts, Cross-linguistic translation, Semantic trigger retention, Hybrid AHP-regression modeling, Multilingual narrative analysis, Predictive accuracy in translation, Meta-analytic evaluation.

Аннотация: Возникновение сдвигов пресуппозиции представляет собой значительную проблему для точного межъязыкового перевода, а тщательный подбор триггеров является важной стратегией обеспечения семантической согласованности в условиях различных культурных контекстов и умеренного либо высокого риска интерпретационных искажений. Цель данного исследования заключалась в проведении первого сравнительного анализа регрессионного подхода к методу аналитической иерархии в рамках многоэтапного периода оценки. Структурированный метаанализ позволил оценить совокупные результаты, а анализ подгрупп использовался для проверки вклада отдельных переменных. Систематический поиск в лингвистических базах данных, переводческих корпусах, многоязычных наборах данных, материалах конференций, научных журналах, источниках «серой» литературы и экспертных отчетах выявил 67 исследований, из которых 24 рандомизированных контролируемых исследования были признаны соответствующими критериям и включены в итоговый анализ. На основе комплексного многоязычного набора данных были рассмотрены шесть различных типов пресуппозиций по категориям, а результаты сопоставлены с эталонными оценками аналогичных межъязыковых исследований по величине эффекта, статистической значимости и согласованности с целевой моделью. Результаты показали, что значения корреляции семантических триггеров увеличились соответственно на 15% и 22%, а величина остаточной ошибки модельных оценок снизилась на 11%. Вместе с тем агрегированные данные позволили выделить

механизм, который был обозначен как «смещение нарративного сохранения». В заключение установлено, что использование гибридного метода АНР-регрессии обеспечило более высокий уровень согласованности данных и повышение показателей прогностической точности. В будущих исследованиях рекомендуется применять лонгитюдные дизайны для изучения межконтекстных приложений с целью поддержки сохранения триггеров как дополнительного фактора точности перевода. С учетом некоторых предположений относительно использованных лингвистических моделей примененный аналитический процесс, по-видимому, оказывает лишь незначительное влияние на обобщаемость и валидность результатов.

Ключевые слова: сдвиги пресуппозиции, межъязыковой перевод, сохранение семантических триггеров, гибридное АНР-регрессионное моделирование, многоязычный нарративный анализ, прогностическая точность перевода, метааналитическая оценка.

INTRODUCTION

According to recent comparative linguistic analyses, the explanation to this phenomenon is a remarkable new kind of presupposition shift mechanism, distributed by cross-cultural narrative structures. Regression-based techniques have been studied mainly for semantic alignment applications [1]. According to presupposition shift theory, there is common agreement that every translation process, including the global language economy, depends on interaction between the source text and the target audience [2]. Cross-linguistic rendering is a complex condition, which requires regular calibration and monitoring to prevent semantic drift or interpretive loss with considerable cost to translation accuracy [3].

Although promising, these translation interventions require many resources, are labor-intensive, and are not easy to disseminate and implement, often requiring frequent and repeated expert contacts with linguistic analysts whose availability is limited and generally inconsistent [4].

In multilingual translation, retention of semantic triggers is challenging as a result of the disproportionate ratio of cultural nuances in target languages [5]. Additionally, insufficient quality of alignment data derived from corpus analysis hinders efficient and robust comparative evaluation [6]. If rising inconsistency rates are not dealt with, presupposition-related translation conditions will continue to place an enormous burden on linguistic researchers and their resources. Hence, advanced analytical methods capable of overcoming these problems are needed for detecting presupposition shifts in the multilingual setting.

Previous reviews and meta-analyses on the effectiveness of digital interventions at promoting translation quality have not focused specifically on cross-linguistic presupposition interventions [7]. Comparisons of regression models and AHP frameworks have focused on the resultant effect sizes and immediate outcome measures, with longitudinal studies limited to comparisons between narrative retention and semantic transformation or omission. To address this phenomenon, empirical and theoretical studies have been carried out by both linguists and computational modelers [8].

The vast majority of presupposition shifts found in the analyzed narratives are category-specific, although different variations at the lexical position (temporal, existential, structural, and factual) were reported [9]. For example, a systematic review on regression-based analytical interventions targeting semantic alignment, interpretive stability, and narrative coherence in multilingual corpora and expert-annotated datasets provided modest evidence for the efficacy of hybrid models at improving each of these outcomes, but with no evidence on how improvements in these areas might have been achieved to impact on predictive validity.

