Reviewing some similarities and differences in L1 and L2 lexical development

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ABSTRACT
This paper reviews the literature on similarities and differences between first and second language lexical acquisition. After a brief discussion of differences in input, we go on to early lexical development, considering both the speed of acquisition as well as possible reasons for more efficient lexical learning in first language acquisition as compared to second language acquisition. We discuss the role of phonological representations in facilitating the extraction of units from incoming speech. We continue with a discussion of unanalysed units, arguing that their role as a stepping stone into language is much the same in first and second language acquisition. Finally, we review methods for investigating the first and second language lexicons.

Keywords: lexical acquisition, L1 & L2 similarities and differences, input, methods, usage-based theory, chunking, phonological representation, constraints.

1. Introduction
It is relatively easy to list the differences between the acquisition of first and second languages. In first language acquisition children are acquiring knowledge about the world at the same time that they are acquiring language. Second language learners bring knowledge of the world to the task of learning new ways to talk about the world. First language learners receive hours of
naturalistic exposure to language from caregivers who scaffold their development (Tomasello & Brooks 1999). Exposure to the target language for second language learners varies, both in quantity and in quality, depending upon whether the learner is a child in a multilingual family, a pupil in a classroom, an immigrant at a workplace, a spouse in a new country or a student in a foreign university, etc. Children are predisposed to become native speakers of the language(s) spoken around them. The outcome of second language learning depends on a myriad of factors – age, input, L1 and L2 proximity or distance, motivation, individual differences in memory, in personality, etc.

However, both first and second language learners are faced with the same problem – how to map form and function to produce meaningful utterances based upon their language experiences (N. Ellis 2002; Lieven & Tomasello 2008), which, for an L2 learner are diverse depending both upon the individual learner and the learning situation. Recent accounts of language learning have emphasized that learners build language based upon ‘usage events’ - particular utterances in particular contexts (cf. the volume edited by Robinson & Ellis 2008). Nativist views of language acquisition propose that learners bring innate abstract grammatical knowledge (Universal Grammar) to the task of language learning. In contrast, usage-based approaches argue that it is only after considerable exposure and practice with language that abstract grammatical representations emerge. The change in theoretical perspective from positing that abstract grammatical knowledge is innate to positing that abstract grammatical knowledge emerges from language use has enriched the interaction between researchers in first and second language learning.

In the overview of the literature comparing the acquisition of first and second languages we are particularly interested in the lexicon. It has been an established fact for years that the size of vocabulary is a major predictor of language proficiency in first language acquisition (Bates & Goodman 1997). In the 50s and 60s lexical development was widely studied in second language acquisition. However, with the impact of rule-driven grammars and a major paradigm shift in linguistics, introduced by Noam Chomsky, the interest in second language lexicons decreased. Over the last decades and with the influence of usage-based learning models, the boundary between the lexicon and syntax has weakened, and the lexicon has been attributed a major role in determining language proficiency. Lexical specifications include not only the meaning of words, but also information concerning the constructions in which the word can

1. L2 age of onset in particular is reputed to play a role on L2 proficiency attainment.
occur and the relative likelihoods of their co-occurrence patterns (N. Ellis 2003). This approach has resulted in a resurgence of research concerning vocabulary in both first and second language acquisition (Hilton 2007) and its role as a foundation for subsequent language development.

We will begin with a brief discussion of the differences in input for learners of first and second languages. We then go on to discuss early lexical development, considering both the speed of acquisition as well as the possible reasons for more efficient lexical learning in first language (L1) acquisition as compared to second language (L2) acquisition. In particular we will highlight the role of phonological representations as a major milestone in both L1 and L2 learning. Phonological representations have been argued to facilitate the extraction of units from incoming speech – be they a word or a multi-word sequence. We will continue with a discussion of the role of unanalysed units arguing that they provide a foundation for subsequent development and for facilitating language processing. Finally, we will discuss methods for investigating L1 and L2 lexical learning.

