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"Maai": The Art of Distancing in Karate-Do Mutual Attunement in Close Encounters

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Human development implies an evolution of the individual's physical spielraum (room to maneuver) as an adaptively changing dialectical Self-Other relationship, which is achieved through appropriate distancing. In the Japanese culture, distancing is *maai* (*ma*, spatiotemporal interval + *ai*, harmony). *Maai* integrates space, time, and rhythm, dimensions of being that are deeply rooted in all human actions and relations. *Maai* is the art of relating and communicating within constructed space-time intervals in and through which people interact.

The purpose of the present study is to elaborate a phenomenological and genetic understanding of highly developed forms of distancing, that is, of our understanding of mastery in *maai*. Although there exist several good descriptions of distancing in everyday life, little is known about how it operates in experts. As a case in point, we analyze *maai* in the martial arts (karate), where distancing is taught, mastered, and conceptualized to various degrees by teachers and students, and therefore rises to the level of consciousness.

KEY WORDS: Distance; *maai*; personal space; spielraum; do; self-development; action; relation.

Human beings are and evolve as beings in the world (Roth & Masciotra, 1999). Considering a person as a being in the world means that studies of human development should take into account transformations occurring in it's three inseparable components: "being," "world," and the relation of the two signified by the connective "in." This relation develops as the Self extends the "intentional threads" (Merleau-Ponty, 1945) binding it to the Other (and the world), which is associated with an increased functional *spielraum* (Heidegger, 1977), room to maneuver. That is, development implies an evolution of the individual's physical spielraum as an adaptively changing dialectical Self-Other relationship which is achieved through appropriate distancing.

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Distancing integrates space, time, and rhythm, dimensions of being that are deeply rooted in all human actions and relations (Dewey, 1958). Thus, "no form of life evolved or could evolve in a timeless nonrhythmic world" (Hall, 1989, p. 16); we might add, no form of life could evolve in a spaceless world. Contrary to a Kantian conception, the phenomenological dimensions of distancing are neither innately structured within the Self nor do they constitute objective and preexisting entities in the (physical and social) world (as postulated by realism). Mastery of space and time, and knowledge about space, time, and mastery are always and simultaneously constructed at personal, social, and cultural levels. The way in which people and cultures evolve is related to their adaptive relations to the here and now and to their attunement with each other. Human beings grow by "dancing" with their surrounds, and they do so "knowingly and feelingly" in an attempt to reach higher levels of harmony (Roth, Masciotra, & Lawless, 2000). As a form of embodied knowledge, young and mature people adjust and signal their levels of engagement via performative acts of distancing, including spacing, synching, rhythmizing, timing, breathing.

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Maai (Japanese: *ma*, spatiotemporal interval + *ai*, harmony) also emphasizes the relation "in" that associates being and world; *maai* is the art of relating and communicating within constructed space-time intervals in and through which people interact (Hall, 1989). *Maai* is therefore commensurable with our phenomenological understanding of being and development. However, the concept of *maai* is more appropriate than distancing, for it does not, like distancing, connote a separation of space and time.

The purpose of the present study is to elaborate a phenomenological and genetic understanding of highly developed forms of distancing; that is, of our understanding of mastery in *maai*. Although there exist several good descriptions of distancing in everyday life (e.g., Hall, 1989), little is known about how it operates in experts or masters. As a case in point, we analyze *maai* in one of the martial arts, karate-*do* (Japanese: *do*, way of), where distancing is taught, mastered, and conceptualized to various degrees, by teachers and students, and therefore rises to the level of consciousness. This case study is used as the starting point for our reflections on human cognition and development.

SITUATING DISTANCING

The notion of distancing already has a history in Western human sciences and in Japanese philosophical traditions. However, the presuppositions, meanings, and role of the psychological and physical constructs associated with distancing in the different traditions varies greatly (e.g., Aiello, 1987). In the Western tradition, distancing is a spatial concept defining proximity in social transactions, whereas distancing as *maai* becomes an integrated spatiotemporal construct that drives the dynamic coupling of mutually attuned entities. In the following paragraphs, we briefly outline the historical traditions of distancing and *maai*.

Distancing in the Western Tradition

In the Western tradition, distance has been defined almost exclusively in spatial terms. Thus, personal distance is "the distance constantly separating the members of non-contact species. It might be thought of as a small protective bubble that an organism maintains between the self and the other" (Hall, 1966, p. 119). Hall adds, "This distance acts as an invisible, bubble that surrounds the organism" (p. 13). Although invisible, they are nevertheless experientially real; the surfaces of these bubbles constitute boundaries that themselves are nested to demarcate intimate, personal, and public spaces. These bubbles form the internal references around which the organism—like a homeostat—regulates its exchanges in search for a maximum zone of comfort (Sommer, 1969).

Although different signifiers have been in use to designate these invisible bubbles—e.g., spheres, personal distance, proxemic behavior (Aiello, 1987; Hall, 1966; Hayduk, 1983; Westbrook & Ratti, 1970)—they always imply an expansion of the organism that dwells in it.[6] Whatever and whoever penetrates the bubble literally violates the sense of "inhabitant's" identity, be it a human or an animal:

> When approached too closely, schizophrenic patients panic in much the same way as animal recently studied in a zoo. In describing their feelings, such patients refer to anything that happens within their 'flight distance' as taking place literally inside themselves. That is the boundaries of the self extend beyond the body (Hall, 1966, p. 11).

In everyday life, the boundary of personal space is "the surrounding of an individual within which an entering other causes the individual to feel encroached upon, leading him to show displeasure and sometimes to withdraw" (Goffman, cited in Altman, 1975, p. 53). Like Hall, Goffman relates this personal boundary to flight distance in animals, as the acceptable degree of closeness to another animal. If another animal comes too close, the inhabitant of the bubble will try to escape or, if escape is impossible, may attack the intruder. Western notions of distancing have shown considerable explanatory power for a variety of situations. However, to reach a better understanding of distancing in situations of fight, the

[6]There are also other expressions including interpersonal distance, interpersonal spatial proximity, interaction distance, etc. (Aiello, 1987), but these expressions do not refer strictly to personal space, but to shared space or social objective space. The purpose of this paper is to try to define personal *maai* as it is subjectively acted in the interactive fight situations. In such situations, the interpersonal *maai* can only be understood as the resultant of the dynamic confrontation of both opponents' *maai*. But in the description that will be done forward of this dynamic confrontation, the reader will sense the space that is shared and the space that is not shared within the spatiotemporal interaction. In our perspective, the distance between persons is not one, nor is it static; it is a the same time *my* space related to *your* space and *our* resultant shared space. For interacting actors, interpersonal space is never reducible to the measurable distance that objectively separate them.

concept needs to be expanded to include temporal dimensions. *Maai* is distancing in spatial and temporal dimensions.

