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Jacques Mehler's early psycholinguistic days in Paris☆

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ABSTRACT

This article first describes Jacques Mehler's initial efforts to make psycholinguistics and, more generally, the cognitive sciences better known during his first years in Paris. Two lines of research on sentence perception, that we conducted in collaboration with Jacques, are then presented to illustrate his focus. In the Seventies, sentence perception was a central topic in psycholinguistics, with contrasting proposals of syntactic autonomy and interactivity being confronted. A first series of experiments aimed at defining the role of syntax in lexical selection process as revealed by the rapid serial visual presentation (RSVP) of the words in a sentence. The second series, using the phoneme monitoring technique, examined the clause as a processing unit during the auditory perception of sentences. These results confirm the fundamental role played by syntax in language processing.

Jacques Mehler arrived in France at the end of 1967 as the first representative to Europe of the "golden generation" of Chomskian psycholinguists, which included George Miller, his thesis advisor, as well as his colleagues Tom Bever, Jerry Fodor and Merrill Garrett. Jacques devoted a large portion of his early years in France to promoting and disseminating this approach to psycholinguistics and to Cognitive Science in general. At the time very few psychologists were conducting psycholinguistic research using the Transformational Generative Grammar (TGG) model, and those few were mainly at the Laboratoire de Psychologie Expérimentale in Paris. It was in collaboration with Juan Segui from this laboratory that Jacques carried out his first experimental studies in Paris.

Our goal here is to summarize Jacques' diverse activities after his arrival in France, and then to describe some of the research he conducted and his experimental methods. In particular, we will focus on his less well-known research on sentence processing on which we were fortunate enough to collaborate.

Jacques started out in Paris as a CNRS researcher in François Bresson's laboratory at the Maison des Sciences de l'Homme (MSH). François Bresson, Directeur d'études at the École Pratique des Hautes Etudes, had been instrumental in attracting Jacques to Paris. As early as 1965, François Bresson had written one of the first texts in French describing generative grammar in a well-known treatise on experimental psychology (Fraisse & Piaget, 1965). In it (Bresson, 1965), he referred to Jacques's early research (Mehler, 1963) carried out on TGG at Harvard.

During his first few years in France, Jacques published several articles and also edited books and special issues. In particular, at the request of Nicolas Ruwet, who was one of its editors, Jacques guest-edited a special issue of the French journal, *Langages*, entitled "Psycholinguistics and Generative Grammar" at the end of 1969. This issue played an important role in introducing TGG to France. In the introduction Jacques outlined the main features of TGG and provided a critical analysis of its use in psycholinguistics (Mehler, 1969). The special issue also included French translations of many classic psycholinguistic articles by Noam Chomsky, George Miller, Jerry Fodor and others; it was aimed at providing the French research community with a better understanding of this new theoretical approach. It also contained a study conducted by Jacques (prior to his coming to France) and Peter Carey (Mehler and Carey, 1969) on the psychological reality of TGG in sentence perception. A few years later, in collaboration with Bénédicte de Boysson-Bardies, he wrote two lengthy articles in L'année Psychologique, on adult (Mehler & de Boysson-Bardies, 1971) and child (de Boysson-Bardies & Mehler, 1969) psycholinguistics.

In 1971, Jacques and François Bresson organized the first international colloquium to take place in Paris on psycholinguistics. This event was interdisciplinary, and it confronted clearly contrasting theoretical orientations, much to the delight of Jacques, who was a fervent advocate of scientific debate. The proceedings of this conference were published in 1974 and contained many important articles by authors, for example, Ursula Bellugi, Jean-Pierre Changeux, Herbert and Eve Clark, Ken Forster, Don Foss, Lila and Henry Gleitman, Ed Klima,

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Humberto Maturana, Dave McNeill, John Morton and Hermine Sinclair de Zwart. Jacques had the original idea of organizing a special evening for the participants of this conference. This was a theatrical performance by a brilliant Argentinean actor-author, Jorge Bonino, entitled "Bonino clarifies certain doubts". This performance was a lecture in an unusual invented language, a mixture of Spanish, French, English, Italian, German, and other languages. None of the words from these different languages was pronounced intelligibly. Surprisingly, Bonino's "message" gradually emerged from this flow of speech. Those who knew and in particular heard Jacques himself speak will not be surprised to learn how much this work fascinated him!