2. Differences in input

Differences between input for L1 and L2 learners are quite numerous and concern both quantity and quality. It has been estimated that a 2- to 3-year-old child in an English speaking environment is exposed to about 5,000 to 7,000 utterances a day (Cameron-Faulkner, Lieven & Tomasello 2003). Pearson, Fernández, Lewedeg & Oller (1997) were able to establish clear correlations between amount of language exposure and lexical development in bilingual children. Quantity of input differs, but so does quality of input. Child-directed speech (CDS) is highly repetitive and filled with child-centred questions and comments. CDS, in comparison to adult-directed speech, is described as being syntactically simpler, more grammatical, limited in vocabulary as well as in complexity, more fluent, fine tuned and geared to the child’s particular interests. Although variability is observed across languages and cultures for L1 learners (Ochs & Schieffelin 1994), this variability is not as important as it is for L2 learners whose learning environments are extremely diverse, depending upon, for example, whether the learner is immersed in the target language environment or is learning in a classroom or alone with a book or a computer.

After a period of little interest in the study of CDS initiated by Chomsky’s (1965) argument of the poverty of the stimulus, many studies have examined the quality of CDS (Demetras, Post & Snow 1986; Gallaway & Richards 1994;
The impact of CDS on language acquisition has undergone considerable scrutiny (Cartwright & Brent 1997; Lieven, Pine & Baldwin 1997; Naigles & Hoff-Ginsberg 1998; O’Grady 1997; Tomasello & Brooks 1999; Sampson 1989). In particular, frequencies of items and of structures are hypothesised to influence what is learned by children. For example, Chenu & Jisa (2005), using naturalistic data of 2 French-speaking mother-child dyads, showed an important correlation between verbs used by the mothers and the first verbs produced by their children. In addition their study reveals a specificity in CDS by comparing frequencies of different verbs in their mother-child data with those obtained from the Gougenheim corpus (GC) (Gougenheim, Michéa, Rivenc & Sauvageot 1964). Verbs that are significantly used more by the mothers as compared to GC are also those which are produced frequently by the children, including verbs used to establish joint attention, to negotiate intentions and activities and verbs encoding motion and caused motion.

Even if some L2 learners may receive as much input as L1 learners, the quality is very different, given that it does not directly address the learner’s communicative goals and intentions. Hatch (1978), for example, compares interactions between L1 learners and adults with interactions between L2 learners and adults, and finds that in the second type of interaction exchanges are initiated overwhelmingly by the native speaker adult, and thus challenge the L2 learner with identification of the topic (see also Arditty & Levaillant 1987; Berthoud & Mondada 1992; Vasseur 2000). This is very different from child-mother dyads in which most topics are child-initiated. CDS is not uniform across cultures, but generally speaking a child is more likely to have access to specifically tailored input than is an adult L2 learner. An L1 learner has an advantage in the quality of input, but an L2 learner also has an advantage in that s/he brings considerable linguistic and nonlinguistic knowledge to the learning task.

3. Early lexical development

Children’s early lexical development is relatively slow in the beginning. In general, first words are acquired by the end of the first year of life and, over the course of several months, the pace at which new words enter the toddler’s repertoire is slow, but steady until the size of the lexicon reaches about 50 items (Nelson 1973). Subsequently, for most children, a lexical spurt is observed. The lexical spurt has a long history in L1 literature (McCarthy 1954) and is characterized by an increase in the rate of word acquisition. It has been greatly
documented for English, but has been reported on for a variety of other languages (Bassano, Eme & Champaud 2005; D’Odorico, Carubbi, Salerno & Calvo 2001; Eriksson & Berglund 1999; Kern 2007; Salerno, Assanelli, D’Odorico & Rossi 2007; Szagun, Steinbrink, Franik & Stumper 2006; Thordardottir & Weismer 1996). Some discrepancy is reported concerning the age at which children show a lexical spurt, e.g. at approximately 17 to 19 months for English-speaking children (Nelson 1973; Benedict 1979; Goldfield & Reznick 1990), at about 25 months for French-speaking children (Gayraud & Kern, in press). Differences have also been observed in the types of words observed (Goldfield & Reznick 1990). Considerable L1 literature has also highlighted major differences depending upon whether or not comprehension as well as production is measured (Reznick & Goldfield 1992). And, it should be mentioned that some studies question the existence of such a spurt in children (Ganger & Brent 2004; McMurray 2007).

To our knowledge, a lexical spurt has not been reported for adult L2 learners but has been observed in early L2 acquisition (Wode, Rohde, Gassen, Weiss, Jekat & Jung 1992; Ellis & Heimbach 1997). Instead, the literature in L2 concerning adolescents and adults mentions successive plateaux and spurts in lexical growth. In a study of French as a foreign language Milton (2006) suggests that, even for the best learners, a period of stagnation in vocabulary growth can last several years. Why do children learn words so quickly?

