LANGUAGE AND PERSON
STUDIES IN LANGUAGE BEHAVIOR[1]

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Starting with an interest in basic psychological processes, whose complexity is matched only by the difficulty of their study, we developed what seemed to us to be more appropriate research strategies—the so-called transpositional research—and forged a link between the acquisition of native-like second language pronunciation ability and certain personality constructs, such as empathy. From there we pursued over the years a line of inquiry that studied the influence of language on person and person on language. While engaging in this basic research we were able to reap incidental pay-offs in the several instruments we produced: the STP, MME and the MIGIT.

INTRODUCTION

Our research group, composed of psychologists, psychiatrists, linguists and psycholinguists, has been engaged for the past several years in the systematic study of certain personality constructs. Beginning with the publication of our Intuition Study in 1965 (Guiora et. al. 1965) we were concerned with what we called "comprehending modalities." "Faced with a variety of diagnostic and predictive clinical behaviors," we wrote, "which do not lend themselves to obvious understanding, we are hard put to provide meaningful formulations to explain these behaviors. In the literature dealing with psychological testing, the terms most often used to denote the meaningful grasp of less than obvious clinical data are inference and intuition, while in the literature dealing with

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psychotherapy and psychoanalysis the terms empathy and intuition are most frequently encountered. The overall impression is that these three terms are indeed intended to denote three different kinds of processes" (Guiora 1965:779).

Subsequently, our focus settled on one of these comprehending modalities, namely empathy. Empathy we defined as "a process of comprehending in which a temporary fusion of self-object boundaries, as in the earliest pattern of object relation, permits an immediate emotional apprehension of the affective experience of the other, this sensing being used by the cognitive functions to gain understanding of the other" (Guiora 1965:782).

Having proposed this definition we were faced with a rather serious methodological problem, one not unique to us, but confronted daily by scientists brought up in the empirical tradition: what is the best way, or ways, in which we can submit hypotheses emerging from the clinical circumstance to a systematic and critical examination that will yield lawful relationships between the observed phenomena, reliable and valid predictions about future events, and the results of which will lend themselves to public scrutiny? Clearly, one must realize that clinical research implies a systematic attempt to gain knowledge about human functioning in circumstances that are usually significantly different from those of the laboratory. The nature of the clinical setting imposes limits on both the freedom of data collection and on manipulation of subject populations.

A related but separate problem encountered in clinical research involves the difficulties of operationalizing and measuring personality constructs in general. The construct of empathy has proved particularly problematic in this regard. Recognizing the limitations of reductionist and analogue research strategies that are usually offered to alleviate the situation described above, we abandoned attempts to achieve better operationalizations. Instead, we tried to identify another realm of behavior where the phenomena first observed in the clinical situation could be assumed also to exist. This other realm of behavior, however, unlike the original clinical circumstance, would be such as to lend itself readily to the manipulation of variables and populations—to rigorous empirical research. We called this strategy *transpositional research* (Guiora 1970).

The realm of behavior selected for transposing the study of empathy was second language pronunciation. We hoped that if a connection between empathy and second language pronunciation

could be established, this finding could be applied back to the clinical situation.

Language and Empathy

Thus the initial phase of our research grew out of the idea that two superficially different kinds of phenomena, empathy, an internal psychological process, and pronunciation, an externally observable and thus more readily evaluable behavior, are directly related to each other. Empathy, perhaps most simply described as the ability to put oneself in another's shoes, has appeared under different names in virtually all fields concerned with human social behavior. Clinical psychology and psychiatry have viewed empathic ability as a prerequisite for successful psychotherapeutic practice. Developmental and social psychology as well as sociology have emphasized the importance of empathy, frequently referred to as person perception or role-taking, in the socialization of the individual. In linguistics and philosophy the concept that comes closest to reflecting some of our concerns is pragmatics. In very general terms pragmatics is that aspect of meaning which is concerned with the behavioral implications of an utterance for both speaker and hearer. Those studying the pragmatics of communication do not necessarily raise questions about the psychological processes underlying the relative success or appropriateness of an exchange. Whatever construct one uses, it is, we think, impossible to attempt to understand communication in depth without using some concept which takes into account the wealth of non-grammatical knowledge that human beings bring to bear on their communications with others.

