

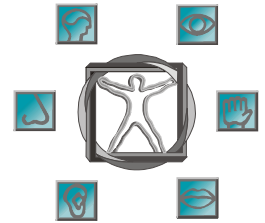
# Feldenkrais- Ausbildung

— BEWEGLICHKEIT FÜR GEIST UND KÖRPER —

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## The Arrow of Motion

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This is the third installment in the series about the SPIFFER model, an explicitly systemic approach to movement observation and evaluation. SPIFFER is a seven dimensional model, that is to say, it identifies seven essential aspects of movement. Once we identify the initiation of a movement, the beginning place, we can ask, "Where does the movement go?" Rather than attending to the sequence, the chain of the motion through the skeleton, we can follow the movement into space. In the following article, we explore this third aspect, movement in a three-dimensional environment, in terms of path.

Movement is embedded in three-dimensional space. When we move, we do not simply move a certain distance or a specific speed, but we always move in a direction. Movement is a vector, rather than a scalar, quantity. That means movement is more than an amount of displacement, it is always displacement in a direction. Direction, the arrow of motion, is a fundamental aspect of every movement we make.

We exist in a coordinate system of our own making, distinguishing right from left, up from down, and forward from backward. As Moshe wrote, "When man differentiates between right and left he divides space with respect to himself, taking himself as center from which this space extends." Thus we establish our relationship to the space that surrounds us, finding ourselves in, orienting to, that space. In teaching Awareness Through Movement, we distinguish between directions given in reference to the room and in reference to the person, choosing to use person-referenced directions. The choice is meant to avoid confusion when the teacher says something like, "Put your hands overhead." While in room-referenced instructions, decoding such an instruction is dependent on the student's orientation--overhead is different while lying on the back than while standing--it is unambiguous in self-referential language.(The question of reference system is not all that simple.

Though it is the basis for daily descriptions, a Cartesian grid is not the only possible geometric framework for understanding movement. As R. Buckminster Fuller used to point out, our language is based on outdated ideas that we continue, unconsciously, to rely upon. Though most of us would insist that the Earth is round, we refer to going into the basement to do the laundry as going down stairs and to airplanes as flying up into the sky. Yet on a globe, there is no up and down. Up and down only make sense in relationship to a flat surface. While our local environment may give us the illusion of a flat world, we know, thanks to the photographs from space, that we live on a big blue ball. Bucky suggested that we say planes fly out and we go instairs to the basement.)

The most primitive element of our spatial orientation is direction. Living in this world demands that we find our bearing in relationship to the cardinal points of our personal compass. Directionality is fundamental: he drops into the easy chair, she heads around the corner to the right, you reach forward for the glass. We move towards that which we desire and away from that which want to avoid.

By combining opposite directions, we can create the fundamental axes of our Cartesian framework. Up and down combine to form the vertical axis, right and left form the horizontal axis, and forward and back make the sagittal axis.

By combining two axes, we get a plane: for example, taking the vertical and horizontal axes, we get the frontal plane. Our vernacular description of movement implies three fundamental planes: sagittal, frontal, and transverse. An easy way to think about the planes is that the sagittal plane is the plane of the wheel, the frontal plane is the plane of the door, and transverse plane is the plane of the table.

Looking at the geometry of motion, we can categorize a joint according to whether it allows movement in one, two or three planes. Furthermore, we can classify movements according to planes in which they occur. For example, watching a person's nose draw an imaginary line in space as she rotates her spine, we see a circular path described in the transverse plane. Similarly, bending forward and back create paths in the sagittal plane, and bending side-to-side happens in the frontal plane. Path, the trajectory of some body part through space, is the line of motion through three-dimensional space. The notion of path is of central importance in some styles of dance, where the choreography literally draws three-dimensional trace forms in space, and in the practice of some of the martial arts. In considering everyday movement, we differentiate three types of paths: one-dimensional straight lines, two-dimensional curved lines, and three-dimensional spiral lines. A punching fist follows a straight line, as does a catcher's mitt reaching overhead. A hand waving good-bye and a foot kicking a pebble both trace the flat, arc of a curved path. Both unscrewing a mayonnaise jar and wringing a towel are spiral actions. The notion of a path gives us a way to see a kind of overview of a lesson and, thereby, to summarize it in a visual image. We say "pelvic clock," "see-saw breathing," and "arm circle." Even when the path is not found in the title of a lesson, we often see it as a primary aspect of how a lesson moves us through space and of the underlying "organization" about which it can teach us.