As Gayraud & Kern (in press) point out, different types of explanations have been advanced to account for the lexical spurt. It has been associated with the emergence of categorization abilities and the awareness that these categories bear names (Gopnik & Meltzoff 1987, 1992; Mervis & Bertrand 1995). It has also been suggested that the word spurt could result from an increase in short term memory capacity and from phonetic and phonological development. Development of communicative skills during an intense period of socialization in the young child’s life could result in an increased motivation to learn labels. And finally, a vast body of research focuses on the discovery of constraints on word learning, the result of which is ‘fast mapping’ (Carey 1978; Carey & Bartlett 1978; Clark 1993).

Clark (1993) claims that for word learning to take place it is necessary to 1) isolate word-forms in the input, 2) induct their meanings, and 3) map those meanings onto word-forms and then store that association. ‘Fast mapping’ refers to the fact that a human being can establish a correspondence between word form and the meaning that the word encodes based upon very few if not only one single exposure(s). Children as young as 18 months give evidence for fast
mapping and since the capacity to rapidly establish sound-meaning correspondences occurs around the time of the lexical spurt, the capacity for fast mapping is proposed as a prerequisite for the lexical spurt (Rohde & Tiefenthal 2000).

A major issue that has been identified revolves around the ‘induction problem’ (Quine 1960) *i.e.*, given the multitude of possibilities for a word’s meaning, how does the child manage to select the appropriate one? In an attempt to resolve this problem, Markman (1989, 1992, 1994a,b) and her collaborators (Markman & Hutchinson 1984; Liitschwager & Markman 1994; Woodward & Markman 1997) postulate three lexical principles which guide early word learning: the whole object assumption, the mutual exclusivity assumption and the taxonomic assumption. On the basis of the whole object assumption, the mutual exclusivity assumption and the taxonomic assumption, the child would tend to associate labels to whole objects rather than to parts of objects. The mutual exclusivity assumption would lead children to assign one label to one object. And on the basis of this assumption, if a novel word-form is encountered, the child would prefer to associate it to an object for which he has no name yet. Finally, the taxonomic assumption would guide children to label with the same word-form objects of like kind, *i.e.* to focus on taxonomic rather than thematic relations for labelling.

However there is not a general consensus concerning the role of such constraints in L1 lexical acquisition (Deák 2000; Clark 2009). Approaches that emphasize the role of social interaction such as Clark & Wong (2002) show that the adult speech directed to six English-speaking children contains considerable violations of the constraints. For example, in contradiction to the mutual exclusivity constraint, adults use many different words to refer to the same object *i.e.* dog, pet, animal, or Rover. In addition, when adults talk to children they provide pragmatic directions for word usage. In answer to a child’s utterance *That’s a snake* the mother repairs with *It looks like a snake, doesn’t it? It’s called an eel. It’s like a snake only it lives in the water* (Gelman, Coley, Rosengren, Hartman & Pappas 1998: 97). Clark & Wong argue that «analyses of the content of child-directed speech strongly suggest that pragmatic directions about language use play a critical role in getting lexical learning off the ground in the earliest stages of acquisition.» (2002: 209). L1 adult discourse directed to children is very rich in feedback concerning appropriateness of word usage and moreover children learn from adult reformulations (Chouinard & Clark 2003). Some studies have shown that L2 interlocutors tend not to correct L2 learner errors (Poulisse 1989) but this would seem subject to great variation depending upon the conversational situation, the status of the interlocutors, the culture, etc. (Richards & Gallaway 1994).
Whereas L1 learners are acquiring words and knowledge about the world simultaneously, the links between words and the world for L2 learners are largely a function of the age of the learner. L2 language learners can potentially take two paths. On the one hand L2 learners can associate the new word directly to the intended referent just as one would in L1 learning. And on the other hand, L2 learners can establish translation equivalents between L1 and L2. MacWhinney (2008) argues that in early stages adult L2 learners simply treat a word in their second language, such as *chien*, as another way of saying *dog* in their first language. Thus, it has been argued that the lexicon in early L2 acquisition has no separate conceptual structure. Establishing translation equivalents, of course, can be very useful for languages with many cognates. However, going beyond the names for concrete objects, such as *chair* and *chaise*, can be problematic. For example, the English verb *know* corresponds to two verbs in French, *savoir* and *connaître*. French *apprendre* corresponds to English *teach* and *learn*. It is easier to relabel, or to merge two existing categories, as is the case for exact cognates (Giacobbe 1992; Gullberg 2008: 286; Kellerman 1995) than to create an L2 category with no L1 equivalent.