Maai: Spatiotemporal Distancing

Maai has been developed to and is practiced at its highest level in a variety of "arts" in the Japanese culture including martial arts, dance, theater, poetry, calligraphy, and music (Iotaki, 1979; Tokitsu, 1979). Etymologically, *maai* refers to the spatiotemporal distance that separates two or more objects or persons, *ma*, and the harmony in the encounter between objects or persons, *ai*.

> The concept of MA is a global one encompassing space, time, an unspecified interval between two things, two volumes of space or two moments . . . The best painting, the best poetry, the best movement, and so on, exhibit MA (Frederic, 1991, p. 151)

Japanese philosophy and culture are closely linked to martial arts and indeed *maai* is also a core practical concept in martial arts. Here, *maai* "is the distance-time which separates two opponents, allowing them to judge the overall timing and distance necessary for each to carry out his or her intentions" (Frederic, 1991, p. 151). Karate masters know a great deal about distancing for they use and teach it. In general, however, this knowledge remains tacit *in* the Master's practice. In this paper, we attempt to disclose the hidden dynamic of synching and distancing, and to show how it drives the opponents' dance.

How karateka enact *maai* during an encounter determines victory and defeat. "Too far away from the opponent, it is impossible to strike or counter; too close and one is hemmed in" (Stevens, 1997, p. 81). In Master Nakayama's words, "maai is the distance from which one can . . . deliver a decisive punch or kick, [and] reciprocally . . . protect oneself from attack" (1979, p. 16). In karate-*do*, the central question to mastering *maai* therefore is, "How does one keep the opponent simultaneously away and at arm's length?" Or, in other words, the individual karateka acts as if asking, "How can I be both defensively the farthest and offensively the closest to the opponent?"

INQUIRY-DO

Our research agendas are generally concerned with understanding mastery in such diverse fields as the martial arts, teaching, and scientific research (Roth, Masciotra, & Lawless, 2000; Roth, Masciotra, & Bowen, 1998). Whereas research often provides external descriptions of expertise, these descriptions bear little resemblance to expertise as lived experience, the processes of enacting expertise. Consistent with a phenomenological perspective, we therefore construct theory out of our own experience in the practice in the respective field. Within this perspective, we therefore conceptualize the practical knowledge involved in *maai*, the art of *distancing*, out of our experience in this art.

Karate provides an ideal context for studying *maai*. First, karate is taught, practiced, and learned so that it constitutes an ideal context for studying one form of human development *maai* in karate-*do*. *Do* (Japanese: *do*, way) signifies the developmental trajectory followed by members in the practice of their discipline.[7] *Do* implies (observable) practice. The purpose of practice is not the mastery of the discipline but the route itself, which leads toward the achievement of self-perfection and increasing harmony with others and things (Frederic, 1991). Second, karate-*do* can be practiced throughout one's life, affording continuous (longitudinal and transversal) observations of the evolution of relationships with others. Some individuals practice their entire life in the same *dojo* (Japanese: *do*, way + *jo*, ground or training hall), with the same master and even with the same partners. Finally, one of us (D. M.) is an expert in karate-*do*. This provides us with the opportunity to complement our hermeneutical (structural) analysis of expertise with a phenomenological analysis and thereby arrive at a fuller understanding (Ricœur, 1991) of *maai*. In writing, we attempt to find a balance between the personal experience of *maai* and the distancing associated with hermeneutical analysis of *maai*; our research process, *do*, stands in a reflexive relationship to the object of our inquiry, *maai*. Our *do* comprises (Masciotra, 1998)

1. Reflections on practical knowledge learned from karate teachers through action.
2. Reflections on Masciotra's own experience in karate-*do* as a practitioner and a teacher.
3. Reflections on exchanges with Masters, teachers, and karate practitioners.
4. Reflections on literature on the martial arts (e.g., Habersetzer, 1975; Musashi, 1992; Na-

[7]Other practices include *kado* (flower arrangement), *shodo* (calligraphy), *kyudo* (archery), etc.

kayama, 1979; Tokitsu, 1979) and by means of videos of karate competition.
5. Reflections on the scientific literature concerning the related notions of distance, distancing, personal space, time and rhythm (e.g., Aiello, 1987; Hall, 1966; Hayduk, 1983).

With the late Donald Schön, we believe that such an approach can make significant contributions to a theory of practice. Such theories also have the potential to inform other domains:

> University-based professional schools should learn from such deviant traditions of education for practice as studios of art and design, conservatories of music and dance, athletics coaching, and apprenticeship in the crafts, all of which emphasize coaching and learning by doing. (Schön, 1987, p. xii).

We make a deliberate use of metaphors and analogies as a way to engage the reader more experientially. Our presentation style is more phenomenological than experimental.

MAAI IN KARATE-DO

The art of distancing in karate-*do*, as any art, involves an array of different aspects. To facilitate readers' understanding of *maai*, our analysis begins by separately disclosing spatial and temporal aspects of *maai*. We then turn to the spatiotemporal coordination encompassed by *maai* as it is embodied in the practice of karate-do.

Spatial Aspect of Maai: Spielraum

Maai includes a decidedly spatial component, which we discuss in terms of Heidegger's (1977) concept of *spielraum* (German: room to maneuver; *spiel*, play, action + *raum*, space, room). Here, *spielraum* signifies the effective operational field of an actor. To get a feel for *spielraum* in karate, imagine the following scenario: a karateka attempts to split a pine board fixed at one of several possible positions in a circumscribed area (Fig. 1). Two questions pose themselves, ''What are the proximal and distal positions for a successful blow?'' and ''Do blows have equal effects when they originate somewhere in the zone demarcated by the loci of proximal and distal positions''?