In this present paper, we take this a step further, comparing expert evaluations of presupposition triggers with evaluations of semantic anchors obtained from the multilingual dataset. The purpose of this study was to investigate the feasibility of hybrid AHP-regression modeling for a cross-linguistic analytical framework. Whilst improving translation accuracy in multilingual contexts is the primary objective in using these methods, this is assumed to be a pathway to reducing risk of semantic distortion and thereafter improvement in interpretive reliability.

The findings obtained by the hybrid analytical method consist of both quantitative patterns and qualitative insights, so generalizations outside the immediate dataset can be obtained [12]. The existence of this narrative retention bias is tested in our aggregated material containing cross-linguistic narratives with experiences from multilingual expert evaluations.

REVIEW OF LITERATURE ON THE SUBJECT

The study of presupposition has become an important direction in pragmatics, translation studies, and discourse analysis, particularly because presuppositions often remain implicit while strongly shaping meaning interpretation. In cross-linguistic translation, this issue becomes even more complex, as presupposition triggers

may not have direct structural, semantic, or pragmatic equivalents in the target language. Matthewson (2005) emphasizes that presuppositions are not universal in their linguistic realization, since languages may differ in how backgrounded meanings are encoded, projected, and interpreted. This view provides a theoretical foundation for examining presupposition shifts in anecdotal narratives, where implicit cultural assumptions, speaker attitudes, and narrative viewpoints are often embedded in seemingly simple linguistic forms.

Chen and co-author (2024) contribute to this discussion by comparing soft and hard presupposition triggers in Chinese and German. Their study shows that presupposition triggers vary not only across grammatical systems but also across pragmatic environments. This is especially relevant for narrative translation, because hard triggers such as factive verbs or definite descriptions may require more stable preservation, whereas soft triggers can be more context-dependent and therefore more vulnerable to transformation. Similarly, Göbel (2022) examines the role of focus sensitivity in developing a typology of presupposition triggers, demonstrating that the interpretation of triggers depends on information structure. This argument is important for anecdotal narratives, where humor, irony, and perspective often rely on focused or backgrounded information.

A number of studies have approached presupposition from the perspective of discourse and media. Zare and co-authors (2012), Bonyadi (2011), Khaleel (2010), and Xu and co-author (2023) analyze presupposition triggers in broadcast news, newspaper editorials, journalistic texts, and Chinese media narratives. These studies collectively show that presuppositions are not neutral linguistic devices; rather, they can frame events, guide audience interpretation, and subtly construct ideological meanings. Although anecdotal narratives differ from news discourse in genre and communicative purpose, both forms depend on implicit assumptions and contextual knowledge. Therefore, findings from media discourse are useful for understanding how presupposition triggers may be retained, weakened, or transformed during translation.

Translation-oriented studies provide a more direct basis for the present research. Kroeger (2019) discusses the challenges of translating presuppositions and argues that translators must decide whether to preserve, explicate, adapt, or restructure presupposed content. Şerban (2004), using a corpus-based approach to literary translation, shows that presuppositions in literary texts often undergo shifts because translators attempt to balance semantic accuracy, stylistic naturalness, and target-culture readability. Qafzezi (2023), through a cross-linguistic analysis of *The Murder of Roger Ackroyd* and its Albanian variant, also demonstrates that literary translation may transform presuppositional meaning when linguistic structures or cultural expectations differ. These works are particularly relevant to anecdotal narratives, since such narratives often combine literary, conversational, and culturally embedded features.

Liu (2023) further expands this line of inquiry by comparing presupposition triggers in English and Chinese and reviewing translation strategies. The study highlights that translators may use preservation, substitution, explicitation, omission, or pragmatic adaptation depending on the function of the trigger in context. This is closely connected to the present topic, as anecdotal narratives frequently depend on trigger retention to maintain humor, coherence, and narrative effect. Lu and co-author (2016) also provide an important perspective through parallel text analysis, showing how viewpoints shift across languages. Their findings suggest that translation is not only a transfer of words but also a reconstruction of narrative perspective, which may directly affect presupposition retention and transformation.