The choice of authenticity of pronunciation as the realm of behavior for testing hypotheses about empathic capacity was based on the notion that both pronunciation ability and empathy are profoundly influenced by the same underlying processes, namely, permeability of ego boundaries. In order to sharpen the conceptual focus, a mediating construct, *language ego*, was recently introduced. Like the concept of body ego, language ego is a maturational concept and likewise refers to self-representation with physical outlines and firm boundaries (Guiora 1972).

The notion of boundaries is important. In the formative stages of development there is a state of flux: boundaries are more flexible, more easily permeated. Once ego development is concluded this flexibility is sharply restricted and there will be marked

individual differences later in the range of flexibility or plasticity of ego boundaries.

The implications of this for second language learning are clear. With pronunciation viewed as the core of language ego, and as the most critical contribution of language ego to self-representation, we see that the early flexibility of ego boundaries is reflected in the ease of assimilating native-like pronunciation by young children; the later reduced flexibility is reflected in the reduction of this ability in adults. At this point we can link empathy and pronunciation of a second language. As conceived here, both require a temporary relaxation of ego boundaries and thus a temporary modification of self-representation. Although psychology traditionally regards language performance as a cognitive-intellectual skill, we are concerned here with that particular aspect of language behavior that is most critically tied to self-representation.

Teachers of second languages have frequently observed that the ability to speak a new language authentically, that is, to assimilate or approximate native-like pronunciation, cannot be totally accounted for by the learner's intelligence, motivation or skill in language training. And it does not seem to be modified to any great extent by training or effort (Carroll et al. 1967).

Pronunciation, unlike the lexical and grammatical aspects of language learning, seems to have a developmental history all its own. While young children learn foreign languages with relative ease, around puberty their pronunciation skills seem to be dramatically reduced, although general language learning capability, lexical and grammatical skills etc. are not lost. Beyond this period it is almost impossible to acquire native-like pronunciation in a second language. Turning this around, we might say that it becomes impossible to lose totally one of the most salient identifying characteristics of any human being, a means by which we identify ourselves and are identified by others, namely, the way we sound.

A number of suggestions have been made in an attempt to explain the reduction in pronunciation skills at puberty. Scovel has argued that it may well be due to the completion of lateralization of the speech function (Scovel 1969). Sapon has suggested that progressive loss of flexibility of the speech organs may be the cause (Sapon 1952). Our argument here does not discount these or other factors, but emphasizes, rather, the influence of developmental, ego-psychological factors. While of course language is a universal human institution, ethnically or culturally defined com-

munities employ particular languages because of their particular social or cultural histories, and every individual talks in a particular way that is his own personal synthesis of the language material of the groups to which he belongs.

Thus, language has universal, cultural and personal aspects, which make it a fascinating meeting place of universal humanity and cultural diversity. At different times in the history of linguistics either its universality or its diversity has been the dominant interest; we are currently in a period of renewed interest in the universal aspects of language.

The various features which have been postulated as universals of language include on the one hand its purely formal aspects of design and structure and on the other its substantive aspects. These latter features seem to be directly related to universals of human physiology, psychology and communicative experience. It is obvious, for example, that all languages draw upon a particular restricted set of sounds, which are under constraints imposed by the anatomy and physiology of the human vocal tract. This is essentially the same for all human beings.

Within this universal set of possible language sounds each language has its own, fairly unique, set of sounds which are used meaningfully by its speakers. Each of the sounds in this meaningful set is used to differentiate a word from all the other words in that language. In English, for example, there is a set of stop consonants, such as those symbolized by the letters *b*, *d*, *g*, which are pronounced with some degree of vibration of the vocal cords, while their counterparts, symbolized by *p*, *t*, *k*, are not. Each of these sounds is meaningful because its distinctiveness makes it usable in differentiating words within the language. Because of the opposition between such sounds, *pit* is distinguished from *bit*, *tab* from *dab*, *cot*, from *got*, and so on. Speakers of all languages, however, have many sound variations in their inventories which are not used meaningfully. In American English, for example, speakers regularly insert a glottal stop at the beginning of the vowel "I." Inserting this sound conveys absolutely no linguistic information in the sense that differentiating between *p* and *b* does. Instead, it is part of a myriad of subtle pronunciation details which make these speakers sound like what they are, namely, native speakers of American English.