All possible positions of the board that the karateka can successfully hit from her present position

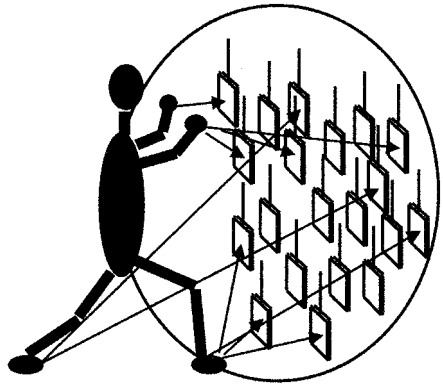

Fig. 1. The *spielraum* of a karateka is identified by the sum total of all possible targets reachable from his current spatiotemporal state.

constitutes the personal *spielraum* or operative field. It functions as a permanent zone of protection for any imminent action whenever an opponent introduces herself. It is through her dynamic guard that the karateka makes available several possible actions (different kinds of punches, kicks, and other striking techniques). These actions, simultaneously present in the guard, form a procedural whole that connects her to all the points where the board could be broken. From a developmental perspective, mastery unfolds and is the result of an unfolding of the objective possibilities embodied in an increasing field of virtual actions and the objectively existing targets of these actions. The development of spielraum therefore entails and is coextensive with the development of possibilities that are, literally, ready to hand in the experience of the karateka as actualized in her taking guard.[8]

The embodied system of actions of an experienced karateka never relates to attack alone. It integrates, in the same unified framework, a set of defensive actions such as blocks, side-steps, and many other defensive techniques. Here again, a matching *spielraum* is involved. Its function is to keep the opponent at arm's length by closing the entries and be prepared for an attack or counter attack if the opponent violates one's personal space. The total *spielraum* (Fig.

[8]Heidegger's notion of ready to hand expresses that something is available without reflection such as this keyboard with which we write this article. It is ready to hand, available and taken for granted and therefore permitting us to write, without having to reflect on its nature as a keyboard. It has become transparent to our activity of writing research. Ready to hand also means that there are immaterial things that are actually produced and made available (sense of giving existence to).

2) is a sphere strategically filled with means to trap the opponent. A master in karate is constantly aware that penetrating an opponent's *spielraum* is like entering a "magnetic field" (Tokitsu, 1979, p. 76). If she enters a critical zone, the karateka attracts the blows and therefore exposes herself to a strike. One of the functions of the (defensive) *spielraum* is to keep the opponent away. Because each opponent has her own *spielraum* (Fig. 2), taking the initiative of an attack implies bridging the gap that separates them.

Spielraum approximates the "bubble" described by Hall (1966). This "bubble" is an integral aspect of the experiential (and therefore objective) reality of karate masters. Indeed, the art of karate greatly relies on the extent to which the karateka knows about and embodies masterful *maai*. Envisioning and enacting *spielraum*, the bubble enables the karateka to optimize distancing and gives rise to the very spatiality in which *maai* operates. Thus, in the language of the karateka, the spaces for a blow (or any other action) include a space to start, take its course, end, and recover.

Temporal Aspect of Maai

There exist at least two different temporal aspects of karate. The first aspect is associated with the concept of "decisive action" and relates to speed and length of impact of the blow. The second aspect relates to a holistic sense of timing and rhythm that characterize an encounter.

Decisive Action

An important notion in karate is that of decisive action. A powerful technique has been operationally defined as a decisive action when it allows the karateka to break a pine board suspended in the air with one blow. Success depends not just on how far one can reach, but also on how fast one can hit, how short the duration of the impact is, and how much of the body is used in the blow. First, the size of the karateka (or his hand) itself does not guarantee successful breaking of the board. Even the impact of a dump truck, when it travels at a rate of 10 miles per hour, is insufficient to break the board. Second, equally crucial is the time of contact. It must be as short as possible. Thus the two first fist joints must "penetrate" the board as quickly as possible, so that the energy is maximally absorbed by the board (so that it breaks more easily). Finally, the effective mass mustered behind the blow is important. The karate master uses her entire body in hitting the board, whereas beginners only strike with their lower arm, or from the shoulder.

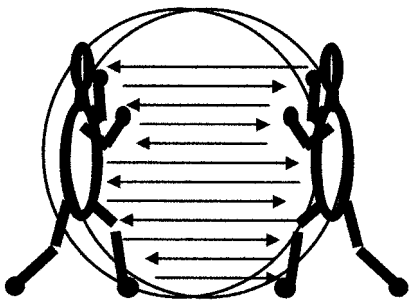

Fig. 2. The situation of fight as the confrontation of two bubbles, or as overlapping *spielraums* of the two opponents.

These experiential dimensions make sense from an analytic perspective. The kinetic energy, E_{kin}, in the striking fist-arm-body complex is proportional to the effective mass, m_{eff}, behind the blow and the square of its velocity ($E_{kin} = m_{eff}/2\ v^2$). However, the ratio of this energy transferred and utilized in the destruction of the board depends on the change in velocity of the fist-arm-body complex and on the duration of the contact. If the fist comes back, the change in velocity is twice than when it simply comes to a stop (the change from 10 to 0 mph is 10 mph, but from 10 to -10 mph is 20 mph). If the impact duration is short, more of the energy will be used in the destruction of the board rather than in making it move (kinetic energy).

Timing and Rhythm

Mastering *maai* also implies mastering of timing and rhythm. In fact, once *maai* is well controlled, one can improve its mastering by gaining a better timing. This is possible only through the vantage point of imposing one's own rhythm, for "there is rhythm in every thing. . . . In the path of martial arts also, there are rhythm and timing for firing arrows, shooting firearms, and riding horses" (Musashi, 1992, p. 24–25). Musashi adds that timing and rhythm are of prime importance in all arts. But the conceptualization of timing and rhythm is not an easy task and extends the scope of this paper. Because the objective of this paper is to understand *maai*, the analysis of timing and rhythm will be realized in its regard. Al-

though we deal with timing and rhythm in a consecutive fashion, the two are integral to each other.