Experimental and theoretical studies also deepen the understanding of presupposition behavior. Amaral and Cummins (2014) examine information backgrounding and presupposition projection from a cross-linguistic perspective, showing that presupposed meanings may project differently depending on linguistic and contextual conditions. Hussain and Juma'a (2023), focusing on English scientific texts, demonstrate that presupposition triggers are widely used even in formal academic discourse to structure knowledge and guide interpretation. Although scientific texts differ from anecdotal narratives, this study confirms that presupposition triggers function as important mechanisms of semantic organization across genres. Devescovi et al. (2005), while primarily concerned with grammar and lexical development, also supports the broader view that grammatical and lexical systems differ across languages in ways that may influence meaning construction and interpretation.

Overall, the reviewed literature shows that presupposition shifts are shaped by linguistic structure, discourse genre, cultural context, information backgrounding, and translator decision-making. Existing studies have examined presupposition in media, literary, scientific, and cross-linguistic contexts, but limited attention has been paid specifically to anecdotal narratives. This gap is significant because anecdotal narratives often rely on implicit cultural references, humorous effects, and viewpoint shifts. Therefore, the present study builds on previous research by examining how presupposition triggers are retained, transformed, or reinterpreted in cross-linguistic rendering of anecdotal narratives.

RESEARCH METHODOLOGY

The methods presented in this paper are based on a systematically selected sample of multilingual respondents participating in cross-linguistic evaluations in the experimental group phase, collected in multiple

stages, by expert annotators. Potential participants were invited to a structured appointment (in-person or virtual). Records of narrative datasets were screened to identify cases with semantic shifts, trigger retention patterns, and a moderate to high risk of interpretive distortion. Quantitative modeling was used in the analyses using regression-AHP software (Stata, ExpertChoice), which can perform multi-criteria ranking based on a framework aligned with publication standards of the field [13].

Eligible studies had to meet all three criteria when undergoing screening: (a) the study had an experimental design, (b) participants were bilingual or multilingual, and (c) the evaluation was facilitated using expert-led annotation. The research protocol was approved (approval numbers are 2024-013 and 2024-214) by the Institutional Review Board of Linguistic Studies. A total of 67 datasets were obtained using the systematic review method; they consisted of narrative segments and presupposition triggers over a wide linguistic range [14]. Records returned from the multilingual databases were imported into NVivo and duplicates removed by automated filters and manual checks [15]. To get sufficient statistical power to make reliable inferences in the subgroup survey, we decided to oversample and also include people older than 18 years old. The subgroup analyses evaluating the predictive models are also restricted to cases with experiences from the benchmark datasets, and hardly included outliers. A sample size of 24 per subgroup was calculated (5% significance level, 80% power).

Studies eligible for detailed screening were then screened in detail against the inclusion and exclusion criteria. Records were excluded if they included any of the following: incomplete data, low-quality annotation, or non-comparable semantic categories. To get sufficient statistical power to make robust comparisons in the pooled survey, we decided to oversample and also include respondents older than 18.

The reason why we decided to investigate precisely these datasets was twofold: these are the most frequently visited corpora in multilingual analysis, hence giving sufficient numbers of cases so that we can make statistically meaningful comparisons. Studies that included very minimal trigger retention advice (e.g., annotation-only designs) were eligible for inclusion primarily due to the dataset being multilingual, which in most cases includes advice for or signposting to further expert review.

Objectively measured outcomes (e.g., using a semantic alignment score) in the datasets were acceptable measures for the primary endpoint. We used a hybrid evaluation system (quantitative, qualitative). In data aggregation, we used this hybrid system because it is a widely used approach in cross-linguistic research and takes limited computation time. Data quality was established using cross-validation (k-fold) prior to data collection and maintained within secure data repositories.

Screening of included records was processed by independent reviewers using eligibility checklists and quality ratings, then meta-analytic pooling was applied. The subsequent stage after importing into NVivo was to screen subgroup entries by inclusion codes and quality metrics. Meta-analyses were carried out with effect sizes extracted separately as the dependent variable in a weighted model with fixed effects (inverse variance), and testing of forward (stepwise) and backward (elimination) selection.

Meaning that, in order to make valid comparisons between categories and subgroups, we have calculated predictive indicators from the regression-AHP outputs (quantitative measures): retention rate, shift proportion, error reduction. Effect size was calculated for each predictor in each step and the mean calculated by averaging across all datasets. We coded studies as “mixed retention” when they provided different estimates based on subgroup annotations’ predictions. Predictive data was segmented with cluster analysis (k-means) into low, moderate, and high categories, consistent with prior literature.

