# Foreword

Processability Theory (PT from now on) is a psycholinguistic theory of second language acquisition (SLA from now on), first formulated in a book-length publication by Manfred Pienemann in 1998. Since then, PT has earned a place in many SLA introductions, handbooks, companions and encyclopedias such as Doughty & Long (2003), Gass & Mackey (2012), Kroll & de Groot (2005), Macaro (2013), Ortega (2009) and Robinson (2012). It is one of nine theories of SLA singled out and discussed by VanPatten & Williams (2007), along with four others sharing a cognitive processing approach. Like other theories, PT has its strengths and weakenesses, and does not deal with all the phenomena and processes constraining SLA or contributing to it. However, few theories seem to accommodate such a variety of phenomena or offer the basis for so many new developments. What PT offers is a principled transitional paradigm that deals specifically with grammatical development, and accounts for it. It also contributes an explicit and universal definition of developmental stages, which may be applied in principle to any language-specific developmental trajectory, and which in turn offers a stable point of reference for investigating typologically diverse L1-L2 constellations, learning modalities, environments and populations. From a practical point of view, PT can help in assessing language development in individual learners as well as in constructing a syllabus appropriate for their stage of development. In terms of new directions, as Jordan (2004: 227) remarked, PT "can be seen as 'progressive' […] extending its domain, refining its concepts, making the variables more operational, attracting more research."

More than fifteen years have passed since the publication of Pienemann's book on PT in 1998; and before that, it took almost twenty years to mould into PT the initial achievements of the ZISA (*Zweitspracherwerb ausländischer Arbeiter*) Multidimensional Model (cf. foremost Meisel, Clahsen & Pienemann 1981). Over this period, not only has the whole field of SLA grown exponentially, but PT's feeder disciplines have also advanced significantly. PT has paralleled this growth, and widened its scope in several directions. We very briefly retrace its history in order to place our volume within this developing context.

In the early eighties the ZISA team proposed a Multidimensional Model to account for their considerable body of data and, in particular, to explain the staged development of German word order. The two dimensions of the Model were, on the one hand, a psycholinguistic and potentially universal dimension, and on the

other, a socio-psychological one, no longer pursued. Within a broadly Chomskyan generative framework, the ZISA team guided by Jürgen Meisel provided the SLA field with two further fruitful contributions: first, while lively debates moved SLA more and more towards processing approaches (e.g., McLaughlin 1978, 1980 vs Krashen 1976, 1979), Harald Clahsen proposed an explanation for the apparently invariant stages observed in the acquisition of German word order in terms of cognitive strategies, the accumulation of rules determining the learner's grammatical progress (Clahsen 1980); and secondly, Manfred Pienemann successfully addressed the theory-practice link by focusing on the connection between development and teaching with his Teachability Hypothesis (Pienemann 1984, 1985, 1989), showing experimentally that it is not possible to alter the trajectory of acquisition through L2 teaching. This latter hypothesis, which has since remained unchanged, is still, in our opinion, the key to the popularity of Pienemann's approach, its potential already recognised in Larsen Freeman & Long (1991: 270-287).

When Manfred Pienemann moved to Australia in 1982, Malcolm Johnston's large structural English L2 data set (Johnston 1985a) provided the two researchers with the challenge to test out the assumed universality of ZISA's cognitive account. Assuming the universality of human cognition, if the constraints operative for the development of German L2 syntax are cognitively based, then they should turn out to be operative not only for German word order but also for other L2s and possibly other domains, such as morphology, provided the target structures meet the requirements of those processable by each particular strategy (Pienemann & Johnston 1986; 1987). In other words, this framework had a predictive potential, as Larsen-Freeman & Long (1991: 287) pointed out. Thus, taking on board Pienemann's (1984) teachability experiments and other contemporary works pointing in the same direction, the framework could predict for example that, no matter what the teacher may try, the learners would not 'skip' a stage of acquisition and could only learn what they are developmentally 'ready' to learn. The reader will quickly notice that, having specified what belongs to what stage, this prediction is falsifiable. Pienemann's Teachability Hypothesis however did not dismiss the role of instruction altogether. Rather it constrained its potential to improvements in the rate, not the route, of acquisition. This 'predictive framework' provided key theoretical insights, and generated publications by both Johnston and Pienemann on a range of issues of interest to SLA at the time (cf. Di Biase 2000), such as whether there is a 'natural' progression in learners of English from different L1 background (Johnston 1985b), what factors influence language development (Pienemann & Johnston 1987), how learners develop their own grammar (Johnston 1987), and what exactly is the influence of instruction on L2 processing (Pienemann 1987). An early result of the Pienemann and Johnston predictive framework's potential was the application, in association with Geoff Brindley, of the hypothesised developmental stages to the construction of a principled and interlanguage-sensitive lan-