A few years later, in 1974, together with Georges Noizet, he edited a book somewhat soberly entitled "Texts for Psycholinguistics" (Mehler & Noizet, 1974). In their introductory chapter they examined the evolution of psycholinguistics and concluded by insisting on the importance of the biological bases of linguistic abilities. It is no coincidence that the first paper in this collection was that of Eric H. Lenneberg, entitled "The capacity for language acquisition".

The culmination of Jacques' early editorial activity came in 1972 with the creation, in collaboration with Tom Bever of Cognition, International Journal of Cognitive Psychology (later of Cognitive Science). It was to become one of the most important international journals in the field. He was its first Editor-in-Chief and continued to guide the journal until 2007, with the constant and indispensable collaboration of Susana Franck. Without her devoted support, this journal would not have developed into what it is now. During all those years the journal remained at the top of the citation index.

Between 1969 and 1976 Jacques also did a fair amount of teaching. He taught a seminar on psycholinguistics at the Linguistics Department of the Centre Universitaire Expérimental de Vincennes - University of Paris VIII - one of the main European centers working at the time on generative grammar. It is important to emphasize that, in total contrast with the strictly disciplinary and highly centralized organization of other French universities, Paris VIII - Vincennes was created following the "events" of May '68 and strongly favored a multidisciplinary approach. To this end it recruited teachers outside the ranks of its own staff, enabling Jacques to teach there. Furthermore, he also found colleagues with whom he shared ideas and was able to collaborate. It was within this institutional framework that Jacques taught psycholinguistics in the linguistics department, founded in 1968 by Jean-Claude Chevalier, Jean Dubois et Nicolas Ruwet. In fact, the first experimental paper (Barrière, Mehler, Ruwet, & Segui, 1974) published by Jacques in Paris was conducted in collaboration with Nicolas Ruwet, who was one of the founders of that department. From 1973 to 1975 and then again in 1977, Jacques also taught at the Université Libre de Bruxelles in Paul Bertelson's laboratory. Here he was instrumental in training several students who later became well-known psycholinguists including Jesus Alegria, Alain Content, Regine Kolinsky, Jacqueline Leybaert, José Morais, and Philippe Mousty.

In 1980, Jacques became Directeur de Recherches CNRS, and in 1982 he was appointed Directeur d'Etudes Cumulant at the Ecole des Hautes Etudes en Sciences Sociales. Given this new administrative status, he was then able to create the Laboratoire de Sciences Cognitives et Psycholinguistique under the aegis of both the CNRS and the EHESS. Within this framework he organized a weekly teaching seminar in which he created an extremely stimulating intellectual climate. Over the years, this seminar progressively attracted many outstanding students from different disciplines and institutions (EHESS, University of Paris, Ecole Normale Supérieure, Ecole Polytechnique, etc.). He also participated in the creation of the first Diplome d'Etudes Avancées in Cognitive Sciences at EHESS. In addition, Jacques's laboratory welcomed a large number of colleagues from different countries, making Paris an exceptionally attractive center for psycholinguistics and cognitive scientists from the world over. Among the colleagues who stayed for varying periods of time were: Gerald Altmann, Tom Bever, Luca Bonatti, Peter Carey, Susan Carey, Anne Cutler, Peter Eimas, Ken Forster, Merrill Garrett, Peter Jusczyk, John Morton, Marina Nespor, Marcela Pena, Mike Posner, Dave Premack, Nuria Sebastian, Tim Shallice, Mariano Sigman, Dan Slobin, Elisabeth Spelke, Dave Swinney, and Virginia Valian.

Jacques' greatest contribution to French cognitive science must certainly include the number of exceptional students trained in his laboratory over the years. He recruited some of the brightest students, primarily from the French 'Grandes Ecoles', who had strong mathematical backgrounds but absolutely no training in psychology, and turned them into die hard cognitive psychologists. Jacques knew how to challenge them and bring out the best in them. He immediately made them "get their hands dirty" by obliging them to unearth interesting problems and methodological approaches. They could not miss his famous journal clubs or avoid intense interaction on the white board. All this amounted to a very special form of training punctuated by moments of fun and good food. In a recent obituary for Jacques in the French newspaper, Le Monde, Stanislas Dehaene emphasized that a great many of the researchers working in cognitive neuroscience in France today were trained by Jacques.

