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Cognitive Translation Studies (CTS) has emerged as a pivotal field that delves into the cognitive processes underlying translation, bridging insights from cognitive science, psychology, and linguistics (Ferreira & Schwieter, 2017). In the context of an increasingly globalized world, understanding these processes is essential for advancing translation theory and practice. *Advances in Cognitive Translation Studies*, edited by Ricardo Muñoz Martín, Sanjun Sun, and Defeng Li, contributes significantly to this field by presenting empirical studies that explore current research paradigms. As an edited volume, the book brings together contributions from leading CTS scholars across methodological traditions and geographical regions, making its multi-voiced perspective a core strength of the collection. The interdisciplinary approach and comprehensive coverage of the book offer valuable insights for researchers, practitioners, and educators in translation studies.

The book is structured to reflect the dynamic and multifaceted nature of translation as a cognitive activity. It encompasses diverse methodological and theoretical lenses, providing a holistic understanding of the latest developments in the field. The editors clearly frame the volume as both a synthesis and an extension of the state of the art in the field, noting that “CTS borrows heavily from other disciplines such as linguistics, psychology, cognitive science, reading and writing research, human-computer interaction, language technology, and neuroscience” (Sun et al., 2021, p. 9). The editors have curated contributions that not only consolidate recent advancements but also push the boundaries of CTS through innovative research.

One of the distinct features of the book is its clear articulation of two key trends in current CTS research: computational Translation Studies and cognitive Translation Studies. This distinction offers a valuable framework for understanding the diverse approaches within the field. Computational Translation Studies focuses on laboratory-based, information-processing models, while cognitive Translation Studies emphasizes ecologically valid, situated approaches (Muñoz Martín et al., 2021). By presenting studies that span these perspectives, the book underscores the



ongoing dialogue and tension between different research paradigms in CTS. This editorial framing also resonates with broader calls to embrace 4E cognition (embodied, embedded, enactive, extended) within CTS (Risku & Rogl, 2020).

The introduction (Sun et al., 2021) effectively sets the stage by providing a concise historical overview of CTS. It traces the development of CTS from initial explorations using think-aloud protocols to the recent embrace of embodied and situated cognition. Importantly, the editors acknowledge historiographic plurality: “There have been several such historical accounts recently, and none of them is exactly like any other. None of them can aspire to represent the Truth” (Sun et al., 2021, p. 2). This historical context helps readers appreciate the evolution of theoretical frameworks and methodological approaches in the field. The chapter highlights the shift towards more nuanced understandings of the translator’s cognitive environment, acknowledging the limitations of earlier research and the emergence of alternative paradigms. In doing so, it connects CTS to adjacent literatures on process research (Shreve & Angelone, 2010), situated translation (Risku, 2014), and cognitive ergonomics (Ehrensberger-Dow & O’Brien, 2015).

Muñoz Martín and Apfelthaler (2021) offers intriguing insights into task-switching effects within translation subtasks in Chapter Two. By employing the Task Segment Framework and keylogging data, the authors investigate how translators navigate the complex interplay of cognitive processes such as adding new text, modifying existing content, and conducting online searches. They argue that the TSF “portrays translating as a metacognitively controlled activity steered by the translator”, and that “adding new text, changing existing copy, and online searching qualify as subtasks with psychological reality” (Muñoz Martín & Apfelthaler, 2021, p. 19). The study sheds light on how constant switching between subtasks impacts cognitive load and, potentially, the quality of the translated text via “spillover effects.” This analysis usefully complements experimental work on multi-tasking and resource competition in simultaneous interpreting and invites further work triangulating keylogging with eye-tracking to profile “switch costs” in more ecologically diverse settings.

Hunziker Heeb et al. (2021) delves into the often-overlooked role of emotions in shaping translators’ cognitive experience in Chapter Three. By integrating affect into cognitive load theory, the authors recognize emotions as integral components of the translator’s cognitive environment. They “postulate that affective states as well as the processing of emotion-eliciting content require the allocation of a certain amount of cognitive resources and can add to cognitive load” (Hunziker Heeb et al., 2021, p. 47). This chapter broadens the understanding of how affective factors influence cognitive processes during translation. Linking translation to affective science, the authors set an agenda for measuring affect-effort trade-offs with multi-modal metrics (e.g., pupillometry, galvanic skin response) and for incorporating emotional competence in translator education.