guage assessment and testing procedure for ESL (Pienemann, Johnston & Brindley 1988), providing the foundation for Pienemann's later Rapid Profiling. The application of this innovative predictive framework to English, however, was not without problems, as pointed out by Larsen-Freeman & Long (1991: 275-ff), yet the schedules for the development of English morphosyntax elaborated in the eighties on Johnstons's (1985a, 1985b) cross-sectional data from 12 Polish and 12 Vietnamese immigrants to Australia have provided key empirical evidence ever since (cf., e.g., Pienemann 1998: 165-181; Pienemann 2011a: 8-11).

Over the nineties, the empirical base of PT widenend in several directions. First, the structural results on German L2 and English L2 data were supported by positively testing the Steadiness Hypothesis, according to which task variation does not produce variation in the learner's procedural schedules (Pienemann, Mackey & Thornton 1991; Pienemann & Mackey 1993). Secondly, a fruitful connection was established between input and interaction on the one hand and development on the other in the area of question formation (Mackey 1999). Thirdly, the typological validation widened with initial work on the acquisition of Japanese (Doi & Yoshioka 1987, 1990; Huter 1996, 1997), and Arabic (Mansouri 1995, 1997, 1999). Thus, the limitations of the original strategy-based explanation became more evident, as much as the need for a more explicit approach to grammatical representation if the theory was to work cross-linguistically. PT came about when Pienemann (1998), abandoning the strategies approach, grounded his new theory's psychological plausibility on Levelt's 'Blueprint for the Speaker' (1989), an explicit model of language generation, itself a successful integration of several strands of psycholinguistic research focusing on speech processing. At the same time, following Levelt's (1989) own example, as well as Pinker's (1984), Pienemann (1998) introduced a second crucial innovation that provided PT with the necessary grammar-theoretical basis to test and support its typological plausibility, namely, Kaplan & Bresnan's (1982) Lexical Functional Grammar (LFG from now on). In Kaplan's (1995: 7) own words the "LFG formalism, which has evolved from previous computational, linguistic and psycholinguistic research, provides a simple set of devices for describing the common properties of all human languages and the particular properties of individual languages". PT then further broadened and consolidated its typological spread, moving from its German and English focus towards a greater variety of languages, such as Arabic (Mansouri 2002, 2005), Chinese (e.g., Zhang 2002, 2004), French (Ågren 2009), Italian and Japanese (e.g., Di Biase & Kawaguchi 2002; Kawaguchi 2005), as well as Swedish and other Scandinavian languages (e.g., Pienemann & Håkansson 1999; Glahn et al. 2001).

Further PT developments over the first decade of this century include the Developmentally Moderated Transfer Hypothesis (Pienemann, Di Biase, Kawaguchi & Håkansson 2005) to account for L1-L2 transfer, following on from work on typological proximity (Håkansson, Pienemann & Sayehli 2002). This

hypothesis claims that transfer from L1 to L2 can only happen if it is in accordance with PT's schedules, that is, in a nutshell, you can transfer only what you can process. Furthermore, the plausibility of the theory was extended to acquisition contexts other than classic adult L2 ones, such as bilingual language acquisition (e.g., Itani-Adams 2008), children with Specific Language Impairment (e.g., Håkansson 2001, 2005; Håkansson, Salameh & Nettelbladt 2003), child L2 learning (Yamaguchi 2010), and in the emergence of creole languages (Plag 2008a, 2008b, 2011). Finally, the range of applications of the original PT to language teaching and language testing has also expanded over the years, involving several new languages, teaching situations and ways of testing, while generating new hypotheses, such as the syllabus construction hypothesis (Pienemann & Keßler 2007), and the developmentally moderated feedback hypothesis (Di Biase 2002, 2008; Nuzzo & Bettoni 2011); as well as further work on question formation in English as foreign language contexts (Sakai 2008).