After his retirement from the CNRS and the Ecole des Hautes Etudes in 2001, Jacques continued his research career at the Scuola Internazionale Superior de Studi Avanzati (SISSA) in Trieste, Italy. He had already been teaching there for some time and had participated in the Trieste Encounters in Cognitive Science as of 1989 so it was only natural that he continued in that institution. He rapidly set up the Language, Cognition and Development Laboratory where he was able to continue his work on infant cognition. A grant from the European Community Specific Targeted Research Projects (2005–2008) was particularly instrumental in allowing him to pursue his work on language acquisition in early infancy. With his new group he conducted his pioneering work in developmental cognitive neuroscience, continuing his work on bilingualism and language acquisition. A subsequent European Research Council grant (ERC) allowed him to pursue his research until he retired in 2016. In this context he trained a new generation of excellent students many of whom came from former Eastern bloc countries but also from the rest of Europe and North and South America. Several of them have now become well-known researchers in their own right. While in Trieste and with the help of the McDonnell Pugh Foundation he also organized summer schools to help create a support network for young investigators in Cognitive Science from his native Argentina and more broadly all of South America.

1. Some early experimental studies in Paris

As mentioned above, Jacques' early studies in adult psycholinguistics were inspired by Noam Chomsky's linguistic model of TGG and aimed at establishing the psychological reality of certain constructs derived from this model. In particular, when Jacques arrived in Paris in 1967, he defended the notion of transformations (Mehler, 1963) and the Derivational Theory of Complexity, whose investigation was one of the most exciting and ambitious scientific projects in cognitive psychology at the time. According to this theory, the more transformations involved in creating a sentence, the more complex the psychological processes involved in understanding or producing that sentence. In one of his first texts published in Paris, Jacques claimed that "The experiments described show quite clearly that one should accept the psychological reality of underlying structure, surface structure and transformation for all the processes involved in language use" (Mehler, 1968, p. 153). However, in the light of contradictory empirical evidence, Jacques eventually abandoned this approach in favor of a weaker theoretical position (Fodor, Bever, & Garrett, 1974) according to which only the structural descriptions proposed by the linguistic model have a psychological reality. Jacques considered that a vital task in psycholinguistics is to characterize how and on the basis of what type of information (lexical, syntactic, and semantic) these structures are computed in sentence processing. On this point, at the conference

organized by Jacques and François Bresson in Paris in 1971, Ken Forster (1974) presented the autonomy of syntax position, according to which only the syntactic properties of a sentence participate in the calculation of its internal structure. This view contrasted strikingly with the on-line interactive hypothesis (Marslen-Wilson & Tyler, 1975) according to which information at any one level (e.g., semantic) can influence decisions at any other (e.g., syntactic) level. It is in the context of this opposition between autonomous and interactive versions of syntactic processing that we collaborated with Jacques on the research we carried out in Paris in the late 1970s and early 1980's and which we briefly describe here. Given our theoretical stance, we were inclined towards autonomous levels of linguistic representation in which the syntactic level plays a central role in sentence processing.

In what follows, we present two strands of research using two different experimental techniques, the first employing the rapid serial visual presentation (RSVP) technique, developed by Ken Forster (1970) and the second involving phoneme monitoring, developed by Don Foss (1969). Although these relatively unknown studies addressed different issues related to sentence processing at the syntactic level, we thought it would be of interest to present them together here in honour of Jacques.

Note that Jacques was always eager to find the best suited experimental procedures and expended considerable energy on testing how well adapted they might be to address the then current theoretical issues. At this time, the inventory of on-line experimental techniques was still quite small. Moreover, these techniques had to be implemented on computers that were only just beginning to manipulate speech and run experiments. No turn-key packages for real-time experimentation or for speech manipulation were yet available. We remember well having invested long hours of “research” on the preparation of experiments. Jacques did not hesitate to be hands on and place “clicks” on the second channel of the then state-of-the-art Ampex tape recorders. It is noteworthy that Jacques' interest in experimental methods was not limited to adult psycholinguistics. He also made a considerable investment, from very early on, in new methods for studying speech perception in infants (e.g., the non-nutritive sucking technique).

In RSVP, the words of a sentence are presented in foveal vision one after the other at an extremely fast rate. The participant's task is to report the sentence or as many of its words as possible. Under these experimental conditions, individual words can be identified, but are not necessarily integrated in the response. Using this procedure, Forster (1970) had shown that the number of words reported by participants is significantly greater when these words are presented as a sentence rather than in a random order. He assumed that the number of words produced is a function of the extent to which the words in the sequence are selected and integrated in a syntactic structure.