Timing is defined as an action released at the right moment, in the appropriate direction, and with the required delay. The ideal timing of an offensive technique consists in reaching the targeted part of the opponent's body at the very moment that the opening presents itself to the Master. For the Master, creating or using an opening never consists in successive steps such as first seeing a physical breach in the opponent's guard, and then making use of it, after having made decision of the appropriate technique to use. Instead, the opening as an objective reality in the *spielraum* and the Master's taking cognizance of this reality qua opening coincide. In the cognitive sciences, actions that precede reflections but are part of the overall cognitive process are known as ''epistemic actions'' (Kirsh, 1995). Because, a breach in the opponent's guard evanesces as soon as it appears, there is no time to react; rather, the attacking gesture has to be an epistemic action that coincides with the objective reality it sets up. The epistemic action anticipates, sets up, and expects the breach, which it then exploits at the right moment. Thus, acting on reflection is strategically disadvantageous; it will generally be too late.

Maai implies a timing that arises from a single, global act of perceiving and striking coincidentally the target. In the strategy of attacking a rival's attack (*sen-no-sen*), the starting point of the rival's attack (or better its preparation) corresponds to the end point of one's own counterattack (that is, the landing blow on the opponent's body). *Sen-no-sen*, within the experiential reality of the Master karateka, is best described as ''I saw the opening while my counterattack was reaching the target.'' To the onlooker, opening and attack occur simultaneously, and one is not able to discern at that moment which element triggers the release of action and which action has been effectively released. Descriptions such as ''I have seen and then I have struck'' only emerge after the karateka rationalizes her action in a ''phallogocentric'' (Derrida, 1988) framework in which events have to be ordered in terms of temporal cause-effect relationships.

Timing and rhythm are related. In the experience of the karateka, rhythm splits time. The faster my rhythm, the more moments I have available for starting an action. By acquiring a faster rhythm, I can increase the temporal *spielraum* and thereby increase the appropriateness of timing. One aspect in the development of *maai* rests on the refinement of rhythm. Karatekas quickly move in short and brief steps, they ''dance.'' In the *dojo* (training place) this dance can be felt and heard; the contact of feet on the floor produces sounds and vibrations. To precipitate the development of a faster rhythm, the student karateka can imagine sounds with intervals shorter than those that she can actually perform. By imposing her imagined rhythm, she can achieve a quickening of her steps, and ultimately increase the options in her temporal *spielraum*. Other ways of increasing one's rhythm are related to drawing on rapid bodily vibrations and rhythmic sensations similar to febricity.

SPATIOTEMPORAL COORDINATION IN MAAI

So far, we have discussed the mastering of distance in an idealized situation without opponent. In actual situations of fight, the distance depends not only on a single karateka's *maai* but also involves that of the opponent. It is at this point that the art of distancing becomes a matter of mutual adjustment; in fact, it becomes a relationship. However, if the karateka's *spielraum* embodies at least one efficient action, then timing and rhythm interact with physical distancing. The karateka has to enact *maai*.

> Literally translated, maai means ''(spatial) distance,'' but in this usage it also evokes a sense of timing, or chance. Thus, it indicates both the space and the time it takes for and opponent's fist to reach one's body (Hironishi, 1994, p. 8).

Maai pervades all the Japanese life and is central to understanding Japanese understanding and lived experience of time. ''Ma is time-space. The two cannot be considered separately'' (Hall 1989, p. 208). In this section, we unpack the concept of *maai* as it relates to karate.

The temporal and spatial aspects of an action can be divided in three phases: time and space for the preparation and release of action, time and space of the action, and time and space of contact with the target. Figure 3 is a representation of the way in which these phases can be thought as a spatiotemporal whole. To understand the three moments of the spatiotemporal interval separating and relating two persons, we must keep in mind that the global act of distancing rests on a contingent process in which the gap between opponents is not permanently fixed, but changes in relation to the actual balance of power. During a fight, the *spielraum*s of the two opponents overlap (although their respective size may vary

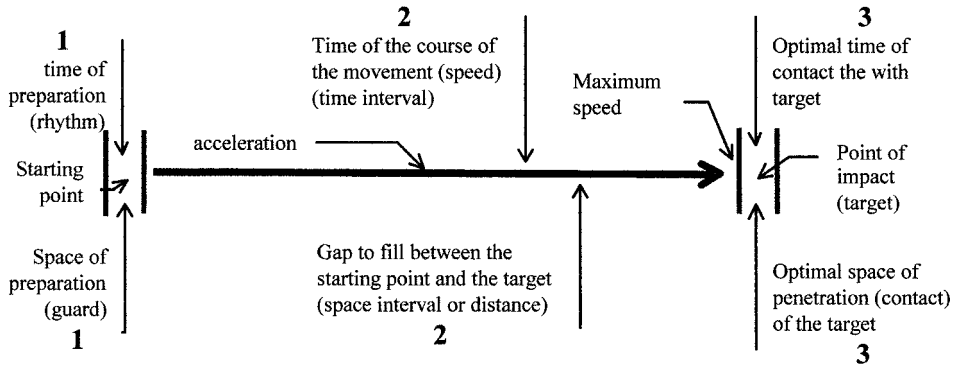

Fig. 3. A representation of the space-time continuum of *maai* in a karateka's lived experience. Here, the three space-time phases of an attack action.

greatly, so that one *spielraum* envelopes the other) (see Fig. 2). Here, each opponent tries to impose her personal *maai* on the other; that is, each karateka attempts to impose her space-time (and rhythm) on the opponent. Given the physical (strength) and psychological elements in play, *maai* constantly changes; that is, the organization of space-time represented in Fig. 3 should be thought of as dynamic and ever changing. This organization of space-time is determined by the capacity of each karateka to create and seize opportunities that lead to her success. Strategically speaking, mastering *maai* therefore is coextensive with a readiness to release a situationally (i.e., temporally, spatially) appropriate action. As we already pointed out, at an advanced level of karate, an opening has a very short duration: its manifestation is like that of a flash that disappears as soon as it has appeared. Related to this fleeting moment, the central question for the karateka then becomes, "How do I time an appropriate action and where is its appropriate space?" To be successful, the karateka must not attempt to resolve this question through reflective analysis but through enacting *maai*.

