

Trends in Language Acquisition Research

Official publication of the International Association
for the Study of Child Language (IASCL).

IASCL website: <http://atila-www.uia.ac.be/IASCL>

Series Editors

Annick De Houwer

annick.dehouwer@ua.ac.be

University of Antwerp/UIA

Steven Gillis

steven.gillis@ua.ac.be

University of Antwerp/UIA

Trends in Bilingual Acquisition

Edited by

Jason Cenoz

University of the Basque Country

Fred Genesee

McGill University

Volume 1

Trends in Bilingual Acquisition

Edited by Jason Cenoz and Fred Genesee

John Benjamins Publishing Company
Amsterdam / Philadelphia

Appendix 2. Percentages and frequencies (in parentheses) of strategies by age group for language-based and other breakdowns

Strategy	Language-based	Other	Total (freq.)
3-year-olds			
Translation	17.1 % (56)	1.7 % (2)	58
Other lg. change	7.3 % (24)	0	24
Repetition	12.5 % (41)	30.5 % (36)	77
Reformulation	18.0 % (59)	50.0 % (59)	118
Gestures	4.6 % (15)	4.2 % (5)	20
Subject change	3.7 % (12)	1.7 % (2)	14
No response	24.7 % (81)	7.6 % (9)	90
Inappropriate lg. change	4.9 % (16)	N/A*	16
Other strategies**	7.3 % (24)	4.2 % (5)	29
<i>Total</i>	100 % (328)	100 % (118)	446
5-year-olds			
Translation	12.1 % (4)	1.5 % (1)	5
Other lan. change	0	0	0
Repetition	12.1 % (4)	37.9 % (25)	29
Reformulation	15.2 % (5)	54.5 % (36)	41
Gestures	3.0 % (1)	1.5 % (1)	2
Subject change	3.0 % (1)	1.5 % (1)	2
No response	15.2 % (5)	1.5 % (1)	6
Inappropriate lg. change	0	N/A*	0
Other strategies**	39.4 % (13)	1.5 % (1)	14
<i>Total</i>	100 % (33)	100 % (66)	99

* For "other" breakdowns, Translation and Inappropriate language change are the same thing.

** Other strategies: Low-frequency strategies such as Yes/No, Asking for help, Changing the pronoun-cation, and all possible combinations of two or more strategies.

Last words

Brian MacWhinney

The study of childhood bilingualism has made rapid advances in recent years. This progress is being driven by work in three major traditions, each of which is reflected in this volume. One tradition views bilingualism through the eyes of the sociolinguist trying to understand how the child learns to select, mix, and switch between languages on the basis of the social situation and the abilities of the interlocutors. A second tradition views bilingualism through the eyes of the psycholinguist who wants to understand how the young bilingual manages to keep languages separate in terms of their formal structures. A third tradition, which is the newest of the three, views bilingualism through the eyes of the infancy researcher who sees bilingualism as a searchlight that illuminates the perceptual, motor, and cognitive capacities of the infant.

The current volume invites the reader to develop a new view of emergent bilingualism by bringing these three traditions together. The chapters themselves do not produce a unified view. Rather, the unification is left as an assignment to the reader; and it is an assignment very much worth completing. The issue that lies at the core of this unification is the problem of language differentiation. The chapters in this volume are unanimous in their rejection of the idea (Volterra and Taeschner 1978) that the bilingual child begins with a single undifferentiated language. However, the reasons for rejecting this hypothesis are as various as the perspectives of each of the authors.

When we look at this issue from the viewpoint of the infancy researchers, the idea that the infant raised in a bilingual environment would operate with an undifferentiated auditory system seems singularly unlikely. For example, the studies of Bosch and Sebastián-Galles argue in favor of strong perceptual differentiation between languages in the first few months of life. If a fairly high level of language differentiation can be achieved at such a young age, it would seem strange to imagine that languages would be undifferentiated at age 3. We know from studies with monolinguals (Babrick and Pickens 1988; Mehler, Jusczyk, Lambertz, Halsted, Bertoni and Aniel-Tison 1988) that two months

olds prefer to listen to their native language, rather than a very different foreign language. More recent studies indicate that this preference is present just after birth (Moon, Cooper and Fifer 1993), and that it is largely grounded on the use of prosodic cues (Dehaene-Lambertz and Houston 1998). The fact that prosodic cues are central to the early preference for L1 is important for two reasons. First, it leaves open the possibility that these preferences are acquired inside the womb when listening to the rhythm of the mother's voice, since prosodic characteristics of speech transmit through the amniotic fluid better than segmental characteristics. Second, it means that research on bilingual infants must pay careful attention to prosodic differences between languages.