3.1. Words are packages

Words, however, are not simply concepts, but packages of concepts. An often cited example is the distinction between the semantic content of verbs in verb-framed languages and satellite-framed languages. Verb-framed languages package movement and path in the verb and leave manner of motion to be expanded elsewhere, for example the French verb *traverser* (’to cross’) in *il traverse la rivière en nageant* (’He is crossing the river swimming’). In contrast, satellite-framed languages encapsulate movement and manner in the verb and the path is encoded in a satellite, for example the English verb *swim*, *he swims across the river*.

In a comparison of Chinese and Japanese speakers acquiring English, Yu (1996) observed that the typological similarity between English and Chinese facilitated the acquisition of motion verbs in English as a second language. English learners of Spanish, a verb-framed language, used gestures rather than verbs to encode manner information (Negueruela, Lantolf, Rehn Jordan & Gelabert 2004), as do native speakers of Spanish despite the fact that Spanish verbs do not encode manner (McNeill & Duncan 2000). The absence of manner is compensated for in both L1 Spanish and L2 English by gestures which accompany speech. In L2 Spanish spoken by native speakers of English, gestures encoding manner information also occur. Native speakers of English accompany
verbs with manner gestures when they want to emphasize or to foreground manner. However, because Spanish is poor in manner verbs, English speakers feel the need to accompany Spanish movement verbs with manner gestures (Gullberg 2008). But as Gullberg (this volume) points out, conceiving gestures as mainly a compensatory device is misleading because their role in both L1 and L2 is better conceived of as reflecting semantic conceptual representations and are not necessarily deliberately intended by the speaker.

In a study of caused motion verbs in French-speaking mother-child dyads Chenu & Jisa (2006) observed that the verb mettre ‘put’ was by far the most frequent caused motion verb used by mothers and children. However, one child used a number of other caused motion verbs, such as enfoncer, ‘stuff into’, attacher, ‘attach to’, while the other child used mettre. Mettre combines frequency in child-directed input with semantic generality, in that for events encoded as enfoncer or attacher, mettre can be used.

Goldberg, Casenhiser & Sethuraman (2004) show that high-frequency semantically-general verbs provide a learning advantage. The semantically general verb mettre in French contrasts with the other more semantically detailed verbs. Mettre follows a verb-satellite pattern whereas enfoncer, or attacher follow a verb-framed pattern. In the verb-satellite pattern the resulting relation between the figure and the ground is distributed between the verb and the prepositional phrase (Talmy 2000), i.e., mettre dans, ‘put in’, mettre sur, ‘put + on’, mettre entre ‘put + between’. The more specific semantic verbs limit the spatial prepositions that can be used with them, as in insérer la pièce de monnaie dans/*sur la machine, ‘insert the coin into/*onto the machine’. Still other semantically specific verbs take the general preposition à: accrocher la veste à la patère, ‘hang the jacket on the peg’, attacher le sac à la poussette, ‘attach the bag to the stroller’. In addition the more specific verbs follow a verb-framed pattern for caused motion verbs in that the ground can be left unmentioned. The verb is enough to convey the relationship between the figure and the ground as well as the direction of movement, accroche la veste, ‘hang the jacket’, attache le sac, ‘attach the bag’.

Gullberg (2008) provides data that show how Dutch learners, who early on acquire the high frequency semantically general verb mettre in French, gradually move from a fine-grained distinction between the caused motion positional verbs zetten ‘set’ and leggen ‘lay’ to a path-oriented French perspective with the verb mettre. To use mettre in L2 French, learners shift interest away from the targeted position of the object to be moved and towards a path-oriented perspective. Their gestures show both French-like path gestures and Dutch-like
positional gestures, as well as mixed patterns. This suggests that different learners have different representations of the surface forms of their second language (Gullberg 2008: 287). Gullberg’s gesture data also show that moving from an L1 perspective to an L2 perspective is a gradual process.