Some ten years ago, PT's framework (Pienemann 1998) widened substantially when Pienemann, Di Biase & Kawaguchi (2005) followed up on an idea first introduced in 2002 by Di Biase & Kawaguchi in coming to terms with their two nonconfigurational languages, Italian and Japanese respectively. By incorporating LFG's syntacticised discourse functions and Lexical Mapping Theory (Bresnan 2001; Dalrymple 2001; Falk 2001), PT added a new discourse-pragmatically motivated syntactic component to its 'classic' syntactically motivated morphological module. Since the formulation of this 2005 extension, its two main hypotheses, the Topic Hypothesis and the Lexical Mapping Hypothesis, have been tested on various languages (cf., e.g., Itani-Adams 2009; Zhang 2007; Yamaguchi 2010; and Bettoni & Di Biase 2011 for the former hypothesis; mainly Kawaguchi 2007, 2009a but also by Wang 2009, and Keatinge & Keßler 2009 for the latter hypothesis). However, these works have just begun to explore the two hypotheses, and more needs to be done.

Given the above historical sketch of PT, the aim of our volume is twofold. First, we intend to provide a consistent, if concise, new presentation of PT's main tenets, as we see them in connection with our proposal for a broader 'prominence hypothesis' to approach the syntax-discourse interface (cf. part I). We feel that a new presentation is necessary in order to clarify some theoretical and terminological issues. For instance, in Pienemann & Keßler (2011), some of the original transformational terminology from much earlier work (e.g., Pienemann, Johnston & Brindley 1988) is still used for describing English PT's schedules. While this may have some practical advantages in terms of continuity, we offer some proposals for updating the terminology so as to incorporate current LFG into PT's framework in a consistent fashion. For example, connecting LFG's discourse functions and its Lexical Mapping Hypothesis to L2 development enables us to investigate their operation analytically, and interpret the learner's ability, among others, to topicalise a

grammatical function other than the subject or choose between active and passive constructions as something other than a purely structural operation. In other words, the processing of discourse-pragmatic information does play a principled role, and after all LFG is a declaredly nonderivational grammatical theory. As Asudeh & Toivonen (2010: 454-455) put it, a basic principle of LFG theory is that "grammatical information grows *monotonically* (Bresnan 2001: ch. 5), i.e., in an information-preserving manner. […] One general consequence is that there can be no destructive operations in syntax. For example, relation-changing operations, such as passive, cannot be syntactic, because that would require destructive remapping of grammatical functions" (emphasis in the original).

The second aim of our volume is to make a contribution to theory construction. For example, we take a more analytical approach to PT and look first at morphology separately from syntax, at declaratives separately from questions, and then at their interfaces. Furthermore, we propose to recast the 2005 Topic Hypothesis as the Prominence Hypothesis, and reformulate the Lexical Mapping Hypothesis. The changes in the staging of L2 development deriving from these proposals, broadly presented in part I, are then illustrated in part II through the recast learners' schedules of three typologically distant and well tested languages in PT: English, Italian and Japanese. Furthermore, we intend to contribute to theory construction in PT by exploring new possibilities and providing a coherent context for current work – that is, new work which draws on the consequences of developments in PT's feeder disciplines, and explores issues, languages and applications not previously treated in PT. Thus, in part III of our volume the scope of PT is widened in several directions. Among them, Russian is a new language for PT, which exemplifies the way in which grammatical case can, and must, integrate morphological and syntactic considerations. Another new area is the treatment of Differential Object Marking, as it emerges in Spanish L2, itself a language scantily examined within PT (but cf. Bonilla 2012, 2014). Constituent questions, an older SLA area, receive new treatment within our Prominence Hypothesis, thanks to Mycock's (2007) pioneering work within the nonderivational LFG framework. For instance, our more analytical approach to PT enables a comparative treatment of questions and declaratives, leading to results for German L2 development that are theoretically interesting in the history of PT. Part III also includes explorations into whether PT's stages hold also with autistic L2 learners, and concludes with a sally into technological innovations applied to language teaching and learning, and the role PT may play in this important area. Our hope is that the exploratory nature of some of this work will suggest potential lines of further development for both the theory itself and its applications – thus contributing to PT's promise as a 'progressive' theory. Where the evidence for our new hypotheses is sometimes based on few learners – even one learner in longitudinal studies – we can only invite researchers to test our claims on richer data sets.