Unfortunately, the researcher's job of nailing down the perceptual basis of language differentiation in bilingual infants is more difficult technically than the parallel problem for monolinguals. When working with bilinguals, it is important to control the distance between the two native languages in terms of prosody, phonetic features, and the segmental inventory. We know that, by about 5 months, monolinguals can begin to differentiate their native language from a prosodically similar foreign language (Nazzi, Juszyk and Johnson 2000), and that they can also discriminate between two prosodically similar foreign languages. Using the combined training and preference paradigm that has been used in much recent work (de Boysson-Bardies 1999), Bosch and Sebastián-Galles show that bilingual infants can distinguish two native languages as similar prosodically as Spanish and Catalan.

When Bosch and Sebastián-Galles (1997a) relied on an eye-movement latency measure, rather than their current training-plus-preference method, they found slightly different results. In that study, monolingual four-month-olds oriented more quickly to their native language than to a foreign language. For bilinguals, the reverse was true, since they oriented more quickly to sounds in the unfamiliar, novel language. Concerned that this effect might represent a transient period for the bilinguals, the authors then replicated the study with six-month-olds and found, perhaps to their surprise, the same effect. They seem at a loss to explain the results from these two different paradigms. However, it seems to me that the results are not as puzzling as they suggest. In the training-plus-preference method, the infants are being habituated to the language of the training set. If they then show a novelty preference during testing, this probably reflects more the special characteristics of this procedure than everyday, natural mechanisms. However, using this procedure we find that bilinguals can discriminate between languages as well as monolinguals. The eye-movement latency procedure measures reactions more

directly. In this case, bilingual children are illustrating the fact that they have learned not to ignore interesting new linguistic stimuli. Because they are being faced daily with important discriminations, they tend to orient to new materials more than monolinguals, who are learning to simply ignore certain signals as irrelevant to their language learning (Werker 1995). For our present purposes, what is important here is not the fact that bilinguals can behave differently in certain tasks, but that both monolinguals and bilinguals show clear and early auditory discrimination between languages.

When we turn to the literature on early babbling, the picture is somewhat different. In that area, it is often assumed that the child produces babbling without attention to the exact form of the native language. The fact that deaf children babble normally up to six months (Lenneberg 1967; Oller 1991) suggests that early babbling may not be tightly coupled to audition (Oller and Eilers 1988). This initial decoupling may explain why *babbling drift* during the first year is relatively difficult to quantify (Atkinson, MacWhinney and Stoel 1970). Recent work has attempted to specify some parameters of drift (de Boysson-Bardies and Vihman 1991). However, the trends identified so far are statistically weak and many of the differences are confined to overall prosodic characteristics (Whalen, Levitt and Wang 1991). Given the weakness of the monolingual evidence for babbling drift, it is not surprising that Poulin-Dubois and Goodz found that French-English bilingual infants showed no clear language-based differentiation when babbling in the company of the French-speaking parent vs. the English-speaking parent. Moreover, they found that the children tended to favor French patterns over English patterns in their babbling. Since 10 of the 12 children had French-speaking mothers, this is not a surprising result. But the authors note that there is another, more interesting, account of these results. This is that the children found the syllable timing of French more to their liking and used it more as a model for their babbling.

Research on early speech perception by monolingual children provides much clearer evidence for language discrimination and differentiation than does research on early babbling. This is not a problem for views that emphasize early differentiation, since advances in comprehension are typically viewed as driving later advances in production. But should we not expect some form of differentiation in production as the child begins to produce the first words? To further explore this issue, we need to turn to the second major tradition represented in this volume, the sociolinguistic tradition that examines the child's use of languages in context. Perhaps the most foreful spokesperson for this tradition is Lanza who outlines the view that socialization of the bilingual

occurs in an interactive, contextualized, and sequential discourse process. Specifically, she argues that parents respond to children's language mixing with one of five possible strategies: minimal grasp, expressed guess, repetition, move-on, and code-switching. By selecting one of these options, the child and the parent co-construct a unique bilingual environment. This co-construction begins with the child's first words and continues throughout the years of language acquisition. As Lanza notes, even children growing up in a one-parent-one-language environment learn subtle patterns of code-switching, as evidenced by her case study of a Norwegian-English child bilingual.