Likewise, the voiceless stop sounds *p*, *t*, *k*, have subtle pronunciation variations for speakers of American English. When they occur at the beginning of a stressed syllable, as in *par*, *tar*, *car*, they are followed by a noticeable puff of air, an aspiration;

consequently, there is a noticeable time lag before the voicing of the vowel begins. When these sounds are preceded by an *s*, however, as in *spar, star, scar*, they are pronounced without aspiration, so that the vowel follows the release of the stop with virtually no delay. In other languages such sounds behave differently. In French, for example, *p*, *t*, *k*, are not followed by aspiration even before stressed vowels.

Another example of language-specific utilization of a universal phonetic feature is the pitch of the voice. Whenever the vocal cords vibrate they generate a sound of specific frequency, which is perceived as a specific pitch. However, the utilization of such pitch changes varies from one language to another. In Mandarin Chinese, for example, there are four distinct pitch patterns, or "tones," which can be a feature of any syllable. Thus, the syllable *ma*, pronounced with each of the four tones (high level, high-rising, low fall-rising, falling) represents at least four distinct words (actually more than four, since there are many homophones in Chinese). Other languages (Thai, Vietnamese) use tones too, but the number and specific pitch patterns of these tones differ from those used in Mandarin Chinese. In English, by way of contrast, the meaningful pitch patterns, usually called "intonations," are characteristic not of words but of phrases or sentences. English speakers use pitch to change the functional meanings of whole sentences—to indicate statements, questions, commands, etc., or, on a quite different level, as involuntary manifestations of interest, joy, boredom, exasperation, etc. While other languages also make use of intonations, the specific pitch patterns used in the intonation of French or Russian, for instance, differ from those used in English.

Thus, superimposed upon the speech sounds of the words one chooses to utter are sounds which give the listener information about the speaker's identity. The listener can decide whether what one is saying is sincere or insincere. Ridicule the way I sound, my dialect, or my attempts at pronouncing French and you will have ridiculed me. Ask me to change the way I sound and you ask me to change myself. To speak a second language authentically is to take on a new identity. As with empathy, it is to step into a new and perhaps unfamiliar pair of shoes.

During the complex activity of talking many of the features we have been discussing go unnoticed. We may respond appropriately to meaningful oppositions, such as the difference between *p* or *b*, or to the difference between a questioning and a commanding intonation, but we do not normally give attention to the specific nature of the difference. As for meaningless articulatory

distinctions, such as the use of aspirated or unaspirated stops mentioned above, or the precise pitch changes which constitute the intonations of English and differentiate them from those, for example, of French, we are also usually quite unconscious of them. Even when speaking in a normal way, slowly and with careful enunciation, we do not attend to most of these minutiae of pronunciation. No doubt this is because they are too numerous. Details of pronunciation necessarily become a matter of habit, which leaves us free to concentrate on the matter, rather than the manner, of our utterances.

One of the goals in learning either a first or a second language is to make detailed pronunciation habitual. The minutiae of pronunciation are part of one's language identity and are what makes one identifiable by his speech patterns as an American, another as a Swede, and so on. Speaking the way we do reflects what we are, but in ways too subtle and too numerous for us to keep track of. Each one of us has a set of pronunciation habits which are invariable unless factors in our make-up can make us more flexible, unless we have the ability to step outside of our "language shoes" and expand our identity in some way. We hypothesized that this ability to shed our native pronunciation habits and temporarily adopt a different pronunciation is closely related to empathic capacity.

It was with this background that we constructed an instrument called "The Standard Thai Procedure" (Guiora, et. al. 1972). The Standard Thai Procedure (STP) was developed for the purpose of assessing second language pronunciation ability. For such an instrument to be maximally useful, it had to meet a number of important criteria. The basic requirement was that of appropriateness for use with almost any population regardless of age, education, etc. The next important consideration was that of the particular language to be chosen for use in the test. The choice of Thai as the test language was based on its general unfamiliarity to native speakers of English. In addition Thai appears to be relatively easy for English speakers to pronounce yet it has a number of sound features which make it distinctively different and quite distant from English. While a number of languages fit the above criteria, Thai was particularly attractive because of the availability, at The University of Michigan, of native speakers of Thai, able to evaluate pronunciation performance.