In this section we have tried to show that the most striking difference between L1 and L2 lexicon is that L1 learners have to discover everything about language whereas L2 learners bring knowledge about language with them to the task. L2 learners do not have to rediscover the lexical principles that seem to be at work in early L1 word learning. Rather, they are called upon to notice the specificities of the target language. While there has been very little research on the role of lexical principles such as the whole object assumption, the mutual exclusivity assumption and the taxonomic assumption in L2 learners, there is no reason to assume that adult learners lose the principles which guide word learning. Rohde & Tiefenthal (2002) argue that L1 and L2 lexical acquisition are not fundamentally different given the fact that fast mapping is available to both L1 and L2 learners. Based on their study of very young L2 learners acquiring the L2 in nursery school, the authors suggest that fast mapping in early L2 acquisition may be less effective and they advance two reasons for this. Fast mapping may be hindered first, by a smaller motivation for understanding a language than that observed in early L1 acquisition, and second, by a lower performance in L2 phonological segmentation.

3.2. The role of phonology

First and second language learners do not perceive the same signal when they listen to the language to be acquired. Language-specific segmentation is in the listener, not in the speech signal (Cutler 2001: 11). During the first year children are exposed to countless hours of language input which shapes their language processing and rapidly attunes their perception to the ambient language. In the emerging first language system children rely on the salient prosodic cues of the language around them – be they stress as in English (Jusczyk 1998) or mora as in Japanese (Otake, Hatano, Cutler & Mehler 1993). Sensitivity to such prosodic cues, or ‘prosodic bootstrapping’ facilitates the child’s extraction of words and the location of word boundaries. In beginning stages of second language development learners bring the processing capabilities set by their first language to the task of processing their second language. The prosodic bootstrapping capacity of the L2 learner, set by their first language, will carry over into their L2 processing (Doughty 2003).
Another important difference between first and second language learners is the fact that children extract and remember sequences of phonemes initially without meaning. Jusczyk & Aslin (1995) used the head-turning-preference paradigm to study very young infants who were familiarised with a particular phonological form by measuring how long the infants listened to passages containing the target sequence of phonemes. The results reveal that if just one phoneme is changed in the target word, children no longer prefer the passage. This argues for a very precise ability in recognising word forms. Infants at this stage of development are encoding and storing phonotactic patterns without processing the meaning. However these forms stored in phonological memory pave the way for the subsequent process of fast-mapping forms to meaning. Second language learners are grasping for meaning from the beginning of their exposure, without the benefits of months of listening.

There is considerable evidence showing that phonology plays a structuring role in both first and second language lexicons. Much of this evidence comes from the study of word associations. In a word association task there are three basic types of responses: clang, syntagmatic and paradigmatic associations. Clang responses reveal special attention given to the phonological form (clutter – cluster). Syntagmatic responses show attention given to the likely co-occurrence patterns of a word (dog – barks). Finally, paradigmatic associations reflect processing in terms of word class properties (cup – mug).

In a very extensive study of word associations testing monolingual children from 5 years of age to adults in university, Entwisle (1966) observed a very interesting developmental trend. Clang responses were found only in the youngest age group which, it is argued, reveals the salience of phonological representations of words. Children at the next stage of development focussed on the co-occurrence of words and gave many syntagmatic responses. With the subsequent lexical development of older children and adults the use of paradigmatic responses increased.

A similar developmental pattern has been observed in second language learners (N. Ellis 2003). Wolter (2001) used a word association task with second language learners. In addition to the association task, the learners were asked to rate the familiarity of the words used to trigger the associations. Words that were judged by second language learners as being less familiar triggered associations following a phonological resemblance (for example, closer – clothes). Phonological connections between words in the second language lexicon lose their predominance as semantic connections become stronger. Thus in cases
in which the L2 speaker judged a word as being familiar, more paradigmatic associations (for example dog – cat) were observed.

Thus, language learners – first and second – show evidence that early lexical representations are structured by phonology and even in cases in which the languages share many cognates such as Spanish and French, second language learners in early stages have been observed to phonologically derive L2 word forms from L1 words (Cammarota & Giacobbe 1986). Subsequently, more salience is attributed to co-occurrence patterns and finally attention to meaning and word class category emerges. Both types of learners need a phonological representation in long-term memory which results, presumably, from frequent repetition of sequences (N. Ellis 2003).