Lanza's analysis underscores the extent to which child bilinguals are receiving input that strengthens both differentiation and mixing at the same time. They are taught a rich set of expectations for using a particular code, acceptable ways of mixing codes, methods for negotiating code selection, and ways of expressing communicative failure. Parents are able to socialize children into these expected behaviors without interfering with basic communication. Sometimes these patterns are fairly subtle. For example, both Nicoladis and Genesee (1998) and Lanza were unable to detect a direct relation between parental use of the five proposed discourse strategies and mixing rate. However, when children are observed more closely and across a wider developmental period, these relations emerge more clearly. The chapter by Comreau and Genesee further underscores the extent to which child bilinguals have achieved a high level of control of language switching, particularly in the context of communicative breakdowns. In this way, the child can use knowledge about the pragmatics of code-switching to compensate for early deficits in lexical or syntactic knowledge.

The emphasis in the chapters by Lanza and Comreau and Genesee on the smooth acquisition of a sophisticated ability to switch codes tends to mask the existence of an early period in language acquisition at which code-switching is less adequately controlled (Köppe 1997; Nicoladis and Genesee 1996). During the first months of productive language use, children are happy that they can produce any words at all. At this time, they may implicitly recognize the provenance of their first words, but lack the ability to avoid code-switching and inappropriate code usage. This early blending could be misinterpreted as evidence for incomplete differentiation or as evidence of ignorance of the importance of code selection. But it would be better to interpret these early errors as signs of incomplete language learning. The trilingual child studied by Quay faced an even more complex challenge that he resolved by speaking primarily in Japanese and passively comprehending input in German and

English. Here, again, we see that the cognitive complexity of the first stages of language learning makes it difficult for the child to show complete control of all of the input languages from the very beginning. But this does not mean that the child fails to differentiate languages in the second year.

The evidence from both infant perception and early bilingual socialization supports a view of the child as working with a well-differentiated set of codes. At the same time, the child's mastery of the adult target languages remains highly incomplete. These gaps and ambiguities in knowledge drive the processes of language transfer and mixing that have been detected in later years (Döpke 2000; Hulk and Müller in press). Given the extent to which the child has achieved differentiation in audition and language use, it is almost surprising to see that there is still a debate regarding language differentiation in syntax. At first glance, it might seem as if the early fusion hypothesis is being used as a straw man to motivate specific further analyses. However, the issue is deeper than this. The problem in the area of grammatical development, as reflected in the chapter by Meisel, is figuring out how to treat cross-language influences in the context of a differentiated system. Meisel argues convincingly that children use language-specific patterns in early multi-word utterances. This claim matches up well with cross-linguistic comprehension and production data collected in the framework of the Competition Model (MacWhinney and Bates 1989). Meisel contrasts his early differentiation analysis with the early fusion analysis of Deuchar and Quay (1998) and Deuchar (1999). Although Meisel accepts the data which Deuchar and Quay present, he is unwilling to accept their suggestion that the child is using a "rudimentary syntax, based on a predicate-argument structure".

Meisel criticizes the Deuchar-Quay approach as formally vague. However, the notion of predicate-argument structure they are using is one of the most basic and well-defined concepts in all of logic and automata theory. It is a core concept underlying categorical grammar, Montague grammar, and word grammar. Perhaps Meisel is linking the Deuchar and Quay analysis with the older and much less useful (MacWhinney 1975) concept of topic-comment structure. However, the Deuchar-Quay proposal should be viewed in its own light as emphasizing the role of item-based patterns (MacWhinney 1982). In this light, the predicate-argument structure that obtains between *más* or *more* and its nucleus is nothing more than an item-based predicate argument structure of the type outlined by MacWhinney (1975, 1982) and by Serratrice in this volume.