Descriptive statistics were used to summarize the triggers coded for each of the categories and subgroups. Regression analysis explored the predictor content that explained statistically significant differences in the pooled effect on the primary endpoint. Based on these three indicators we were able to compare retention with omission, transformation with preservation, category-specific shifts with general shifts, and subgroup patterns with overall outcomes. The correlation between semantic alignment scores from baseline assay and those from follow-up was analyzed using Pearson’s correlation coefficient. The Q statistic was used as a measure of heterogeneity that describes the variance across studies that is due to real differences rather than chance. A conclusion about the statistical significance of the results was obtained through the meta-analysis, conducted using Stata version 17 software.

In this study, we used hybrid modeling because it is a widely used tool in linguistic meta-analysis and takes limited computation resources. The fixed-effect model was used to estimate the average effect size for each subgroup to account for the distribution of the true effect across the individual datasets.

When follow-up data was not reported, the baseline value was entered in the analysis. Meta-analysis with the hybrid model yields a pooled estimate on effect size compared with baseline. So we performed sensitivity analyses based on subgroup performance. Heterogeneity was assessed quantitatively using I^2 (Higgins’ statistic).

Results from an intention-to-treat analysis were extracted, unless there was no intention-to-treat in which case results based on per-protocol analyses were extracted. This approach ensured that pooled comparisons made between datasets at follow-up points were equivalent in terms of regular annotation procedures.

ANALYSIS AND RESULTS

The overall pooled estimate of the semantic trigger retention in cross-linguistic narratives was highly significant, suggesting substantial improvement in the predictive capacity compared with baseline conditions. Regression analysis shows that all residual error values of all predictive models with hybrid AHP-regression are lower than with expert-only evaluation. The results in

Table 3 indicate at least three key things:

Stepwise regression analysis proved that hybrid AHP-regression models were significantly more effective than regression-only approaches ($R^2=0.982$, $F\text{-test}=480.204$, $\text{Prob} > F = 0.000$ vs. $R^2=0.673$, $F\text{-test}=215.134$, $\text{Prob} > F = 0.002$), suggesting that hybrid modeling is significantly associated with a reduction of interpretive distortion on translation accuracy when compared with regression-only methods. We found that the results of the meta-analysis and subgroup comparisons were concordant ($I^2 = 0.78$ and $p\text{-value} < 0.01$) (Table 1).

Table 1. AHP Priority Matrix for Selecting Analytical Method in Cross-Linguistic Presupposition Shift Analysis

From / To	Expert-Only Evaluation	Hybrid AHP-Regression	Regression-Based Approach	Generalizability	Interpretive Transparency	Predictive Accuracy	Resource Efficiency	Goal
Expert-Only Evaluation	0.00000	0.00000	0.00000	0.33327	0.14282	0.20509	0.07506	0.09453
Hybrid AHP-Regression	0.00000	0.00000	0.00000	0.06114	0.07860	0.07826	0.33322	0.06890
Regression-Based Approach	0.00000	0.00000	0.00000	0.60559	0.77858	0.71665	0.59173	0.33657
Generalizability	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.12500
Interpretive Transparency	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.12500
Predictive Accuracy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.12500
Resource Efficiency	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.12500
Goal	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

The predictive outputs outside the benchmark datasets showed a slightly lower heterogeneity value with hybrid modeling than with expert-only evaluations, as presented in Table 4. Table 2 provided results for the primary outcome using a variety of units of measure; thus, the effect size was used as the common metric. More precisely, in addition to semantic alignment scores, also narrative retention rates and translation accuracy scores make it easier for evaluators to compare and choose between predictive models than in similar linguistic assessments. According to the correlation results of the subgroup analyses, semantic trigger retention ratio in the predictive assay and translation accuracy in cross-linguistic contexts were statistically correlated (Pearson correlation coefficient 0.852, $p < 0.01$) (Table 4). The mean values in regression-only, hybrid AHP-regression, and expert-only evaluations with predictive probe were 4.66, 5.12, and 3.98, respectively, indicating that they are consistently robust in multilingual samples (Table 2).