Starting Point: Time and Space of Preparation

Preparation is the space and time needed to position the body. This preparation requires the coordination of all the appropriate parts of the karateka's body. This global coordination can be expressed by the idea of minding one's body toward the center of the target. When the target is fixed (e.g., wooden board), the karateka can take all the time she wants to prepare the blow with which she intends to break it. But during a fight, the opponent does not permit her to operate at will. In this case, the duration of preparation must be as short as possible (a few milliseconds), so that the opponent cannot take advantage of it.

To shorten the duration of preparation, the karateka starts the fight with the body already minded. I am positioned, here and now, with a distancing guard, which is the common starting block of all virtual actions available. Those actions (represented by the arrows in Fig. 2) are simultaneously and imminently available for their eventual delivery in the *spielraum*. Their availability has as much existence as the potential energy of a weight resting on the border of an elevated surface and ready to be pushed down. The experienced karateka has more than one decisive action available. I enact my guard such that several virtual offensive actions are available, all minded and globally directed to all the possible physical target points of the opponent's body. The karateka's readiness is comparable to that of a 100 meters runner waiting to literally explode, to take off like a rocket with the starting signal as it is fired. The critical issue in *maai* is that the realization of an opening has to coincide with the optimal time of contact with the target (Phase 3 in Fig. 3). That is, in the experience of the master karateka, *maai* cannot be a cause-effect unfolding of time as Fig. 3 appears to indicate, but preparation and execution of action precede any reflection. Mastering *maai* allows the master karateka to be in such a state. The karateka is mentally and physically predisposed, in a state of readiness, which allows him to enact a *spielraum* in the contingently (and therefore unforeseeably) unfolding of the fight.

During preparation, the guard constitutes the grounding of all virtual actions; the guard determines the *spielraum*. The better my guard, the more unpredictable the specific action that will be effectively released. The more developed my guard, the more

the actions available to me are hidden from my opponent's gaze. Advanced karateka strategically mind their selves for specific blows without revealing it through body postures. In fact, the body postures should reveal a plenitude, an immensity of the *spielraum*, without, however, revealing the nature of any individual action. By operating through a rich and omnipresent system of actions, I increase the difficulty my opponent has in reading my *spielraum*. This requires from the latter a higher reaction time. Thus, the harder the opponent's reading, the higher her reaction time, the shorter is my own time of preparation. Through this feedback loop, I can reduce my (experientially real) preparation time needed for enacting an effective blow.

The karateka's own reading of the other's moves also relies on her guard. The reading capacity is proportional to the richness of the network of her own virtual actions. The more expanded my *spielraum*, the more expanded my capacities for reading the other. The beginner who has little *spielraum* defends herself blindly, whereas the master defends herself with clear-sightedness. In other words, the acts of seeing, perceiving, and anticipating are embedded in the structure of my guard. This aspect of *maai* was eloquently expressed by Master Tokitsu. The karateka does not act

> because she has seen [an opening] but because, before seeing it, she has felt it. This is safer than to wait and react only after having perceived [the opening]. . . . In a fight, to watch an opponent's attack coming, then to block or deflect it, means falling behind (Master Tokitsu, in Cavalan & Vernay, 1991, p. 40, our translation).

The richer and more developed my structure, the more encompassing my sense of seeing. The structure of this experience is reflected in the structure of the phenomenological presupposition of being in the world. The self is always and intrinsically related to an other (Ricœur, 1990). That which can be perceived as pattern in the other is already available as structure of the self. In Piagetian terms, the structure of the lived world stands in an isomorphic relation to the structure of cognition (Piaget, 1970).

In cognitive developmental terms, the expanding richness of the guard disposes the self to a development of *maai*, an increasing capacity in the art of distancing. First, as the operational field of action increases, that is, as the *spielraum* grows the karateka experiences an increase, refinement, and savoir faire in the availability of virtual trajectories and points of impact. In the process, my guard becomes more and more impermeable. The progressive development of *spielraum* may be compared to a spider's construction of a web; it multiplies and tightly organizes the filaments that make the web, thus increasing the richness of its operational structure. Second, with increased *spielraum* it becomes easier for me to keep my opponent at bay, at arm's length. An increased depth of my *spielraum* has a psychological effect on the opponent in that it makes him feel surrounded and trapped like the prey enveloped by an octopus' many arms.

Rhythm plays a central role in establishing the onset of an action, and therefore in the balance of power in a fight (Masciotra, Giroux, & Ackermann, 1998). Through the sound and vibration created by the impact of the feet on the *dojo* floor, I can feel and hear the opponent karateka's rhythm even without seeing her feet. The relation of an opponent's rhythm with my own allows me to prepare. Imagine that the rhythm of a first karateka (A) is slow and that of the second (B) is fast (Fig. 4). The karateka performing rhythm B will be able to intervene more frequently because intervals separating moments of action are shorter. She will get a clear and unequivocal advantage over her rival (who is opposing with rhythm A). With such an advantage, she continuously gets ahead of her opponent's action. Getting ahead is more than anticipating; it is *maai*, a continuous advantage in terms of the space-time continuum available to onset, execution, and landing of a blow. By means of the pressure which her *spielraum* exerts on the other, the karateka can deliver an attack at the very moment (arrow in Fig. 4) when the opponent, being caught offbeat, is unable to re/act.