The STP consists of a master tape recording of 34 test items (ranging in length from 1 to 4 syllables) separated by a 4 second pause. The voicer is a female native Thai speaker. During testing

the master tape is played and a two-track tape recording is made, with the test stimuli recorded on one track and the subjects' responses on the other. The subject is instructed to listen carefully to each utterance and then to imitate it immediately afterward. Total testing time, including instructions is approximately 4-1/2 minutes.

The scoring procedure for the STP is currently under revision. The basic evaluation method involves rating tone, vowel and consonant quality for selected phonetic units on a scale of 1 (poor), 2 (fair), or 3 (native-like). Data tapes are rated independently by three native Thai speakers, trained in pronunciation evaluation. A distinct advantage of the STP as a test of pronunciation ability is that it can be used with naive subjects. It bypasses the necessity of first teaching subjects a second language.

One area where it has great potential use is the study of pronunciation abilities in young children. As has been noted, children can learn to speak a second language with native-like pronunciation up to about nine to twelve years of age; after this age this ability seriously decreases. No systematic investigation of this phenomenon has ever been undertaken, although it suggests several questions. Is this ability categorically present in children younger than nine to twelve, or is it developmental in nature? What is the relationship between the ability to produce sounds in one's own language, the latter being thought of as a developmental process culminating around the age of twelve, and the ability to learn native-like pronunciation in a second language? If the ability to pronounce a second language with native-like authenticity is indeed phase-specific and not a stable characteristic, what then is the course of its development?

At present we are involved in analyzing the performance on the STP of 120 children of both sexes from lower-middle class families. We are doing this study concurrently with a detailed analysis of their pronunciation abilities in their native language, American English. With this kind of investigation we hope to gain some insight into the process and provide some answers to the kind of questions just raised.

Language and Person

In order to empirically test the hypothesis of a direct relationship between empathy and second language pronunciation we were faced with the basic problem of finding an adequate means of measuring empathy. After considering a number of

different measures we elected to use a modification of a technique reported by Haggard and Isaacs called Micromomentary Expression, or MME (Haggard and Isaacs 1966). These researchers found that showing motion pictures of patients in psychiatric interviews at slower than normal speeds allowed observers to see facial expressions suggesting intense feelings that were not apparent at normal film speed.

In 1966 a pilot study was performed by Guiora et al. in which silent film clips of a psychiatric interview were shown to subjects at varying speeds (Guiora et al. 1967). The subjects were instructed to indicate each observed change in facial expression. A significant relationship was found between MME scores and authenticity of pronunciation for fourteen teachers of French. In a second experiment, 28 subjects were given a series of tests, including the MME, and then were taught basic conversations in Japanese in four, one-hour sessions (Taylor et. al. 1969). Pronunciation was evaluated by native Japanese speakers on general authenticity and specific phonetic details for five spontaneous sentences, repeated after the instructor said them. Differences in pronunciation skills were significantly related to two clusters of variables representing independent personality constructs, namely, empathy and intuition.

These two studies led to a large-scale study which again sought to establish a relationship between empathy and the ability to pronounce a second language. The subjects were 401 students at the Defense Language Institute, both East and West Coast branches, who were engaged in an intensive three-month course in one of five languages: Japanese, Chinese-Mandarin, Thai, Spanish and Russian. At the start of their course of study the students were given a series of tests: four empathy measures, including the MME, a personal rigidity test made up of items largely from the Authoritarianism Scales, a verbal mental reasoning test, and a short questionnaire developed to obtain relevant demographic, motivational and previous language experience information.

After approximately three months, near the end of the language course, students were given a test designed to evaluate authenticity of pronunciation in the particular language they had been studying. This test consisted of a tape recording of ten words and ten sentences, pronounced by a native speaker, which the subjects were asked to repeat. A two-track tape recording was made during the testing procedure, of the test itself and of the subjects' responses. The tapes were evaluated independently by three experts in each language; analyses were done separately for each language. Among the five highest correlations for each of the five languages,

at least two of the variables were measures of empathy. Of all the empathy measures, the MME was the most consistent. It was among the five highest predictors of all five languages; with the exception of the Russian group, it exceeded the magnitude of the correlation between Army Language Aptitude scores and authenticity of pronunciation. Our conclusion was that we had indeed shown that empathic ability as measured by the MME is an important variable in the ability to authentically pronounce a second language (Guiora et. al. 1972b).