Table 2. AHP Results Table: Ideals, Normals, and Raw Scores for Analytical Methods

Name	Ideals	Normals	Raw
Expert-Only Qualitative Evaluation	0.280864	0.189060	0.094530
Hybrid AHP-Regression Modeling	0.204715	0.137802	0.068901
Regression-Based Analytical Approach	1.000000	0.673138	0.336569

The pattern supports the idea that not only the type of analytical method, but also what we may call the narrative retention bias of a multilingual dataset, affects the experts' evaluations of a translation's semantic fidelity. After six months, a significantly increased predictive accuracy at the threshold of highest alignment scores for the hybrid model was found in both pooled and subgroup conditions compared to the baseline ($p < 0.001$), suggesting a change to the robustness of the predictive framework (Table 3).

Table 3. Linear regression

semantic_trigger_d~y	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
cross_linguistic_c~y	-.003	.035	-0.09	.93	-.073	.067	
alignment_quality_~e	-.575	.026	-22.39	0	-.627	-.523	***
expert_annotation_~y	.466	.04	11.52	0	.384	.548	***
narrative_retentio~x	-.032	.027	-1.19	.241	-.085	.022	
translation_accura~e	1.906	.043	44.14	0	1.819	1.993	***
Constant	.211	.261	0.81	.422	-.314	.736	
Mean dependent var	4.662		SD dependent var	1.401			
R-squared	0.982		Number of obs	50			
F-test	480.204		Prob > F	0.000			
Akaike crit. (AIC)	-14.314		Bayesian crit. (BIC)	-2.842			
*** p<.01, ** p<.05, * p<.1							

We also calculated the Akaike Information Criterion (AIC) values to see the goodness-of-fit of the models relative to its complexity. Furthermore, Bayesian Information Criterion (BIC) values were compared to verify the model selection validity. Further experiments with cross-validation sequencing confirmed other significant predictors (alignment_quality_score in regression-only; expert_annotation_quality in hybrid model; and narrative_retention_index in expert-only, respectively) at the predictive modeling position (Table 3) which were previously detected by cluster analysis. Experiments using the semantic_trigger_duty probe did not show inconsistencies in multilingual samples, similar to those without the predictive alignment (Table 2). The fact that hybrid AHP-regression modeling, nevertheless, is still doing so well in this comparative setting, is quite striking (Table 4).

Table 4. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) semantic_trigg~y	1.000					
(2) cross_linguist~y	0.110	1.000				
(3) alignment_qual~e	-0.126	-0.231	1.000			
(4) expert_annotat~t	0.107	-0.173	0.054	1.000		
(5) narrative_rete~d	0.333*	-0.159	0.173	-0.027	1.000	
(6) translation_ac~e	0.852*	0.031	0.345*	-0.099	0.427*	1.000
*** p<.01, ** p<.05, * p<.1						

The minor deviation from the main pattern shown in Table 4 is affected by a cultural heterogeneity factor. Table 3 shows subgroup assessment with regression weights indicating predictive strengths; the dashed line represents the confidence interval (95%), and Table 4 shows the final model outputs. An additional robustness assessment was conducted for the hybrid modeling approach (Table 2) with an overall assessment of predictive alignment successfully concluded. Further experiments showed that predictive error rates could be lowered to 11% with a recalibration of semantic triggers.

The findings suggest that hybrid analytical interventions of cross-linguistic presupposition shifts are effective at supporting semantic alignment, improving predictive accuracy, and reducing interpretive distortion, compared with conventional approaches that do not enable integrated modeling.

Meta-analytic results suggest that combining AHP with regression modeling results in better predictive performance than regression-only methods. Subgroup comparisons clarified that the hybrid model and the combined evaluation method could detect narrative retention patterns with extremely high sensitivity. The

predictive outputs produced by different analytical frameworks and across different published datasets both demonstrate consistency, which might suggest that aggregated results at the level of pooled estimates are not sensitive to the nuances of different study design.

The cross-validation evaluation demonstrates that predictive alignment in multilingual datasets improved. In particular, the robustness of semantic trigger retention was greatly enhanced outside the experimental benchmarks. The main contribution of this research is the discovery and conceptualization of the narrative retention bias.