4. Chunks and schemas

In a usage-based perspective the acquisition of grammar is the piecemeal learning of many thousands of words and constructions. Rather than positing that the learner brings innate abstract grammar to the task, usage-based accounts claim that the frequency-biased regularities in the input are responsible for the emergence of abstractions (Croft & Cruse 2004). In usage-based approaches the particular characteristics of input are crucial, but so is the interaction between the input and the learner’s current system.

Two different types of patterns are observed in language acquisition: a building-up process, whereby isolated words are combined into larger structures and a breaking-down process, whereby chunks of unanalysed language are broken down into smaller units. In the last decade the breaking-down process has received considerable attention and has been shown to be important for the foundation of creative language. In very early first language acquisition language learners make use of chunks, or low-scope slot-and-frame patterns (Pine & Lieven 1993, 1997; Pine, Lieven & Rowland 1998), for instance I’m gonna + V or where’s + N?

The use of chunks by L2 learners has a long research history and it has been argued that chunks provide a stepping stone into language development (see, for example discussions of holophrases (Corder 1973), prefabricated routines and patterns (Hakuta 1974), formulaic speech (Wong Fillmore 1976), memorized sentences and lexicalised stems (Pawley & Syder 1983), formulae (R. Ellis 1994), sequences (N. Ellis 1996, 2002)). Nattinger (1980) observed in his study of L2 learners of English that, during a long time, language production reflected a piecing together of ready-made units appropriate to a situation.
Chunking plays a major role in many models of implicit learning (Cleeremans & McClelland 1991; MacWhinney 2008) and provides understanding of processes in both first (Lieven 2008; Lieven & Tomasello 2008) and second (N. Ellis 1996, 2003) languages. Chunking can be seen, in some respects, as the learner’s use of frequency of both type and token in the input. Lieven (2008) outlines the crucial distinction between token and type frequency developed by Bybee (1995) to account for historical changes in inflectional morphology. Tokens are the actual occurrences of words (want, wants, wanted) or constructions (where’s daddy, where’s mommy?) and types refer to the lexeme (WANT) or the construction (Where’s + N?).

Encountering a given word, particularly a verb, in different contexts can facilitate its acquisition (Lederer, Gleitman & Gleitman 1995; Naigles, Fowler & Helm, 1995; Rispoli 1995; Braine & Brooks 1995; Maratsos & Deák 1995). In a similar way Lieven (2008) and Lieven & Tomasello (2008) argue that experience with the same construction with variable components entrenches the construction. As the learner encounters and produces different items in the same frame, s/he constructs the generalisation that within the same construction different items may serve the same function (Lieven & Tomasello 2008: 174).

Through the use of chunks, the learner retrieves wholes or automatic sequences from long-term memory and thus minimizes the amount of morphological and clause-internal work. This provides the learner with more time to attend to other tasks in the conversation, including planning of a next utterance or larger units of discourse (Pawley & Syder 1983: 192). Chunks are extracted from the input and entrenched in the learner’s output and thus, it is argued, they scaffold both comprehension and production.

5. Methods of lexical assessment

In L1 studies one can distinguish between two major types of methods for the assessment of early vocabulary development: parental questionnaires and the analysis of spontaneous speech. The advantage of parental questionnaires over spontaneous speech is that the lexical items observed do not depend on one particular moment in a child’s life. On the other hand, spontaneous data avoid bias related to parents’ subjectivity and are more ecological in the sense that they allow the analysis of linguistic items in their linguistic and extralinguistic environments. Spontaneous data, then, provide more information about the knowledge of particular items a child uses. The parental questionnaire is built upon the assumption that parents are good evaluators of their child’s
vocabulary knowledge. Few studies have actually documented the reliability of parental reports by systematically comparing results obtained by parental reports with those observed in spontaneous data (see, however, Dale 1991; Thai, Jackson-Maldonado & Acosta 2000; Salerni, Assanelli, D’Odorico & Rossi 2007). The few studies that do exist, however, report high reliability. Parental reports are used essentially in the investigation of very early language development. For children over 3 years of age, spontaneous speech is analysed and vocabulary is assessed through measures of lexical density or lexical diversity. The most reliable calculation method recognized for lexical diversity is the VOCD (VOCabulary Diversity, Richards & Malvern 1997; McKee, Malvern & Richards 2000). A number of experimental paradigms have also been developed to examine lexical learning abilities in young children (e.g. Clark 2009; Liitschwager & Markman 1994; Markman 1989, 1992, 1994a,b; Markman & Hutchinson 1984; Woodward & Markman 1997).