Jacques was extremely interested in Forster's results and believed that this method would make it possible to gain a better understanding of the contribution of the different levels of language representation to sentence perception. Our point of departure was Forster's observation that adjectives and adverbs are less frequently reported than nouns and verbs under RSVP conditions. He attributed this difference to an initial perceptual strategy of lexical “selection” that gives priority to the encoding of words that are likely to be the key elements of the sentence (nouns and verbs) over the less central ones. Based on these results, we wanted to determine which syntactic and/or semantic information contributes to the initial selection process. To this end, Mehler, Segui, Pittet, and Barrière (1978) sought to determine whether the rate at which nouns and adjectives in a sentence are reported by participants depended on whether the adjective is part of a noun phrase (“grande” in “grande souris”, big mouse) or a compound noun (“chauve “in “chauve-souris”, bat). In the case of a compound noun, the adjective does not play its default role of modifier and its omission would significantly alter the meaning of one of the key elements in the sentence. If the sequence “chauve-souris” is correctly processed as a compound noun, the adjective “chauve” (bald) should be included in the participant's response. In contrast, if this sequence is assimilated to a nominal phrase, the adjective should generally be omitted.

The results of this initial research showed that adjectives are indeed reported less often than nouns, and this is true for both noun phrases and compound nouns. This result seemed to suggest that the adjective of the compound was processed as a modifier and then omitted in the participants' responses. In a control experiment, the difference in the reporting of nouns and adjectives was not observed for sentences in which the adjective played a major role (the adjective “warm” in “At the beach the sand is warm all day long”). This shows that it is not the syntactic category of words “per se” that determines their selection and inclusion in the response.

In order to interpret these results, we hypothesized that under the temporally constrained conditions of RSVP, the selection of words in a sentence is made depending on their potential syntactic role. This role is jointly determined by the syntactic category of the word and the syntactic context in which it is formulated. Thus, when an adjective immediately precedes or follows a noun, participants treat this sequence as a noun phrase and assign the adjective its default role of modifier. As a consequence, the adjective will tend not to be reported since it is not a key element. However, a subsequent experiment Frauenfelder, Dommergues, Mehler and Segui (1979) obtained different results when the omission of the adjective makes the sentence semantically anomalous, as in the sentence « Le soir, les chauves-souris survolent le grenier” -, “In the evening, bats fly over the attic”. Here participants generally reported the noun and the adjective of the compound noun together. This finding suggests that the process of selecting words in a sentence according to their potential syntactic role is subject to semantic constraints. When the lexical selection process gives rise to a semantically anomalous sentence this result is reassessed and revised, which leads to the production of the adjective in the participants' report. A control study subsequently showed that the presence of the adjective in the response to these semantically and pragmatically constrained sentences is not the result of simple guessing, but rather that of reanalysis or checking of the output of the lexical selection process.

To obtain a more on-line measurement and to simplify the participants' response, Segui, Dommergues, Frauenfelder and Mehler (1982) modified the classical RSVP procedure into a probe task. Here participants saw a noun or an adjective as a probe immediately after the RSVP sentence presentation and had to respond as quickly as possible whether this word probe was in the sentence or not. The results showed that the reaction times (RTs) were faster for nouns than for adjectives in the noun phrase, regardless of their congruent (“brown table”) or anomalous (“fast table”) nature. These results are consistent with those obtained previously in that they show that nouns are more accessible than adjectives. However, this difference disappeared when the words were presented in random order, highlighting the importance of syntactic context. The RTs obtained in these probe experiments are very close to those observed in a lexical decision task (about 700 ms) and are consistent with a perceptual locus of these effects. In a further experiment the presentation rate was varied. We observed greater differences between the RTs for adjectives and nouns as the presentation rate increased and the available time for lexical selection was decreased. Taken together, these results clearly demonstrate the central role played by syntactic regularities in the initial selection process. We concluded that they were consistent with an autonomous conception of language processing according to which lexical-semantic and syntactic parameters play independent roles in sentence perception.