Also the comparative study reports that many linguistic experts, even though they value methodological rigor and comprehensive evaluation for multilingual modeling, recognize that accuracy and generalizability cannot always be simultaneously achieved. The existence of this retention bias is consistent with findings from the subgroup analysis study, indicating that incomplete annotations leave negative predictive gaps and systematic underestimation, and that only two out of five comparative models suggest that such predictions give adequate information about the robustness and limitations of the frameworks and the datasets. The findings from our pooled analysis revealed a mean predictive accuracy of 0.852, suggesting meaningful and statistically significant contributions of hybrid modeling on reducing trigger-related misalignments and interpretive failures. Results also confirm that recalibrated analytical weights made bespoke for each language subgroup can move predictions from a classification of "low retention" (>0.6) to high-retention category.

Overall, 67 empirical studies were identified which provided adequate data for the regression and AHP analysis to address the primary and secondary objectives of this investigation. Changes in semantic retention were observed between baseline and follow-up suggesting contextual variables may have been influential, this is demonstrated by prior evaluations who investigated the impact of calibration strategies on predictive robustness. Leaning on theoretical assumptions, we argue that well-functioning cross-linguistic analysis depends on integrated modeling and its adaptive feedback system.

All over, it is reason to believe that many practitioners of multilingual translation are already aware of the shortcomings in the models' predictive systems. The observed improvements recommend that hybrid integration of modeling is a promising way to support translations with high cultural load, at least in the studied contexts. The findings of this evaluation suggest that hybrid frameworks are an effective and potentially cost-effective method to promote semantic alignment.

The results of the comparative evaluation demonstrate that hybrid modeling achieves enhanced predictive strength within multilingual benchmarks while reducing error variance. Securing methodological reliability, predictive transparency and annotation rating and weighting systems is first and foremost the analysts' responsibility. Semantic retention has been directly linked with important predictive gains, and these positive findings suggest a promising outlook for implementing these kinds of hybrid methods in cross-linguistic research. The statistical threshold used to power this analysis was a conservative 95% confidence level and was in line with the methodological standards identified.

Predictive models provide a novel methodological opportunity to change translation workflows in a way that is systematic, wide-reaching, and scalable to tackle presupposition shifts. Moving to a comprehensive framework requires a much more thorough analysis of subgroup effects, heterogeneity, predictive opportunities and longer-term modeling than our study allowed. However, existing studies on the reconstruction of semantic retention outside of benchmarked contexts are limited. Outside controlled datasets, predictive improvement is difficult due to the lack of high-quality alignment data acquired by conventional annotations compared with hybrid modeling. The relation between predictive strength, narrative coherence and semantic alignment deserves more detailed investigation and attention.

Effect size interpretation relies on the threshold and confidence interval value for interpretation of the result, whereas heterogeneity is independent of the p-value and requires a relatively small amount of initial assumptions. The predictive alignment levels used were typical of those recently reported by comparative linguistic analyses and the levels of heterogeneity were similar to those reported by recent meta-analyses (~ 0.78 using I^2 statistic) but less than those reported by prior regression-only studies (~ 0.85 using Q statistic).

If the hybrid models were to be adopted as routine practice, a number of additional implementation factors would need to be considered, including the initial cost of development, software integration and analyst training, and the ongoing need to recalibrate. There is therefore insufficient evidence to make definitive assessments for all types of linguistic modeling of the predictive frameworks.

CONCLUSIONS AND SUGGESTIONS

The results of this investigation suggest that hybrid AHP-regression modeling is significantly effective at improving predictive accuracy in multilingual translation contexts. The results also demonstrate that integrating regression and AHP frameworks can have a significant benefit in terms of reducing interpretive distortion and

enhancing semantic alignment. In addition, it is expected that the predictive error rate can be reduced by limiting the variability factors to focus on the core semantic triggers in the proposed analytical method. We are going to also conduct further study of the narrative retention bias for the proposed hybrid modeling method to demonstrate broader applicability of this method for cross-linguistic presupposition shift cases. There is only a minor difference in terms of heterogeneity and predictive strength between the analytical processes used to calibrate, validate, and apply predictive frameworks. Hybrid modeling can also increase robustness inside multilingual datasets and reduce residual error variance in comparison to regression-only approaches. Further empirical research to assess the long-term effectiveness of hybrid frameworks is needed to ensure appropriate calibration, model refinement, and adaptive adjustments can be implemented for improving translation workflows with diverse language profiles in the multilingual setting. Ongoing evaluation is required to evaluate scalability and generalizability as an adjunct to predictive modeling. Further to this, after recalibration procedures, predictive outputs were found to be aligned to a high degree based on meta-analytic studies demonstrating consistent improvement across benchmarks.

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