Thus encouraged, we decided to attack the problem of the proposed link between empathy and pronounciation through experimental manipulation. We had hypothesized that underlying the altering of the sound of one's speech is a process of altering one's self-representation. Such alteration requires some degree of flexibility of psychic processes or permeability to ego boundaries. Suppose, then, that we were to attempt experimentally to increase this flexibility and then ask people to imitate foreign language sounds? Our prediction was that increased flexibility would lead to superior pronunciation.

The easiest means of inducing this flexible psychic state was through alcoholic drinks. Alcohol, a depressant, is often said to lower inhibition. Most studies of the effects of alcohol on various types of performance show impairment of functioning at many levels. However, a few studies have shown that certain types of performance may be enhanced when the blood alcohol level is moderate to low.

In 1972 we conducted a study in which 87 male subjects were given drinks containing 0, 1, 1-1/2, 2 or 3 ounces of alcohol. Subjects assigned to each treatment condition were equated for body weight and Scholastic Aptitude Test scores. Half of the subjects, which we will refer to as the "non-sugar group," were told to avoid eating or drinking after lunch on the day of the experiment. The other half, the "sugar group," were told to eat a candy bar one hour prior to testing, which took place during the early evening. Ten minutes after finishing their drinks subjects were taken to a separate room and tested on two measures: the Digit Symbol Test, a sub-test of the Weschler Adult Intelligence Scale, and the Standard Thai Procedure (The STP described previously), which, as was discussed earlier, had been developed specifically to assess second language pronunciation ability. While we had already found a relationship between empathy and second language pronunciation, we hoped in this study to establish independent validity of the STP as a potential, indirect measure of empathic ability.

The findings of this study were that in the sugar group there was a highly significant effect on pronunciation scores associated with the amount of alcohol ingested. Considering each condition separately, one and a half ounces of alcohol produced significantly higher pronunciation scores than no alcohol, while two and three ounces of alcohol produced significantly lower pronunciation scores than no alcohol. For the non-sugar group there was no significant effects associated with the amount of alcohol consumed.

In contrast to these differences between the two groups in pronunciation scores, scores on the Digit Symbol Test were virtually comparable. That is, while the small amount of food consumed by the sugar group was sufficient to balance the effects of one and a half ounces of alcohol and thus enhance pronunciation ability, no such enhancement in performance was found on what is essentially an intelligence test. In fact, the trend across all five treatment conditions for both the sugar and non-sugar groups was a decrease in performance, although this was not significant.

Our conclusion to this study was that our hypothesis about the nature of the psychological processes involved in pronunciation ability was confirmed. A small amount of alcohol, which we predicted should lower inhibitions and thus theoretically increased permeability of ego boundaries, enhanced the ability to authentically pronounce a second language. There appears to be an early positive stage of intoxication—positive, that is, for particular performances which do not demand highly integrated ego functioning, such as the Digit Symbol Test. This so-called positive stage, however, is very quickly passed so that the relationship between pronunciation ability and alcohol consumption is a curvilinear one. In short, the Alcohol Study made an important theoretical point but has obviously no practical implications for language teaching (Guiora et. al. 1972).

Language and Environment

In a recent essay H. D. Brown (Brown 1973), reflecting on the history of second language teaching, suggested that the time has come for a paradigm that will pay proper attention to the "affective variables" at play in learning foreign languages. The same might be said of the mysterious process through which first languages are acquired. The suggestion that the mastery or loss of a first or second language is a complex process, in which cognitive and affective variables internal to the speaker are interwoven with cultural and environmental variables external to him, may sound

obvious. Nevertheless, such a probability is frequently overlooked in linguistic and psycholinguistic research. Inquiry has to proceed simultaneously, if possible, on two fronts: systematic examination both of the relationship between language and personality constructs, and of the relationship between language and cognition. Because the two lines of inquiry ultimately converge, we suggest a simultaneous parallel approach.