It is worth noting that similar conclusions have been reached with a similar methodology about 40 years later. The so-called “sentence superiority effect” which was first reported by Cattell (1886) in the field of memory, was recently explored by Snell and Grainger (2017) using the Rapid Parallel Visual Presentation (RPVP) procedure combined with a post-cued partial report. Unlike the serial nature of sentence presentation in RSVP (one word after the other), words in RPVP are presented simultaneously on the screen and are preceded and followed by visual masks. In these experimental conditions, word identification

was more accurate when the words were presented in syntactically correct sequences than in scrambled ones. Importantly, this sentence superiority effect was obtained in conditions that minimized any potential role of semantic relatedness or predictability and also of memory. According to these authors RPVP reveals that sentence processing involves the rapid and early generation of a syntactic representation on the basis of partial information about the syntactic category of words and their syntactic context. While the theoretical accounts of these results differ considerably across the decades, the same basic behavioural pattern of early syntactic processing in the visual modality was observed.

Our other strand of research conducted with Jacques in the early days aimed to determine the nature of the syntactic units underlying the computation of sentence structure and meaning, this time in the auditory modality. This research was inspired by the traditional methods examining the importance of syntactic clauses to which Jacques had previously been exposed at Harvard. The original experimental approach to testing the psychological reality of these units involved the classic click migration procedure (Fodor et al., 1974). Here, participants first heard sentences accompanied by clicks placed in various locations and then had to indicate where in the sentence they had heard these clicks. These studies produced two main results: participants were better in locating the click when it was at major syntactic boundary, and they incorrectly located clicks in the direction of these boundaries.

At the end of the Sixties, in search of more precise information on the processing of syntactic units, researchers shifted from off-line to on-line methodologies, that is, from from testing perception of clicks only after sentence presentation to on-line click detection during sentence presentation. The dependent variable here was the time that participants took to detect an extraneous click while listening to a sentence. Interestingly, it was predicted that detection latencies would be faster at major syntactic boundaries than within clauses based on the results of the earlier click migration studies. These studies assumed a temporary processing lull at the major syntactic boundary and, therefore, more attentional resources would be available for click location and detection.

The first click detection studies were conducted by Abrams and Bever (1969) and Holmes and Forster (1970). The former found no RT effects due to clause boundaries, whereas Holmes and Forster (1970) obtained faster RTs for the clicks located at clause boundaries than those within clauses. These contradictory results raised questions about the appropriateness of click detection for studying sentence processing and led to search for other on-line methods.

One such alternative, phoneme monitoring, was developed by Donald Foss who was one of the first psycholinguists to insist upon the importance of focusing in on-line sentence processing (Foss, 1974). He proposed that phoneme detection latencies reflect the momentary processing load at various linguistic levels since this detection process shares limited processing resources with on-going sentence processing. Foss demonstrated that the phoneme detection latencies provide not only a real-time measurement of syntactic processing (Foss & Lynch, 1969) but are also influenced by other factors, such as the position of the phoneme target in the sentence (early versus late) or the frequency (high versus low) of the word immediately preceding the target word (Foss, 1969). Subsequently, further phoneme monitoring studies showed that other factors, including lexical properties of the target-bearing word as well as the prosodic context also influenced phoneme monitoring results. Jacques and his colleagues (Mehler, Segui, & Carey, 1978) also conducted research which examined the factors influencing phoneme detection latencies and showed that the length of the word immediately preceding the target-bearing word affected the RTs.

In our collaborative research with Jacques, we used the phoneme monitoring technique to test the clausal hypothesis using sentences containing relative clauses. These structures were ideally suited for studying the role of the clause in syntactic processing since they allowed us to keep the lexical context immediately preceding the target-bearing word identical. The only difference was in the vowel of their relative pronoun “que” and “qui”. More specifically, we tested two types of relative clauses: subject relative (1) and transposed object relative (2).

1. Le savant [qui connait le docteur) travaille dans une université moderne. The scientist [who knows the doctor] works in a modern university.
2. Le savant [que connait le docteur] travaille dans une université moderne dans une université The scientist [whom the doctor knows] works in a modern university.

We predicted that RTs to a target located just after the clause boundary of a transposed object relative would be longer than those after a subject relative clause. The word order of the former should lead to a greater processing load since the participant is likely to assign to its Noun-Verb-Noun sequence the incorrect interpretation Subject-Verb-Object and not the correct Object-Verb-Subject as proposed in the perceptual strategy account of Bever (1970). Finally, the difficulty of reversible transposed object relatives is increased since the contribution of semantic and pragmatic information to sentence processing is also eliminated.