The usability of computer-aided translation (CAT) systems is critically examined by Sun (2021) in Chapter Four. Through a comparative analysis of four CAT systems using the System Usability Scale and qualitative data from student translators, the study provides practical insights into usability challenges. It highlights the importance of user experience (UX) in translation technology and suggests that software developers consider these findings to improve CAT tools. Situating the study within human–computer interaction works in CTS (Läubli & Green, 2020;

O'Brien et al., 2017), Sun (2021) calls for studies with professional cohorts to bolster external validity and to link UX to performance and quality outcomes.

In Chapter Five, Alves and Silva (2021) offer a timely and necessary intervention into the study of translation expertise. They argue that CTS has become overly reliant on the psychological Expert Performance Approach (EPA), a model that, for all its rigor in the lab, fails to capture the socially embedded nature of the profession. Their proposed solution is to bridge the EPA with the sociological Interactional Expertise Approach (IEA). This synthesis is particularly insightful, as it allows the field to retain the EPA's focus on measurable performance while incorporating the IEA's crucial understanding of how expertise is built through social immersion and linguistic fluency within a specific domain. The chapter charts a path toward a more holistic and ecologically valid framework, challenging researchers to finally reconcile the translator's mind with their world.

Revisiting the concept of translation competence, Yang and Li (2021) critically evaluates existing models and proposes a new pedagogical model designed to enhance translator training in Chapter Six. By incorporating bilingual, pragmatic, profession-related, transfer, and strategic competences, the model offers a comprehensive and pedagogically sound approach. Arguing that "translation is a linguistic-cognitive act embedded in the sociocultural context" (Yang & Li, 2021, p. 125), the authors synthesize competence and performance distinctions with declarative and procedural knowledge, aligning with PACTE's (2003, 2005) procedural view. This contribution addresses the practical needs of translator education by suggesting specific teaching activities and assessment methods to foster the development of each competence. The proposed alignment of competences with teachable units (e.g., strategic monitoring exercises, domain-knowledge integration) is a welcome step toward operationalizing competence models in curricula.

Gile (2021) provides a thoughtful discussion of effort models in interpreting in Chapter Seven, emphasizing their educational value in helping trainee interpreters understand the cognitive demands of their work. By clearly explaining the different efforts involved in interpreting — listening, memory, production, and coordination — the chapter offers a valuable framework for comprehending the challenges interpreters face. Gile (2021, p. 139) revisits the "Tightrope Hypothesis", according to which "interpreters tend to work close to the maximum cognitive effort they can and are willing to expend during interpreting", thereby explaining errors, omissions and infelicities. It prompts consideration of how these models can be refined based on insights from cognitive science to more accurately represent the cognitive processes in interpreting. The chapter's emphasis on didactic utility dovetails with process-product research in interpreting and underscores the need for multi-measure validation of effort allocations.

The exploration of temporal eye-voice span (EVS) as an indicator of cognitive effort by Zhou et al. (2021) in Chapter Eight adds a novel dimension to CTS research. By comparing EVS in reading aloud and sight translation, the study suggests that EVS may reflect the increased cognitive demands of sight translation. The authors conclude that EVS may be used as a dynamic indicator of cognitive effort during sight translation, while noting weak but significant correlations with fixation measures. Incorporating larger samples and additional cognitive effort indicators (e.g., pupil dilation) in future research could enhance the reliability of these findings.

He and Wang (2021) investigates in Chapter Nine the complex interplay between interpreting competence and uncertainty management in sight translation. Using a multi-method approach that combines eye-tracking data, interpreting output, and retrospective interviews, the

study reveals that professional interpreters are more efficient and resourceful in handling uncertainty compared to novices. They report that “professionals were more risk-taking than novices” and “more efficient in uncertainty management in high-risk contexts” (He & Wang, 2021, p. 193), extending Angelone’s (2010) work on uncertainty bundling into an interpreting setting. This chapter highlights the importance of uncertainty management as a component of interpreting expertise and suggests that interpreter training should incorporate strategies to develop uncertainty tolerance and risk-taking abilities.

The impact of directionality on cognitive patterns in metaphor translation is examined by Wang (2021) in Chapter Ten. Focusing on the English-Chinese language pair, the study employs eye-tracking, keylogging, and retrospective reports to investigate the cognitive challenges involved. The findings indicate that translation direction can influence attention distribution patterns, contributing to a relatively underexplored area in CTS. This chapter underscores the need for further research involving professional translators and different language pairs to deepen the understanding of directionality’s effects on cognitive processing.