Space-Time During the Course of Action

The course of an action corresponds to the interval between the starting point of a blow and arrival at the target (Fig. 3). It is determined by the range of a specific blow. For example, the distance and time interval related to a straight punch are usually shorter than that of a circular round kick. This is so for two

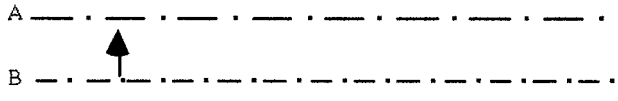

Fig. 4. Illustration of two rhythms: slow rhythm (A) and fast rhythm (B). Dashes indicate the time when one cannot release an action and dots relate to the moments when the releasing is possible. Because of her faster rhythm, karateka B has a greater temporal *spielraum* than karateka A.

complementary reasons: first, a punch is faster then a kick—in fact, arms are always faster than legs; second, a punch covers less space than a kick. So fists are faster, but legs can reach farther. Even for right and left fists there is a difference. Indeed, in a left guard, a left punch (Japanese: *kizami-zuki* = a kind of jab) is more than twice as fast and can reach the target from a greater distance than a right punch. But a right punch (Japanese: *gyaku-zuki* = reverse punch) is more powerful. So the course of different techniques may vary in time and range. "Minded" fists and feet threaten and therefore keep the opponent at the farthest distance and, at the same time, at "arm's length." To improve my distance, I need to extend the reach of my arms and feet through the coordination of different parts of the body (hips, hands, legs, etc). Once an action is ready to explode, my next important step is to accelerate it so as to obtain the greatest speed at the end.

The course of any effective action is determined by the continuous displacement of the duelists. *Maai*, then, is a continuous dance (even if the opponents are standing still) that involves a continuously folding and unfolding *spielraum*. The French philosopher Michel Serres speaks of time as creasing and folding, and, associated with it, of space as fractal and turbulent (Serres, 1994). "Follow the flight of a fly: time, does not sometimes unfold along those lines of fracture and folding that the flight appears to follow or invent?" (p. 99, our translation). Similarly, my *spielraum* folds and unfolds, expands and retracts, depending as much on the other as on myself in a balance of power between the two of us. When this balance is in my favor, my *spielraum* expands allowing me to attack from afar. In contrast, my *spielraum* may collapse and become narrow if I am dominated by a master. I literally shrink into myself, lose control; I become unable to release a decisive action although my opponent is within reach. Such situations can frequently be observed when two lower level black belt karateka compete. After a wild attack of one of the two competitors, both may be closed to each other, but fail to score even if they try frantically to do so. The difficulty to control the course of an action is due to the dynamic of *maai* during the fight.

Dynamic Maai

During a fight between two highly developed competitors, and similar to *spielraum*, *maai* is continuously changing, fluctuating, and oscillating. The spatiotemporal interval through which they are operationally attached is marked by extreme elasticity. This elasticity allows a transformation of the situation in the same way that a dough allows the baker to continuously spread and fold it. Such continuous spreading and folding gives rise to the fractal nature of time and space, both in philosophical thought (Serres, 1994) as in *maai*. Opponents often move by "waving" toward each other through the reciprocal pressure they put into play. Their synchronized displacements and the osmotic penetrations of their respective *spielraum*s resemble oscillations of waves. When the forces are well balanced, and although the physical distances fluctuate, *maai* never turns into a flight distance. The opponents remain in a synergistic relationship, much like the movement of the yo-yo remains related to the movement of the hand. The opponents' respective *spielraum*s have been likened to electrical fields: "Such fields are three dimensional, their forces decreases with distance, and their sign can provide for attraction between bodies as well as repulsion" (Hayduk, 1983, p. 293).

Depending on the phases of combat, the karate Masters distinguish three kinds of *maai* (Habersetzer, 1975, p. 29–30): *to-ma* (Japanese, *to*, far + *ma*, spatiotemporal interval) when the adversary is practically out of reach; *uchi-ma* (Japanese: *uchi*, indirect or interior + *ma*) when two opponents are at the boundaries of their respective *spielraum*; and *chika-ma* (Japanese: *chika*, short + *ma*) when they are close to each other, at arms reach, and do not need to step forward to initiate an offensive action. When a particular *maai* is enacted depends on the phase of the fight. Two phases can be identified in a fight: first, the phase before the duelists engage in an effective assault, which we call the "pre-interchange phase"; second, the proper "interchange phase," when the duelists are effectively interchanging blows. During the pre-interchange phase, the opponents enact *to-ma* and *uchi-ma*. For the dominating karateka, *to-ma* may practically turn into a reach distance and conversely *uchi-ma* may become ineffective under too much pressure. During the interchange phase, opponents usually enact *uchi-ma* and *chika-ma*.

The pre-interchange phase corresponds to the period when the opponents are studying each other, "playing distance," attempting to impose their *spielraum*, "seizing each other's distancing capacity," analyzing their respective rhythm and strategy, looking for vulnerable moments, trying to create openings, evaluating the balance of power. During this phase, the experienced (i.e., objective) space-time interval

that separates them constantly fluctuates. We can observe the masters' strategic acts of distancing through their waving displacements toward each other. When I fight a dominating opponent (who exerts an insupportable pressure on me with her encompassing and encroaching *spielraum*), my *maai* contracts, it reduces to a short range and a corresponding loss of timing. Suddenly all my actions fall short even if the target is still at hand. On the contrary, when I am able to impose my distancing power, my *maai* expands significantly and I can initiate an attack from afar and with great efficiency.

During the interchange phase, karateka frequently enact the third kind of maai, *chika-ma*. *Chika-ma* corresponds to the space-time experience at close range, a range that boxers usually take and sometimes even closer and frequently occurs after one karateka has initiated an attack. In that situation both fighters are within reach. It is a critical and very dangerous *maai* because the outcome of the fight might be decided at once. For this reason, good fighters never remain for a long time in this state corresponding to *chika-ma*.

> This distance allows no mistaken or sluggish appreciation of an attack or feint. If there is reason to be doubtful, one must rapidly stop and return to uchima or to-ma in order to recover more easily (Habersetzer, 1975, p. 30, our translation).

Inexperienced competitors usually remain too long within that critical distance. When initiating an action, and entering the interchange phase, the attacker is entirely absorbed in this one action, which is related to a complete reduction of her *spielraum*. If the initiated action falls short or misses the target, her experience is that of an emotive and reactive endeavor. Everything surrounding her becomes fuzzy, objects are present and at the same time far away. Having lost control of the situation, the inexperienced karateka is at the merci of her opponent.