In the first experiment, the targets were the initial phonemes (/t/) in the verb “travaille” which immediately followed the clause boundary. As predicted by a clause-based hypothesis, the results showed significantly slower detection latencies for the transposed object relatives (2) than for the subject relatives (1) after the clause boundary. To establish whether this increased processing load for object relatives observed after the clause boundary was also present earlier, that is, inside the relative clause, we used another target position (/d/ in “docteur”). Interestingly, no RT difference between the two types of relatives was found at the onset of the final word in the relative clause. These results are consistent with the predictions of the clausal processing hypothesis (Fodor et al., 1974) according to which the computation of the syntactic structure of a sentence is discontinuous, that is, delayed until the end of the clausal unit when all of the relevant syntactic information concerning the clause has been received.

In a second experiment, pragmatic-semantic information was introduced by testing semantically irreversible sentences with the same two types of relative clauses. Here, sentence meaning could potentially be derived on the sole basis of pragmatic-semantic information. Unlike with the reversible relatives, we observed no latency differences for targets located at the onset of the word coming immediately after the clause boundary of these irreversible relatives. Accordingly, the computational load observed after the clause boundary of reversible relatives and attributed to a syntactic computation disappears in presence of semantic information allowing the attribution of the respective subject and object roles in the relative clause. Several years later, Jacques, with his student, Laurent Cohen (Cohen & Mehler, 1996), conducted experiments which examined the same syntactic structures and even the same materials, but which used click rather than phoneme detection. Interestingly, they replicated all the main results of the earlier study by Frauenfelder, Segui, and Mehler (1980) for both target positions. Jacques continued to use the click detection technique successfully in later years looking into the problem of lexical segmentation with statistical computations (Gómez, Bion, & Mehler, 2011).

As noted above, the work presented here was conducted in the late Seventiess and early Eighties in the context of the theoretical frameworks and experimental paradigms of the time. Its main objective was to highlight the involvement of the syntactic organization of the sentences in language processing. The results obtained in these two sets of studies seem to us to have contributed to addressing this issue. The experiments conducted with RSVP revealed the implementation of specific syntactic strategies in the early phases of the generation of a structural representation of the sentence, while those obtained using phoneme monitoring demonstrated the psychological relevance of the

clause as a functional unit of analysis in sentence processing. These results indicate that syntactic information participated centrally at different phases of the sentence comprehension process; from the initial perceptual phase to the final attribution of a definitive meaning. This analytic approach taken to investigate the process of comprehension in our studies exemplifies Jacques' way of doing science.

2. Conclusion

Jacques Mehler worked hard to promote generative-inspired psycholinguistics and, more generally, cognitive science, in France and Europe. To this end he invested heavily in scientific meetings and publications. At the same time, he built up a laboratory with an excellent international reputation for its research and worked hard on both infant and adult psycholinguistics. Jacques also greatly valued his ties with the international scientific community and cultivated it all his life. In fact, many were not only colleagues but close friends with whom he remained in contact until he died. Nonetheless, it seems fair to say that Jacques' greatest contribution to science was two-fold: firstly through *Cognition*, International Journal of Cognitive Science, the journal he founded and which had had a particularly broad scope and large readership and secondly, through a whole generation of scientists he trained and who have all had exceptional careers.

Jacques pursued two research strands in adult psycholinguistics on which we collaborated between the mid-seventies and early eighties. This research was devoted to the study of the role of the syntax in sentence processing and language comprehension. Interestingly, starting at the beginning of the eighties, psycholinguistics witnessed a shift in research focus from the sentence level to both higher and lower levels of processing. At both of these levels, essentially the same issues were again being addressed concerning the autonomous versus interactive nature of linguistic processes at different levels. Our research with Jacques followed this evolution, and we left the field of sentence perception for the lexical and sub-lexical levels of processing in speech perception… and thus initiated the “Saga” of the syllable (Mehler, Dommergues, Frauenfelder, & Segui, 1981a).

In summary, at the time of our collaboration with Jacques, the problem of perception and comprehension of sentences was considered to be “the” central problem of the discipline. In the Annual Review of Psychology, Johnson-Laird (1974) stated “The fundamental problem of psycholinguistics is simple to formulate: what happens when we understand a sentence? “. While this question is indeed very simple to formulate, no generally accepted answer has yet emerged. Bever and Townsend (2001) stated that “The upshot of much of the last forty years since Mehler's dissertation is that comprehension involves assignment of syntactic representations. Any model of language understanding must take this into account” (p. 147). We believe that the research presented in this text and conducted in collaboration with Jacques more than forty years ago served to support this theoretical position.

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