Advances in Cognitive Translation Studies stands out for its interdisciplinary approach and multi-method research. By integrating eye-tracking, keylogging, think-aloud protocols, and retrospective reports, the book provides a rich and diverse set of data on the cognitive processes involved in translation and interpreting. It underscores the importance of combining theoretical exploration with empirical investigation to advance the field.

The inclusiveness of this edited volume is another notable strength. With contributions from scholars and practitioners across different countries, it offers diverse perspectives that enrich the discourse in CTS. The interdisciplinary nature of the work reflects the reality of translation as a practice that intersects with various domains, making it relevant for a wide audience.

While the book offers extensive coverage of CTS, there are areas where it could be further strengthened. For instance, some chapters rely heavily on student translators as participants, which might limit the generalizability of the findings to professional contexts. Incorporating a broader range of participants, including professional translators with varying levels of expertise, could enhance the applicability of the research. Additionally, a concluding chapter synthesizing the key findings and outlining future research directions would have provided valuable closure and reinforced the book’s overall contribution.

Nonetheless, the volume’s overall contribution is substantial. The insights presented in this volume have important implications for translation pedagogy, competence models, and the advancement of CTS. Educators will find immediately deployable assets. The pedagogical competence model in Chapter Six — which integrates bilingual, pragmatic, profession-related, transfer, and strategic competences — can be mapped onto course design through targeted activities (e.g., strategic monitoring drills, domain-knowledge scaffolding, and assessment rubrics aligned to proceduralization), while Gile’s (2021) effort models in Chapter Seven remain a high-yield didactic scaffold for raising metacognitive awareness of reception, memory, production, and coordination trade-offs. Likewise, the evidence that professionals manage uncertainty more efficiently and are more risk-tolerant than novices (Chapter Nine) justifies explicit training for uncertainty tolerance and risk-calibration in sight translation and interpreting practice; and CAT usability findings (Chapter Four) warrant embedding UX literacy — interface discoverability, error

tolerance, and cognitive-friction mitigation — into technology modules so that students can transfer tool knowledge into robust workflow practices.

Researchers are offered a coherent methodological agenda rather than a mere toolbox. The Task Segment Framework's spillover effects (Chapter Two) invite triangulated replications that combine keylogging with eye-tracking to quantify switch costs across genres and proficiency levels; the cautious but promising EVS results (Chapter Eight) point to multi-modal validation (e.g., pupillometry, fNIRS/EEG) of dynamic cognitive load indices in reading-speaking tasks; the EPA-IEA bridge (Chapter Five) suggests convergent task suites that can capture both contributory and interactional expertise in laboratory and in-situ studies; and the directionality effects in metaphor processing (Chapter Ten) call for pro-cohort replications across metaphor types and language pairs. More broadly, the volume demonstrates how 4E perspectives can be operationalized in study designs that integrate product, process, and physiological data, while also exposing current limitations (notably the frequent reliance on student samples) that future work should address through larger, domain-specialist corpora and cross-site collaborations.

Practitioners can translate several findings directly into practice. The UX evidence (Chapter Four) provides concrete targets for tool selection and vendor feedback (e.g., simplifying alignment workflows, improving default QA visibility, and reducing configuration overhead), while the TSF-based analysis of add/change/search cycles (Chapter Two) motivates workflow refinements that minimize costly task switching (e.g., batching searches, chunking revision passes). Insights on emotion-effort couplings (Chapter Three) and on uncertainty-risk profiles in sight translation (Chapter Nine) underpin evidence-based strategies for managing cognitive pressure, through environment design, pacing, and reflective routines, and for structuring continuing professional development around resilience and decision-making under uncertainty.

In conclusion, *Advances in Cognitive Translation Studies* serves as an authoritative and comprehensive reference that advances the understanding of the complex cognitive mechanisms underpinning translation. By presenting empirical studies that explore various aspects of cognitive processing, the book provides valuable guidance for researchers, practitioners, and educators. Its interdisciplinary approach and inclusion of diverse perspectives make it a significant contribution to the evolving field of CTS. The book not only reflects the latest international research findings but also points towards future research and practice directions, offering insights that can aid scholars and students in broadening their research horizons and understanding global dynamics in translation studies.

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