The principal audience for this volume consists of SLA researchers and graduate students, advanced undergraduate students and their instructors. The editors and authors assume little previous knowledge of PT on the part of the reader. On the other hand, we must warn readers that this is not a comprehensive introduction to PT, because our volume does not discuss important areas such as the Developmentally Moderated Transfer Hypothesis, learner variability or applications such as the Rapid Profiling. In addition to limitations of space in a single volume, these gaps may also be attributed to our wish to prioritise for PT fresh interpretations of earlier achievements, new ground, and new pointers for future research.

The ideas presented in this volume build on previous research on PT by numerous colleagues, relying foremost, of course, on Manfred Pienemann's (1998) cornerstone publication. This does not mean that the originator of PT agrees with all aspects of our interpretation of his theory or with all our contributing authors' new developments. His reservations have helped us clarify our own thoughts, and we thank him for sharing them with us. Care is taken throughout the volume by editors and authors alike to signal to the reader differences or potential disagreement between previous versions of PT and the explorations presented here, and to provide references to specific works whenever appropriate.

Among our many colleagues working in the PT framework, we wish to single out Gisela Håkansson, Yuki Itani-Adams, Junko Iwasaki, Louise Jensen, Satomi Kawaguchi, Jörg Keßler, Fethi Mansouri, Gabriele Pallotti, Manfred Pienemann, and Yanyin Zhang among the older generation; and Daniele Artoni, Marco Magnani, Lucija Medojevic, Elena Nuzzo, Jacopo Torregrossa, Yumiko Yamaguchi, Kenny Wang, and Karoline Wirbatz among the younger generation. We thank them all not only for their scholarly contribution but also for the personal friendships that have developed with them over the many PT meetings held in Australia and Europe in the last two decades or so. As editors, we wish to thank foremost Gabriele Pallotti and Manfred Pienemann, then, alphabetically, Cinzia Avesani, Cathi Best, Gisela Håkansson, Barbara Hinger, Louise Jansen, Jörg Keßler, Marco Magnani, Louise Mycock, Elena Nuzzo, Lourdes Ortega, Valeria Peretokina, Ingo Plag, Ruying Qi, Peter Robinson, Jason Shaw for their help and encouragement, and the anonymous reviewers for their thoughtful and constructive comments on the volume as a whole and/or single chapters. Needless to say, remaining errors are our responsibility.

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# Abbreviations

| | |
|---|---|
| 1 | 1st person |
| 2 | 2nd person |
| 3 | 3rd person |
| ABL | ablative |
| ABS | absolutive |
| ACC | accusative |
| ADJ | adjunct |
| ASP | aspect |
| a-structure | argument structure |
| AUX | auxiliary |
| BEN | benefactive |
| CALL | Computer Assisted Language Learning |
| CAUS | causative |
| Cl | clitic |
| CL | classifier |
| CMC | Computer-Mediated Communication |
| COMP | complement |
| Cop | copula |
| CP | complementiser phrase |
| c-structure | constituent structure |
| DAT | dative |
| DEF | definite |
| DF | discourse function |
| DU | dual |
| DOM | Differential Object Marking |
| ERG | ergative |
| ESL | English as a second language |
| FEM | feminine |
| FOC | focus |
| f-structure | functional structure |
| GEN | genitive |
| GEND | gender |
| GF | grammatical fucntion |
| INF | infinitive |
| IP | inflectional phrase |
| JSL | Japanese as a second language |
| L1 | first language |
| L2 | second language |

| | |
|---|---|
| LFG | Lexical Functional Grammar |
| LOC | locative |
| MASC | masculine |
| NEG | negative |
| N | noun |
| NOM | nominative |
| NP | noun phrase |
| NUM | number |
| OBJ | object |
| OBJθ | secondary object |
| OBL | oblique |
| OBLθ | oblique family |
| OVS | object–verb–subject (word order) |
| PALA | Processability Approaches to Language Acquisition |
| PASS | passive |
| PAUC | paucal |
| PERS | person |
| PL | plural |
| POL | polite |
| PP | preposition phrase |
| PROG | progressive |
| PT | Processability Theory |
| QP | question phrase |
| Q | question particle |
| QUE | question feature |
| QW | question word |
| S | sentence |
| SUBJ | subject |
| SG | singular |
| SLA | second language acquisition |
| SLI | Specific Language Impairment |
| SOV | subject–object–verb (word order) |
| SVO | subject–verb–object (word order) |
| TL | target language |
| TOP | topic |
| V | verb |
| VP | verb phrase |
| VSO | verb–subject–object (word order) |
| UG | Universal Grammar |
| XP | open phrase |