The relationship between language, cognition and personality development is a difficult but intriguing issue, fraught with controversy and confusion. As a uniquely human attribute language is at the very core of human existence. It enables us to recount the past, project into the future, rise above the present and the concrete, create the abstract, and thus share ourselves and our experiences with our fellow creatures. But one may legitimately ask, what facilitates what? Is language the releaser (In Lorenz's sense) of cognition? Does it enable human beings to conceptualize the world around them and, consequently, does the particular language one speaks and the extent one speaks it provide differentiated opportunities to entertain hypotheses about the world? In sum, does language shape the way we perceive and conceptualize processes, events and objects around and within us, or does cognition generate its most perfect expression—language?

One possible starting point for this inquiry is the linguistic relativity hypothesis most commonly associated with Sapir and Whorf (although the idea of linguistic relativity antedates Whorf and was expressed in quite Whorfian terms by Lee (Lee 1938)). Whorf's statement of the hypothesis is summarized by Carroll: "The structure of a human being's language influences the manner in which he understands reality and behaves with respect to it." (Carroll 1956). Although the hypothesis has been in the literature for quite some time, experimental probings have been too few to settle the issue.

We have already raised the question of the relationship between language and self-representation. Our current studies address the question of the relationship between grammatical gender and gender rules in a language, and the development of gender identity. As a corollary to this we have asked, does grammatical assignment—grammatical gender—in one's native language influence the way in which male or female characteristics are assigned to essentially asexual objects?

Earlier we discussed some language-specific uses of phonetic universals. Let us now turn to semantic universals. It is evident that these too can be related to universal aspects of human

experience. All languages, for example, evidently make some kind of formal distinction between relations, on the one hand, and the related objects, on the other. In English and in many other languages simple spatial or temporal relations are encapsulated in a set of special grammatical words which we call "prepositions," such as *in*, *on*, *at*, *to*, and so on. The specific processes by which such relational categories are expressed vary from language to language. Thus, where English uses prepositions, saying, for instance, "the man is in the house," other languages, like Hindi, use *post*positions, saying the equivalent of "the man the house in is." Still other languages, such as Finnish, use "local cases," that is, endings fused with the noun, saying the equivalent of "the man is house-in," the last being a single word. And there are yet other ways of expressing relations.

Whatever their means of surface expression, however, the fact is all languages have some means of responding to the various kinds of simple relations between objects, events or any other related "terms." That such relational items appear to be language universals reflects the universal human experience of learning to respond differently to objects or events, and to the relationships between them.

Other universal language categories seem to reflect not so much universal human experience with the world in general as universal experience with the situations in which language is employed for communication. For example, all use of languages presupposes a situation in which there are at least two human participants, a performer (that is, a speaker or writer) who generates an utterance, and an addressee to whom the utterance is directed. All speech situations necessarily imply the existence of these two participant roles and distinguish between the performer (first person, in traditional grammatical terminology) and the addressee (second person, in traditional terminology).

All languages also provide means of distinguishing between different pragmatic speech functions: commands, for example, require immediate, overt action on the part of the addressee. As statements they are intended to predispose the addressee to future action. Questions, on the other hand, call for an overt linguistic response on the part of the addressee. These categories reflect universal experience with communicative situations.

There are, however, many features of language which are language-specific, that is, peculiar to particular languages. Language-specific features are acquired by every individual as part of

the process of growing up and being integrated into one's particular sociocultural group.

Some language-specific, culturally acquired features are clearly related to the speaker's environment and way of life. Thus, it is obvious why the Eskimo language has many distinct words for different kinds of snow, and why Arabic has numerous words for different types of camel. More interesting, though, is that despite the universality of grammatical features there are language-specific differences in the way in which they are related which have no obvious relationship to the environment of the particular language-bearers.

For instance, we have mentioned the presence in all languages of some means of referring to simple spatial or temporal relations. We saw that, although this is undoubtedly a language universal, different languages give it different types of surface expression in the form of prepositions, postpositions, case endings, and so on. Even more interesting than these surface differences in the expression of relations, however, is that different languages impose profoundly different conceptualizations upon the universally experienced category of relations. In other words, in its own particular way every language dissects, as it were, the "semantic space" covered by simple space or time relations.

English, for example, with a subset of spatial prepositions, distinguishes between exterior relations, which hold towards the exterior of something (on, onto, off), and interior relations, which hold toward the interior of something (in, into, out-of). A third set of relations is neutral, or indifferent, to the distinctions in other dimensions: static contiguity (on, in, at), dynamic approach (onto, into, to) and departure (off, out-of, from).