Despite considerable efforts to gather data under ecological conditions (Perdue 1984), research in naturalistic/spontaneous L2 lexical acquisition is still in its infancy. Assessment methods in adult L2 focus on vocabulary size, as this measure has been recognized as a reliable indicator of language proficiency. Two major approaches can be identified: questionnaires or analyses of lexical diversity in elicited text production. The methods for measuring lexical diversity in L1 and L2 research are essentially the same. Methods for studying vocabulary size, however, differ. To evaluate vocabulary size in L2, two types of techniques have been widely used: multiple choice questionnaires and lexical decision tasks, the latter being argued as more reliable given that the number of items presented in one session can be increased. Kempe & MacWhinney (1996) report on Anderson & Freebody (1983) who compare the results obtained using a lexical decision task in which L1 subjects were asked whether a word was familiar or not with those obtained using a multiple choice vocabulary test in which subjects were asked to choose between different meanings. The authors report a strong correlation between the two tests and show that subjects were more likely to really know the meaning of words which were indicated as familiar in the lexical decision test than they were to know the meanings of words for which they selected the correct alternative in the multiple choice test. Meara, Milton and collaborators (Meara & Buxton 1987; Meara & Milton 2003) have been developing similar vocabulary assessment instruments for L2 (see also Alderson 2005). Most of the instruments available for assessing L2 lexicons in teenagers and adults are based on the written form of words but some attempts have been made to take into account the spoken modality (Milton & Hopkins 2006).
A major issue in lexical assessment is how to measure depth of vocabulary knowledge. There is much more about a word to acquire than just the association of a form to a meaning, including for example, knowledge about morphological inflexions and derivations, syntactic function, syntactic construction, register, as well as knowledge about how to use the word appropriately. Initiatives have been conducted to test the depth of vocabulary knowledge, but there is much less consensus concerning the assessment of depth than there is concerning the assessment of vocabulary size. There is, however, a general agreement concerning the fact that one cannot test all aspects of word knowledge.

Some of the tests proposed are built upon the concept of word associations (Read 1993, 1998, cited in Read 2007): L2 learners are given a target word and six or eight other words (half of them are semantically or collocational related to the target word) and are asked to associate them. Other measures of deep word knowledge combine self evaluation as well as word knowledge evidenced by synonyms or use in a sentence (Paribakht & Wesche 1997; Joe 1998; Zareva, Schwanenflugel & Nikolova 2005 cited in Read 2007).

6. Conclusion

Our comparison of lexical acquisition in L1 and L2 learners has attempted to outline how language learning is the same or different in the two situations. L1 learners are obliged to discover the world at the same time as they are discovering how to talk about the world. In this respect, adult L2 learners have a cognitive advantage in that they know what languages and grammars do and they know how their first language maps out the world. L2 learners, however, must discover the specificities of how the target language maps meaning onto words, which can either correspond or not to the L1. Infant L1 learners begin the process of extraction of word forms from an ongoing speech signal without initially searching for meaning. L2 learners search for meaning from the beginning. Infant L1 learners set the features which are relevant for prosodic bootstrapping into their language based on countless hours of exposure. L2 learners not only have to discover the features relevant for segmenting the target language but also have to inhibit the prosodic bootstrapping mechanisms set by their first language based on much less auditory experience.

However, both L1 and L2 learners build language based on particular utterances in particular contexts. Usage-based approaches to language development offer new and interesting questions that we hope will inspire more collaboration between research in L1 and L2 acquisition.
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Résumé

Cet article passe en revue des travaux sur l’acquisition du lexique d’une langue première et d’une langue seconde afin de mettre en évidence ce qui les rapproche et ce qui les distingue. Après une brève discussion des différences concernant l’input, nous abordons les premiers stades du développement lexical en considérant à la fois les différences de rythmes d’acquisition ainsi que les raisons qui pourraient rendre compte d’un développement plus efficace en L1 qu’en L2. Nous discutons le statut des représentations phonologiques et le rôle qu’elles jouent dans l’extraction des unités dans le flux de parole. Ensuite nous abordons la question des unités non analysées qui nous semblent jouer le même rôle de ‘porte d’entrée’ dans la langue en L1 comme en L2. Nous récapitulons enfin les méthodes qui permettent d’évaluer le lexique en L1 et L2.