注意：考試開始鈴響前，不得翻閱試題，並不得書寫、畫記、作答。

國立清華大學 115 學年度碩士班考試入學試題

系所班組別：外國語文學系
乙組(語言研究與教學組)

科目代碼：4001

考試科目：英文閱讀與寫作

－作答注意事項－

1. 請核對答案卷（卡）上之准考證號、科目名稱是否正確。
2. 考試開始後，請於作答前先翻閱整份試題，是否有污損或試題印刷不清，得舉手請監試人員處理，但不得要求解釋題意。
3. 考生限在答案卷上標記「由此開始作答」區內作答，且不可書寫姓名、准考證號或與作答無關之其他文字或符號。
4. 答案卷用盡不得要求加頁。
5. 答案卷可用任何書寫工具作答，惟為方便閱卷辨識，請儘量使用藍色或黑色書寫；答案卡限用 2B 鉛筆畫記；如畫記不清（含未依範例畫記）致光學閱讀機無法辨識答案者，其後果一律由考生自行負責。
6. 提早交卷者不可攜出試題，請將試題連同答案卷(卡)交予監考人員，攜出將以違規論處。當節考試結束後試題將置於講台，可自行取回，本試場不負保管責任。
7. 其他應考規則、違規處理及扣分方式，請自行詳閱准考證明上「**國立清華大學試場規則及違規處理辦法**」，無法因本試題封面作答注意事項中未列明而稱未知悉。

國立清華大學 115 學年度碩士班考試入學試題

系所班組別：外國語文學系碩士班 乙組(語言研究與教學組)

考試科目（代碼）：英文閱讀與寫作（4001）

Instruction: This test is designed to assess your ability to read and comprehend an academic text, paraphrase and summarize key ideas, and reflect on and extend those ideas. Please read the following excerpt, which has been adapted from a book chapter by Dr. Holger Hopp on the relationship between prediction and second language (L2) acquisition. After reading the passage, complete **all three** of the following writing tasks. Responses should be written in **paragraph form**. **Do not use bullet points.**

1. Write a coherent passage of **no more than 300 words** that paraphrases and summarizes the **main ideas** of the excerpt. **Do not use direct quotations** from the text. (50%)

2. Write a passage of **no more than 300 words** in which you respond to the excerpt by **reflecting on your own language learning or teaching experience** in relation to the issues discussed in the reading. (20%)

3. Propose and explain **ONE related research topic** that you would be interested in pursuing based on the selected reading, and formulate **ONE to TWO research questions** relevant to that topic. Please elaborate your research question(s) and possible predictions. (30%)

Grammatical learning and prediction

Most learning models for both child L1 development and (adult) L2 acquisition argue that grammatical learning scopes over a distributional analysis of the input (e.g. Pinker, 1984; Tomasello, 2009; Yang, 2016). In this sense, they are off-line learning theories in that they do not consider the incremental analysis of the input during language comprehension as part of the acquisition process or mechanism.

At the same time, it has long been acknowledged that language processing is critically implicated in learning both as the object of acquisition (Learning to Parse) and as a mechanism of learning (Parsing to Learn; for discussion, see Fodor, 1999). Most accounts construe the role of language processing in acquisition as generating triggers for grammatical acquisition by virtue of parsing failure, i.e. the inability of the current parsing routines to assign a grammatical structure to the incoming input. As a consequence, the parser needs to restructure its processing and its underlying knowledge base to match the format of the input (Omaki & Lidz, 2015).

More recently, different psycholinguistic approaches have contended that predictive processing additionally supports language learning (Christiansen & Chater, 2016; Dell & Chang, 2014; Pickering & Garrod, 2013; Phillips & Ehrenhofer, 2015). In contrast to a parser that passively attempts to integrate the input by assigning a grammatical structure to it, the predictive parser generates active predictions about the input, which will then be confirmed or disconfirmed by the subsequent input. Predictive processing can boost learning in two ways. First, correct predictions during language processing may facilitate learning (a) by confirming and reinforcing knowledge that was

predicted and (b) by freeing up resources for attending to and integrating novel information to be learned. For instance, Fernald et al. (2008) report that the efficiency of the predictive processing of adjectives and nouns correlated with learning of novel words that followed the predicted sequence among 2-year-old English-speaking children. In this sense, prediction can act as a helpful "crutch" for learning words and grammar (Pozzan & Trueswell, 2015; Gambi et al., 2020; see also Gambi, this volume). Second, if the learner makes incorrect predictions during language processing, the input can provide the learner with informative feedback on how to restructure their processing and knowledge.