In her analysis of verb morphology in an English-Italian bilingual, Serratrice argues that the child begins learning aspectual marking and subject-

verb agreement by acquiring individual constructions without analysis from the adult input. For example, the child might say *That's a cat* without really controlling subject-verb agreement productively. The *that's a X* form is used in a limited, constructional way and not composed from its pieces. As a result, there are few errors in English verb morphology, but also little productivity. On the other hand, this rigidity leads to many errors of omission. In Italian, the child is also learning verbs in a case-by-case way, although the forms are in advance of parallel forms in English. Although Serratrice believes that conservative, word-based acquisition is at the core of initial learning, she recognizes that, with advancing competence and the learning of path-breaking verbs, there is increasing productivity and generality in the verb morphology system. Although her research shows clearly that Italian leads English in this regard, it is not clear whether this lead-lag relation between Italian and English results in changes to the pattern of English development in this child.

Idiazabal and Almgren provide further support for the input-driven nature of early verb acquisition. In their study, the focus is on the treatment of aspectual and tense marking in Spanish and Basque. They find that, in their Basque-Spanish bilingual, the earliest Spanish past tenses are in the imperfect. This pattern is unlike that found in Spanish monolinguals, where the preterite typically precedes the imperfect. However, it appears that this preference for the imperfective in Spanish is driven by the fact that M.'s father used large numbers of imperfectives in story telling. When the perfective enters, it is used to describe real events. In Basque, on the contrary, there are few examples of past tense verb forms referring to pretend activities. This appears to reflect the fact that the Basque input to the bilingual child emphasized the use of the perfective. Thus, it appears that statistical features of the bilingual input can deviate from and override features of the standard monolingual input.

As the bilingual child acquires increasingly complex grammars in the two languages, the period of early item-based patterns gives way to a period of syntactic transfer, bootstrapping, lead-lag patterns, and interaction (Gawlitzeck-Maiwald and Tracy 1996; Hulk and Müller in press; Döpke 2000). Meisel questions this line of research by casting doubt either on the nature of the subjects, the analyses, or the grammatical theory being utilized. In order to evaluate Meisel's interpretations of these issues, readers will want to read the original reports. Ideally, they would also like to match up the published literature with the original transcript data in order to better understand the relative frequency of specific types of cross-language interactions. This level of analysis is important, because many of the issues here depend on the ways in

which specific structures are coded and counted. For example, transfer phenomena could well be interpreted as errors, unless their frequency is impressively large and their distribution theoretically predicted. To fully evaluate these issues, additional comparisons based on the raw data will be needed. This type of analysis will become possible when more of the relevant data are made publicly available in the CHIILDES database (MacWhinney 2000).

So far, we have contrasted work from three very different traditions, all directed toward the central issue of language differentiation. Work on early audition shows that the infant is able to differentiate codes perceptually in the first months. When the child comes to learn the first words, they are already differentiated in prosodic and segmental terms. However, syntactic development is at first highly conservative and lexically based. Until syntactic patterns become more general, there may be little evidence for rampant overgeneralization. This does not mean that the two codes are mixed, only that they remain lexically based and not yet capable of strong syntactic transfer. As syntactic patterns grow in strength, we begin to see evidence for language mixing. However, this mixing is further shaped and controlled by interactional processes modeled by the parents and other adults.

As these details begin to sort themselves out, I believe that work on child bilingualism will move in new directions. One promising application is the use of child bilingualism as a way of informing our theories of monolingual acquisition. For example, bilingual children have provided us with clear evidence that children can cheerfully violate the mutual exclusivity constraint (Markman 1989) by accepting two names for a single object (Au and Glusman 1990; Davidson, Jergovic, Imami and Theodos 1997; McClure 1997). Bilingual children have helped illuminate the relative strength or markedness of phonological processes (Deuchar and Clark 1996; Faingold 1996; Zlatic, MacNellage, Matyear and Davis 1997) and morphological devices (De Houwer 1990; Klinge 1990; De Houwer 1997; Sinka and Schelleter 1998). Bilingual children can also help us understand how word segmentation strategies interact with different prosodic structures. Poulin-Dubois and Goodz (this volume) have suggested that French-English bilingual children may prefer the syllable-timed structures of French as models for early babbling. The study by Nicoladis constructs a similar type of analysis for early segmentation and word learning. Nicoladis focuses on the fact that English tends to place mostly nouns in sentence-final position, whereas Portuguese presents the child with nouns, verbs, and other forms in this same position. If the child is strongly biased to acquire nouns from final position, as Tardif, Shatz, and Naigles (1997) have argued, then