DISCUSSION

In this paper, we describe the mastering of *maai* in karate-do as a mutual attunement of the space-time experiences of two opponents. *Maai* takes the form of a dance that is punctuated by the structure of the spatiotemporal *spielraum* available to and constructed by each karateka. The *spielraum* is constituted by coordinated acts of spacing, distancing, rhythmizing, timing, and synching. This *spielraum* is neither static nor timeless. Like *maai*, *spielraum* is in continuous flux, a dynamic change of the space-time relations that constitute the experienced, and therefore objective, reality of the opponents. *Spielraum* is therefore not an abstract concept, but an aspect of a karateka's experience of being in the world. The *spielraum* constitutes the karateka's ontology, the sum total of objects and events salient at any one moment, and therefore characterizing his afferent and efferent action potential. In the experience of the master karateka, the envelope of the opponent's *spielraum* is clearly felt as they get "foot swiped," "nailed on the spot," or surrounded and trapped. Karate masters paralyze their opponents by imposing their omnipresent *spielraum*; novices feel intruded upon when their personal space vanishes in that of the master. In such situations, novices experience a sense of febrile and helpless agitation; they loose control of their *maai*.

Masterful *maai*, that is *optimal distancing*, occurs when self is in synchronous, harmonized rhythm and space-time intervals with the "other," when both are "constituting a single, living, breathing body" (Hall, 1989, p. 163). Developing *maai*, therefore, is coextensive with actively working on developing the experience of being in the world. A master is able to assimilate the rhythm of the other and to accommodate it without having to modify his own rhythm. To assimilate here means to grasp (understand in action) the opponent's rhythm through one's own rhythm. To accommodate here means to tune with the other's rhythm and to seize, with the proper timing, the opportunities of action that it offers. Understanding in action the opponent's rhythm allows to be aware of short phases of the rhythm and to "catch" (identify) in which phase an attack may start; that enables the master to be ahead and to establish a favorable balance of power. In the following sections, we contextualize our analysis of *maai* in terms of cognition and development.

Cognition

Generalized Rational Activity

One might be tempted to think of *maai* in terms of stage theories of human development, particularly Piaget's idea of the individual cognitive system that adapts sensitively to the exterior world (Piaget, 1970). Such a developing cognitive system progressively dominates the world as it puts the world at a distance, re-presents it, and thereby begins to control the world symbolically. In this move, contingencies that charac-

terize our experience are abstracted so that the world appears more symmetric in symbolic (or logic) terms than it is in our experience. Thus, in karate, a left guard can be logically understood as the inverse of a right guard. In terms of logical operations, left and right guards have the same structure and should be translatable into each other. In the experience and practice of karate, however, left and right guard(s) are not reversible. Even for ambidextrous karateka, the actions of the left arm are never exactly the same as those of the right arm. The *spielraum* unfolded by means of a left guard may logically be the same as the right guard, but is experientially different. Another important problem the Piagetian rationalist view faces is that during combat, the karateka bears no resemblance with the *Penseur* (Rodin) who cogitates out of context. The karateka, as a being in the world is one with the context, constantly alert, engaged in the here and now. In the experience of karate, to think is not to cogitate but to unfold a *spielraum* of action possibilities through epistemic (''mindful'') actions. Masters do not represent the situation in their mind, but cultivate mindful readiness, or thoughtful immediacy. The thinking is in the doing and cannot be reduced to cogitation or reactive behavior. It is therefore more helpful to think of cognition relative to *maai* in terms of an individual as a situating and situated *Dasein* (German: *da*, (t)here + *sein*, being).

Situating and Situated Dasein

The network of virtual actions that makes up *spielraum* expresses a highly developed, ''minded body,'' that is, a body that is mentalized through one's experiences. In the martial arts, taking guard means intending the body in the direction of the opponent; it is an aspect of the corporeal basis of perspective taking (Ackermann, 1996). Possibilities are located in the dexterity of hands, elbows, feet, and knees. The action potential of the fists, for example, results from ''willing hands'' that are actually targeting the openings in the opponent's guard. Enacting possibilities in the guard is therefore not the same as thinking about them. The hand's *prehension* differs greatly from the head's *comprehension*.[9] If the karateka reflects about possible moves involving a hand, the action potential is literally in the head, not ''present- to -hand.'' Masters regularly say that to be effective one must think with one's hands. In this way, we can think of creating *spielraum* as an activity where the karateka actively situates cognition in the relationship of the body and the world. Rather than cogitating about actions, the karateka enacts cognition in the form of epistemic actions, which, as psychological experiments have shown, radically decrease the time required for appropriate action (Kirsh, 1995).

Maai is a central aspect of cognition in karate, for body and mind are integrally related. Physical positioning is the conditional substructure of the mental structure of the guard; it is a necessary prerequisite for ''minding'' the body. Minding the body is coextensive with the readiness of the karateka as a Dasein in a contingently unfolding world. Positioning, that is, being in guard and therefore being-in-guard, sets up *spielraum*, the particular space-time structure of one's room to maneuver. The *spielraum* is the prolongation in space-time of *Dasein* into the ''outside'' world.

Our qualification of a *Dasein* as a situating, situated agent means that human beings are not pure reactive organisms as supposed by behaviorism. Indeed, humans are active and capable of anticipation, but the distinction between reactive and active minds is not enough to distinguish beginners from masters. The deep difference resides in that the latter masters the art of distancing and that this mastering capacitates him to get beyond reactivity and anticipation. Masters ''get ahead'' of events. Getting ahead is central to mastery in many art forms, especially those that require improvisation such as jazz artists (e.g., Schön, 1987). In masterful jazz improvisations, thinking and acting are embedded in and part of a single event. There is no break, no time out in the action to engage in (intellectual) reflection. Masterful jazz improvisations are paradigmatic examples of masterful *maai* in the Western culture. Here, ''reflection'' is constituted by sophisticated and conscious action coordinated in real time. The jazz player might describe this experience as ''what I think is what I do because if I think of what I do I will not be efficient.'' Thus, during outstanding jazz improvisations, the player is one with the world:

> Listening to one another, listening themselves, they ''feel'' where the music is going and adjust their playing accordingly. A figure announced by one performer will be taken up by another, elaborated, turned into a new melody. Each player makes on-

[9]Although they differ, they constitute each other. Thus, the worldliness of our bodies that permits hands to grasp is a corequisite to our grasping the world, ''Le monde me comprend . . . mais . . . je comprends ce monde'' [The world comprehends-encompasses me, but I comprehend this world] (Bourdieu, 1997, p. 157).