Formal learning approaches construe predictive processing as a way for the learner to test grammatical hypotheses against the input and constrain them to the target grammar after encountering prediction errors (Phillips & Ehrenhofer, 2015). Rather than waiting for phenomena to occur in the input or having to rely on negative evidence or feedback that may not or only inconsistently be available, a predictive learner can actively pitch their predictions against the input and revise their hypotheses to zero in on the target-language grammar. Computationally, such convergence towards the target can be captured in model-based approaches in which choices are made within a set of pre-existing options, such as parameters, that delimit the learner's hypothesis space (e.g. Yang, 2004).

Within connectionist and functional frameworks, predictive processing constitutes the key mechanism by which comprehenders tally their processing preferences to changing input statistics through feedback loops (for discussion, see Myslin & Levy, 2016). To explain learning, these approaches hypothesize that language users make (implicit) predictions about the upcoming input and use prediction error as feedback to restructure their linguistic knowledge and expectations to match the changing statistics in the input so as to minimize future prediction error by way of error-based implicit learning (e.g. Dell & Chang, 2014; Ramscar et al., 2013) or probabilistic belief updating (e.g. Jaeger & Snider, 2013). In these models, the magnitude of prediction error corresponds to the degree of learning, since learning equals the inverse function of the prediction error associated with encountering an unexpected continuation.

In different frameworks, then, the interplay of prediction and the consequences of prediction error has been posited as a central implicit learning mechanism in L1 acquisition and L1 adult processing. At the same time, the evidence that prediction supports learning is largely correlational to date. In child L1 acquisition, children who predict words more efficiently tend to have larger vocabulary sizes (e.g. Borovsky et al., 2012; Mani & Huettig, 2012). Among adult L2 learners, predictive processing sometimes obtains more among highly compared to less proficient L2 learners (e.g. Dussias et al., 2013; Hopp, 2013). However, these correlations leave open whether predictive processing is the cause or the consequence of learning (for discussion, Pickering & Gambi, 2018; Rabagliati et al., 2016).

[...]

Learning and prediction in L2 acquisition

Among (adult) L2 learners, the conditions for prediction are different, since L2 learners are cognitively more mature and the basic mechanisms of predictive processing have been acquired during L1 acquisition and are fundamentally in place in L2 acquisition and processing (Kaan, 2014).

However, grammatical development in the L2 via prediction may be affected by two differences between L1 and L2 predictive processing that tie in with the dual nature of prediction as an object and a mechanism of learning, respectively.

- L2 users may not learn to make native-like grammatical predictions in the L2 (learning to Predict)

- L2 users may not learn from predictions in the L2 like native speakers (Predicting to learn)

In the following, I review research on how L2 learners learn to predict and how they can recruit prediction as a learning mechanism in the acquisition of L2 grammar.

Learning to predict in an L2

Not all predictions need to be learned by L2 learners. Lexical-semantic prediction emerges early in L2 acquisition, presumably due to L1 transfer, as suggested by L1 effects on semantic prediction (Van Bergen & Flecken, 2017). When it comes to grammatical prediction, though, unless learners transfer analogous grammatical properties from the L1, they need to acquire the relevant grammatical knowledge in the L2.

This is trivial in the sense that if a learner does not know, e.g. the form or function of a classifier in Chinese, they cannot use it predictively. Yet, if L2 learners categorize lexical classes or grammatical functions from the input differently than native speakers, they will also learn to use grammatical prediction differently to native speakers. For instance, English learners of Chinese establish more coarse-grained classifier systems and make predictions in accordance with their subjective grammatical knowledge (e.g. Griiter et al., 2020, see also Lemhofer et al., 2014).