Nicoladis' young English-Portuguese bilingual Carlo should have acquired relatively more nouns in English than in Portuguese. In fact, this is not what happened at all. Actually, Carlo learned more nouns than verbs in both English and Portuguese. This indicates that the child was basically set to learn nouns. However, it may well have been the case that his acquisition of English was speeded by the fact that the words he wanted to learn appeared in a position that made them easy to spot and learn. Although the results of this single case study are far from definitive, they show how bilinguals help illuminate core processes in language learning. In the case investigated by Nicoladis, further comparisons would need to compare languages such as Korean and English that treat verbs in markedly different ways. Of course, finding balanced bilingual children who speak exactly the correct combination of languages is no easy matter. However, the logic of such comparisons is quite powerful.

Returning to the issues with which we began, we see how the perspectives of infant perception, socialization, and grammatical analysis have enriched our ideas about language differentiation. We now see the bilingual child as working with two complex systems that are clearly distinguishable, but which interact in important ways. We also see that studies of children learning two languages of markedly different structure can shed light on basic issues in language processing. We can look to ongoing developments in the study of child bilingualism as a way of further explicating the nature of language learning, social interactions, and the human mind.

References

- Aarsen, J., Akinçi, M.-A., Yagmur, K. 2001. "Development of Turkish clause linkage in narrative texts. A comparison of bilingual children in Australia, France and the Netherlands." In *Research on Child Language Acquisition*, M. Almgren, A. Barreña, M.-J. Ezeizabarrena, I. Idiazabal and B. MacWhinney (eds.), 41-56. Somerville, MA: Cascadia Press.
- Abercrombie, D. 1967. *Elements of General Phonetics*. Edinburgh: Edinburgh University Press.
- Aguirre, C. 1995. *La adquisición de las categorías gramaticales del español*. Ph.D. Dissertation, Autonomous University of Madrid.
- Alkhat, N. 1999. "Acquiring basic word order: Evidence for data-driven learning of syntactic structure." *Journal of Child Language* 26: 339-56.
- and Tomasello, M. 1997. "Young children's productivity with word order and verb morphology." *Developmental Psychology* 33: 952-65.
- Akinçi, M.-A. 2001. "Development of perspective in narrative texts of Turkish-French bilingual children in France." In *Research on Child Language Acquisition*, M. Almgren, A. Barreña, M.-J. Ezeizabarrena, I. Idiazabal and B. MacWhinney (eds.), 55-77. Somerville, MA: Cascadia Press.
- Aksu-Koç, A. 1988. *The Acquisition of Aspect and Modality. The Case of Past References in Turkish*. Cambridge: Cambridge University Press.
- Aldridge, M. 1989. *The Acquisition of INFL*. Bloomington: Indiana University Linguistics Club Publications.
- Allen, S. E. M. 1996. *Aspects of Argument Structure Acquisition in Inuktitut*. Amsterdam: John Benjamins.
- Andersen, R. W. 1989. "La Adquisición de la Morfología Verbal." *Linguística* 1: 90-142.
- Antelmi, D. 1997. *La Prima Grammatica dell'Italiano: Indagine Longitudinale sull'Acquisizione della Morfosintassi Italiana*. Bologna: Il Mulino.
- Tomasello, M. and Acunzo, M. 1986. "Young children's responses to neutral and specific contingent queries." *Journal of Child Language* 13: 135-44.
- Antinucci, F. and Miller, R. 1976. "How children talk about what happened." *Journal of Child Language* 3: 167-90.
- Arnberg, L. 1987. *Raising Children Bilingually: The Pre-school Years*. Clevedon, Avon: Multilingual Matters.
- Atkinson, K., MacWhinney, B. and Stoel, C. 1970. "An experiment on the recognition of babbling." *Papers and Reports on Child Language Development* 5: 1-8.
- Au, T. K. and Glusman, M. 1990. "The principle of mutual exclusivity in word learning: To honor or not to honor?" *Child Development* 61: 1474-90.
- Dapretto, M. and Song, Y.-K. 1994. "Input vs constraints: Early word acquisition in Korean and English." *Journal of Memory and Language* 33: 567-82.