Other languages divide up essentially the same semantic space in other ways. Finnish, for example, covers the same semantic space with six local cases. This numerical difference (the same conceptual area divided into six instead of nine portions) of itself suggests that there must be some non-correspondence between the English and the Finnish systems, and this is indeed the case. Finnish makes essentially the same distinctions as English with respect to static versus dynamic oppositions. But with respect to exterior versus interior oppositions Finnish totally lacks the neutral category represented by at, to, from. The Finnish language thus forces its speakers to say that something is either on the surface of something, or else is in its interior. The Finns cannot neutrally say that something is merely at something else, with no reference to the exterior or interior.

In still another language, Indonesian, there is a basic set of three spatial prepositions that distinguish only static contiguity, approach and departure. Indonesian absolutely lacks all obligatory reference to the opposition of exterior to interior.

These culturally determined differences, which seem quite arbitrary as human or psychological universals, oblige speakers of Enlgish, Finnish and Indonesian to conceptualize spatial relations in somewhat different ways.

Another universal is the distinction between the speaker and the addressee. Although these are obviously universal participant-roles in speech situations, different languages oblige their speakers to group these roles in different ways. In English, for instance, the speaker is referred to as *I* and the addressee as *you*. Any group of participants that includes the speaker is referred to as *we*. The single English pronoun *we* may mean "I together with you" or "I and some other person, but not you." In many languages, however, one is forced to use two distinct pronoun forms: an *inclusive* one meaning "I plus you", and an *exclusive* one meaning "I and someone else, but not you." In Indonesian the inclusive *we* is "kita," and the exclusive *we* is "kami." This pronoun system thus forces the speaker of Indonesian, whenever he uses pronouns, to refer explicitly to a distinction which, most of the time, can be ignored in English.

Examples like these are not rare. Indeed, they are the rule rather than the exception. Although there are universal broad categories common to all languages every language imposes its own detailed categorization upon the way its speakers conceptualize experience. Certain specific details of experience in one language may be completely ignored in the obligatory grammatical distinctions of another. Put another way, the speaker of every language is obliged, as he talks, to look at the world through a language-specific "grid" that imposes upon him a particular kind of "dissection," a particular conceptualization. This kind of language-imposed, culturally differing dissection of experience constitutes what has been called "linguistic relativity." There can be no doubt that, in the sense that the language you speak makes you conceptualize in particular ways for the immediate purpose of speaking, linguistic relativity is a fact. Some scholars have gone further than this, suggesting that language-specific differences of conceptualization actually impose a wider difference of world outlook upon the speakers of different languages. We have referred earlier to the Sapir-Whorf hypothesis, so-called, after the two American linguists who were prominent advocates of this view.

One may perhaps question the validity of the Sapir-Whorf hypothesis, which implies that language determines world outlook in a far-reaching way. But it is not completely improbable that there are more restricted effects on human cognition that go considerably beyond the immediate speech situation. One possible area of wider influence that seems to be testable is concerned with sex-determined distinctions of gender in languages.

All languages, of course, have numerous lexical terms, such as *boy* or *girl*, in which the sex of the referent is part of the meaning of the word. When we turn to the grammar, however, we find that languages differ greatly in the extent to which sex is built into the obligatory categorizations of their grammatical systems. In English, for example, use of the third person pronouns *he* and *she* usually obliges the speaker to note the sex of the referent. In Finnish, on the other hand, there is absolutely no prominent distinction like *he/she*, nor are there any other grammatical features that oblige a speaker to refer to sex. Other languages, though, notably the Semitic group, have sex playing a much greater role in the selection of grammatical categories. In Hebrew, for instance, there are systematic grammatical distinctions based on sex that are not confined, as they are in English, to the third person. In Hebrew verbs, the second and third person forms for all tenses reflect the sex of the addressee; in the present tense not only the second person but the first person as well has a special form to indicate the speaker's sex.

We may call such differences in the utilization of sex-determined grammatical categories differences in "gender loading." In this sense, we can say that the gender loading of Finnish is *zero*, that of English is *very low*, and that of Hebrew, *high*.