Learning grammatical prediction may also be affected by misaligned L1 properties (e.g. Dussias et al., 2003). For L1 Russian child and adult learners of German, Hopp and Lemmerth (2018) and Lemmerth and Hopp (2019) reported that lexical gender congruency between German and Russian affected predictive gender processing in that learners used German gender on articles or adjectives predictively for nouns that overlapped in gender class between L1 and L2 (e.g. *Vase*$_{\text{FEM}}$ 'vase'- Russian: *ва́за*$_{\text{FEM}}$), yet not those that differed in gender between L1 and L2 (e.g. *Knochen*$_{\text{MASC}}$ 'bone'- *кость*$_{\text{FEM}}$). As suggested by current models of the bilingual mental lexicon (e.g. Dijkstra & van Reuven, 2002), activation of the gender of an article or adjective spreads non-selectively across languages to lexical candidates across both languages and, e.g., a

masculine article will pre-activate not only the German masculine word for 'bone' but also Russian word candidates with masculine gender, while simultaneously suppressing activation of 'bone', since its gender is not masculine in Russian (see also Morales et al., 2016). Hence, interfering knowledge of the L1 may initially affect and diffuse grammatical prediction among L2 learners and delay its acquisition (see also Foucart, this volume).

Yet, learning to predict extends beyond knowledge or classification of the specific form, feature or lexical items involved in prediction. In a series of studies, Hopp (2013, 2016), investigated variation in the use of grammatical gender for prediction from German articles to nouns (*der*$_{\text{MASC}}$ → *kleine*$_{\text{ambiguous}}$ *Knochen*$_{\text{MASC}}$) and adjectives to nouns (*ein*$_{\text{ambiguous}}$ *klein-er*$_{\text{MASC}}$ → *Knochen*$_{\text{MASC}}$ 'the/a small bone'). For L1 English learners, the studies found that only L2 learners who had target knowledge of the lexical genders of all nouns in the experiment (i.e. *Knochen* = MASC, *Vase* = FEM, etc.) could use gender for prediction, while learners who wavered between gender options for some nouns (e.g. *Knochen* = MASC or NEUT) did not demonstrate gender prediction even for the majority of nouns for which they had robust gender knowledge (e.g. *Vase* = FEM). Following accounts that prediction is driven by utility and affected by the reliability of the input (e.g. Brothers et al., 2019), the L2 studies on gender suggest that variable L2 knowledge impairs the usefulness of prediction, since it leads to frequent mispredictions that require costly reanalysis (for discussion, Kuperberg & Jaeger, 2016). In consequence, even partially lacking, inconsistent or non-target knowledge may reduce or cancel predictive processing (see also Hanulikova et al., 2012). Hence, the learning of prediction may be held back by the low success of learners' initial grammatical predictions.

Finally, a learner needs to have the resources to make grammatical predictions. For instance, working memory capacity affects the speed and time course of grammatical prediction (e.g. Huettig & Janse, 2016), and processing an L2 is inherently more taxing than comprehending the L1. In addition, L2 learners are compromised in predictive processing under heightened task demands (Ito et al., 2018) or at faster speech rates (for discussion, see Huettig & Guerra, 2019; Ito & Pickering, this volume). Hence, the greater strains of predictive processing on cognitive resources may lead to predictive processing emerging relatively late in the course of L2 acquisition. Relatedly, resources may foremost be allocated to or exhausted by the bottom-up integration of information, so that (top-down) prediction does not emerge as quickly or fully in L2 learners as among child L1 learners or adult monolinguals (e.g. Griiter et al., 2017; see also Phillips & Ehrenhofer, 2015).

In sum, learners do not necessarily learn to predict in a native-like way, even though native-like grammatical prediction may be achieved (Hopp, 2013; Hopp & Lemmerth, 2018; Schlenter & Felser, this volume). L2 learners may make no or slow grammatical predictions due to lacking or non-target L2 knowledge, the unreliability of their predictions or processing limitations. Moreover, they may generate partially erroneous predictions based on non-target analyses of the L2 input or the transfer of L1 properties.

[...]