> line inventions and responds to surprises triggered by inventions of other players (Schön, 1987, p. 30).

This is *maai*. Shared rhythm or even interweaving rhythms constitute a central part of the underlying space-time structure, the shared *spielraum* that they collectively construct in real time and without verbal communication. Each player self-prolongs into the other and becomes part of the prolongation of the other. To successfully deal with such emergent events, self has to be omnipresent and ready. The purpose of *Dasein* is to act in perfect synchrony with the continuously unfolding emergent event.

Development

From the standpoint of a genetic epistemology, the evolution of praxis (or our situating and situated contextual relationship with the environment) does not proceed from concrete to abstract, but rather from the less abstract to the more abstract and, concurrently, from the less concrete to the more concrete. Sophisticated *spielraums* may appear as abstract entities, but are experientially concrete in the experience of the master karateka. Concrete contexts—made of distancing relations—and abstracted actions are not opposed but function as two interfaces whose role it is to refine, lengthen, and enlarge one's being here and now. From the less concrete and less abstract roughness and vagueness of the sensorimotor world, one progressively moves to a more concrete and more abstract refinement and cleanness of the constructed reality.

Reflexive Activity and Development

Piaget's interest was to show that the rational scientific mind, conceived as the telos of development, has its roots in the individual's reflexive activity. Human development is then described as a move from empirical action to representational thinking, then to conceptual operative thinking and finally to formal reflective thinking. The Piagetian perspective delineates human development as a long itinerary (process of rationalization) ending with the scientific formal and logicomathematical thinking (which Derrida [1988] calls phallogocentric). But, to become a scientist is not the only way to develop oneself, and, in terms of the spatiotemporal dimensions of *maai*, certainly not the most appropriate one. One may also grow and reach the highest "stages" of development by becoming a master in piano or dance, singing, painting, teaching, martial arts and so on (Gardner, 1983). These ways cannot be depicted along a process of rationalization. A master of music is a master because of her outstanding musical performance, and not because of her rational understanding of music, although, as noted by Inhelder and Piaget (1979), rational understanding may be helpful, but it is *not necessary*. While the pianist "thinks" with her hands and temporally adapts to the piano and other musicians, the rational thinker stays away from the scene to reflect within the atemporal reality of logic. Piaget's system breaks down in the context of adult development which involves, as *maai*, a body-mind relation in a spatiotemporal structure. To us, a more fruitful approach to understanding human development is capture in *Dasein*, both an experience and concept describing experience.

Development of Dasein

In the phenomenological tradition, subject of being in the world is *Dasein*. Personal growth of *Dasein* is he lifelong attempt to achieve a balance between being embedded and emerging from embeddedness (Kegan, 1982); that is, between being situated and consciously self-situating. Growth requires *Dasein* to find an equilibrium between openness and closure, between stability and mobility, and between assimilation and accommodation. Autonomy and agency, in this case, are not matters of intellectual separation but of active engagement in sustaining a harmonious interplay between *Dasein*, the dweller, and world, the habitat.

In karate, the difference between a master and a beginner is that the first mostly acts as a situating agent while the second mostly reacts as a situated organism. Development can be provoked through the practice of taking guard. Taking guard involves a being here and now, that is, to enact a network that integrates more and more refined virtual actions that generate and correspond to an enlarging and deepening *spielraum*. *Dasein* produces its *spielraum* through its own situating actions, but *Dasein* is also situated in this *spielraum* which constitutes the *Da*, the here and now of the spatiotemporal continuum where being occurs. *Dasein* develops as it masters an ever sophisticated network of virtual actions; the *Da* is enriched as an increasingly refined *spielraum*.

CONCLUSION

Cognitive scientists and educators alike frequently view human development as a triumph of mind over the material and spatiotemporal contingencies that characterize everyday living. From learning to dance to physical education, from learning mathematics to learning a foreign language, lessons and experiments are stripped of the messy dynamics inherent in situating, situated contexts of use (Ackermann, 1992). Students are prodded into taking the reflective analytic road to intellectual development. Thinking and growing in action are downplayed. This view prevails for such diverse developmental tasks as personal, moral and cognitive growth, artistic or athletic mastery. To reach excellence, the story goes, novices have to learn to separate what they know from how they came to know, and how they came to know from what affords usage. This, in turn, requires a separation between self and world, between self and other, and between *Dasein* and "there" (Ackermann, 1996). Our perspective of a developing *Dasein* with its increasing harmonious rapport, *maai*, with the world it inhabits is very different from other views of human development.

In this article, we developed a different telos for adult development, a development that describes an unfolding harmony, *maai*, with the spatiotemporal contingencies of *Dasein*. We exemplified *maai*, the art of distancing, as it is enacted in karate-*do*. Karate-*do* constituted an ideal case study because appropriate distancing is central to mastery. However, we also indicated that *maai* is central to Japanese culture, not just as an intellectual construct but as an aspect of the experiential reality. Thus, *maai* is enacted and has become highly developed in various art forms such as dance, theater, poetry, calligraphy, and music. However, *maai* is not the sole domain of the arts; we can think of *maai* as a structure of the experience of being in the world whatever the current setting and activities. *Maai* then is the art of developing a harmonious "in" that relates *Dasein* and (social and material) world, a way in which Self and Other relate in a pulsating dynamic space-time structure:

> There are certain people who have a talent for breaking or interrupting other people's rhythms. . . . Fortunately, there is another kind of person: the one who seems to sense what move you will make next. Anything you do with him or her is like a dance: even making the bed can be fun (Hall, 1989, p. 162).

Maai then becomes a way of being, that is, of relating to the world. Bed-making is no longer a chore, nor doing the garden, growing vegetables, cooking, or writing research articles. We have begun to describe the activity of teaching, both mastery and development, in terms of *spielraum* and judicious (spatiotemporally appropriate) actions (Masciotra & Roth, 1999; Roth, Masciotra, & Boyd, 1999). Much work remains to be done in describing *maai* and the space-time structures of the spielraum associated with it in other domains of human activity.

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