Conceivably, we have here an area where language-imposed distinctions may have a significant effect on speakers of the language. If this is the case, we might hypothesize that children growing up in a Hebrew-speaking community will achieve awareness of their own sex at an earlier developmental stage than children growing up in an English-or Finnish-speaking community.

Language and Gender

In recent years research in the area of psychosexual development has delineated biochemical, genetic, early parenting and sociocultural factors. Our present interests are concerned only with the development of gender identity and a technique for its measure.

In this context gender identity refers to a child's recognition of what sex he belongs to, and "gender role" means the sum of behaviors, attitudes and expectations that are prescribed for this identity. Practically speaking, however, it is very difficult to separate these two aspects of psychosexual development. Someone who has a problem in forming a clear concept of his gender identity will necessarily express this in his "role." Conversely, the factors that influence the formation of gender role will invariably mold the gender identity in that person.

Much research has been done in isolating variables in psychosexual development. The early transmission of parental attitudes by subtle behavioral cues is one important way gender role expectations are reinforced. Yet another area that seems quite as important to the development of gender role and identity is rarely considered—the influence of language. In our culture, as soon as a baby is born its parents immediately announce its sex by calling the baby "he" or "she" rather than "it". Furthermore, they assign the child's basic self an identity through a given name that is usually categorized as male or female. If a child's given name is misleading in describing his sexual identity, it may be the subject of much teasing and ridicule—like the hero in the song "A Boy Named Sue."

As we have noted, in English, only the given name denotes a person's sex. In Polish and Russian, though, the family name as well reflects its owner's sex by assigning different endings for males and females. In Hebrew, with its high gender loading, virtually all conversations identify the sex of the speaker and the addressee. A child raised in a Hebrew-speaking family is thus constantly reminded whether he is a boy or a girl. Finnish, on the other hand, as noted before, with its zero gender loading, does not provide children with these linguistic cues about their gender identity.

One of the most commonly used methods for ascertaining gender identity in young children is the Gesell procedure (Gesell 1940) which involves simply posing to the child the question: "Are you a little boy or a little girl?" One of the major problems with this method is that it provides little context for assessing either the validity of the response (even when it appears to be correct) or the meaning of no verbal response. In order to avoid these problems we have decided to present some form of gender identification question in the context of a series of simple cognitive tasks.

In selecting tasks, it was essential to consider the capacities of the youngest subjects to be tested (approximately 18 months of age) and the appropriateness of the test stimuli for use in other

cultures where we intended to carry out testing. We chose a modified sorting procedure which permits the examiner a choice of three strategies for eliciting either verbal or nonverbal responses. The test itself consists of two tasks: identification of colored photographs of familiar objects, dogs and balls, and identification of colored photographs of boys and girls. Each of the two tasks consists of two trials. In the second trial of the gender task (boys and girls), the child is shown a picture of himself taken prior to testing. While correct identification of his own photograph; recognition of self and gender identification provides the basic answer to the question of the child's knowledge of his own gender, the criterion for a perfect score on the test requires additionally that the child correctly identify all photographs of dogs and balls and girls and boys. (Dull et al. 1975).

In 1973 (Paluszny et al. 1973) we reported the results of a study in which the Michigan Gender Identity Test (MIGIT) was administered to 106 children from 16 months to 51 months of age. At 25-27 months of age 24% of the children achieved a perfect score on the MIGIT. Of the children from 34-36 months of age, 73% achieved perfect MIGIT scores and from 37 months on, 100% of the children had perfect scores on the MIGIT. While girls appeared to be developmentally slightly ahead of boys their results were not significant. An analysis of error patterns gave support to the notion that gender identity is related to general cognitive development and that test performance reflects this in an orderly and progressive manner.

Following the collection of the American baseline data we administered the MIGIT to 89 toddlers in Israel. These children were selected to resemble closely the American sample, with the obvious exception of the language factor.

The findings will be reported separately, when they can be compared with data from Finland. Preliminary results seem to show, and quite impressively, that Israeli children do indeed have a developmental edge over their American counterparts. In other words, we find that Hebrew speaking children are more successful on the MIGIT at earlier age levels than are American children. Should the Finnish data go in the opposite direction, serious thought will have to be given to the implications of the findings for the linguistic relativity hypothesis.

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