Predicting to learn in an L2

Lower degrees or different types of prediction among L2 learners also have consequences for the use of prediction as a learning mechanism. For one thing, lesser or slower prediction means that L2 learners cannot harness feedback since they do not generate any prediction error in the first place that could lead them to revise their hypotheses about the target-language grammar. For another, different predictions may set them up to experience different prediction errors and miss the chance to revise their processing towards the target. Many studies on L2 sentence processing report that late L2 learners over-rely on non-grammatical information in sentence processing, often resorting to grammatically "shallow" processing (Clahsen & Felser, 2006, 2018), which means that they readily make lexical-semantic predictions but under-rely on grammatical information. With a view to L2 grammatical development, Dekydtspotter and Renaud (2014: 145) argue that "[...] whenever L2 sentence processing is shallow (i.e. not implicating the generation of detailed representations), L2 learners will not have access to the learning triggers that reside in those details." When applied to predictive processing, shallow processing entails that a prediction error generated by semantic predictions may be of a different type, magnitude or consequence than a prediction error occasioned by a grammar-based prediction.

Finally, when learners experience a prediction error, they need to revise the prediction as part of error-based implicit learning. For revision, however, L2 learners have been argued to suffer greater difficulty in abandoning and revising an initial parse, compared to L1 adults (e.g. Jacob & Felser, 2016; Safak & Hopp, 2021). In the context of predictive processing, such problems with reanalysis may entail that L2 learners persist with the initial misanalysis (Pozzan & Trueswell, 2016) and fail to revise their predictions even after multiple encounters of prediction errors (e.g. Kaan et al., 2019).

To illustrate these points, a study by Hopp (2015) may serve as a useful example. In this study, L1 English learners of L2 German were tested on the interactive use of semantic and grammatical prediction using sentences as in (2).

(2) a. Der Wolf tötet gleich den Hirsch.
The$_{NOM}$ wolf kills soon the$_{ACC}$ deer
'The wolf soon kills the deer'

b. Den Wolf tötet gleich der Jäger.
The$_{ACC}$ wolf kills soon the$_{NOM}$ hunter
'The hunter soon kills the wolf'

As speakers of a free word order language, native Germans reliably used case marking (nominative vs accusative) on the first NP designating its syntactic function as subject or object in anticipating a patient (object) as the postverbal noun in (2a), e.g. the deer, and predicting an agent (subject) noun in (2b), e.g. the hunter, when they heard the first NP and the verb. Hence, they integrated morphosyntactic case information on articles and semantic event information encoded in the verb for prediction (see also Kamide,

Scheepers, & Altmann, 2003). In contrast, the L2 learners across proficiency levels predicted the second NP to be the patient (object) noun based on the semantics of the verb, irrespective of whether the first NP bore nominative or accusative case marking.

First, this study bears out asymmetries in the information types used for prediction among L2 learners in that L2 learners made early and robust use of semantic information encoded in the verb (see also Dijkgraaf et al., 2017; Ito et al., 2018); yet, they did not use case marking for prediction (see also Mitsugi & MacWhinney, 2016; but, see Schlenter & Felser, this volume, and Frenck-Mestre et al., 2019, for L1 effects). Their semantic predictions set them up for frequent prediction errors in sentences like (2b). However, the L2 learners were slower to revise the semantically based prediction than natives even when the disambiguating lexical information of the second NP became available, suggesting that they had trouble revising their predictions. Third, the fact that prediction towards the patient was as strong in the OVS as in the SVO conditions suggests that participants did not abandon making erroneous predictions for the second NP to be the patient and revise their predictions, despite encountering frequent prediction errors in the course of the experiment.

The lack of using case marking for prediction among the L2 learners did not seem related to lack of knowledge of case markers (see also Mitsugi & MacWhinney, 2016) or the low salience of case marked articles. In a follow-up study, Henry et al. (2020) report that the difficulty in using case marking persists even when the salience of case marking was enhanced through prosodic cues. Instead, L2 learners may not have parsed the case marking as per shallow processing in the first place, they may not have been able to use the prediction error as a signal telling them how to revise their parses or they may not have had the computational means to revise their predictions in real time. Each and all of these factors may constrain their chances to learn from prediction error.

(References deleted for space considerations)

Source: Hopp, H. (2021). Prediction and grammatical learning in second language sentence processing. In *Prediction in second language processing and learning* (pp. 168-185). John Benjamins.