I remember an example quite clearly from my first training segment: we were exploring "twist to stand," the lesson in which you sit cross legged, place one hand down and twist up to standing, facing 180° from where you started. Anat Baniel asked us to watch two people doing the movement. One person first turned around with her knees bent and close to the floor, keeping her pelvis low. After she turned to place her hands behind her, she balanced on hands and forefeet

momentarily, and then brought her heels to the floor as she straightened her legs. Anat pointed out that the motion was executed in two phases: first, she turned, then she lifted. Another person brought his hands around and behind him while, at the same time, turning his pelvis. He continued turning his pelvis as he straightened his legs, coming up in one continuous corkscrew.

Spatial distinctions are essential to teaching ATM. We give directions, suggesting a domain of distinctions that both offers students a way of conceiving space and gives them a way to navigate through it. The idea of a path communicates a global attribute of the movement's organization. To clarify one possible trajectory of rolling from lying to sitting, we describe the low course of the head. In another lesson, we clarify the wide circle the hand traces on the floor as we come up on one side and roll down on the other. The interaction between the constraints of our skeleton and those imposed by a specific path shapes our body. We lengthen and shift our base of support to reach something on a high shelf or narrow to sneak through the space between the hedges. To understand this relationship between path and sequence, let's look at another ATM lesson: "Turning the head around its circumference and in the center," from Volume One of Dr. Moshe Feldenkrais at Alexander Yanai (pages 31—37). In this lesson, the first instructions say to imagine that you have a pencil on top of your head. You then "move it so it draws a circle on the piece of cardboard held above your head." This movement is later compared with moving your head around a stationary finger, so as to draw a continuous line around the crown of your head. The difference between these two movements demonstrates that once a path is defined, it constrains movement, requiring that our anatomy form itself around it. Making distinctions between paths reminds me of one of the most unusual requests I ever received from a student. Alex, a male-to-female transsexual, came for lessons because she thought her movements were too masculine. She recounted an instance when she was buying groceries: the cashier finished the sentence, "And how can I help you today, sir," just as she looked up, suddenly confused by the incongruence between what her peripheral vision had told her and who she now saw in front of her. This student lamented that she wanted to move in a more feminine way but was afraid of acting effeminate or caricaturing women's movement. As we investigated her everyday movements and observed the lines of action she preferred, she began to see and to sense the linearity of her movements. For instance, she charged directly ahead as she walked or she thrust her hand straight forward to shake mine. Among other changes in vocabulary and punctuation, we explored making movements rounder and more indirect, without sharp corners or straight lines. (The idea, of course, was that she would be able to distinguish between ways of moving and therefore have a choice according to situation and intention.) Path also gives us one way to evaluate the efficiency of motion. Think of someone bringing his left shoulder forward as he turns his head to look to the left. The shoulder girdle would, therefore, be turning opposite the head. In other words, this person is counter-rotating, turning against and running into himself. Another example is someone trying to push a heavy door open while rotating their pelvis away from it. This is a concretization of the idea of cross-motivation, that is to say, of having contradictory intentions. It is as if the arrows of movement, the spatial intentions, interfere with each other so that one's momentum is going in more than one direction at the same time. Obviously, the resulting movement is weaker than the sum of the efforts. Here are some exercises for learning more about path on your own and with your colleagues:

• Study an ATM lesson to learn about the path that shapes it. For instance, what path is traced by the hand in the classic "Arm circles" lesson? How does the path of the hand relate to the path the pelvis follows?

What is the timing relationship between those two paths? Looking at a particular student, you can ask when her hand directs the action and when her pelvis leads.

“ Understanding the lines a lesson draws in space offers a way to track a student’s understanding of a movement. By observing how a student navigates through the instructions and coordinates herself in reference to optimal path of the lesson, you can see what the student has yet to learn. It can also suggest lessons that might clarify some missing aspect of someone’s movement.

For instance: How does the path of the pelvis in "Arm circles" relate to the path the pelvis takes in "Coordinating flexors and extensors?" Can using the path clarified in one lesson help make another lesson clearer? Look at a series of lessons, such as the head-circles series or the series of holding below a knee and moving the leg (in side-lying), to see how the lessons relate to each other spatially.” Observe yourself sweeping. Follow the trajectory of your hands as they move the broom from side to side. What kind of path do they take? How does your shoulder girdle move? What pathway does your pelvis track? Are the trajectories aligned or cross-motivated?

Now investigate how others sweep, asking the same questions.

If you can do this with colleagues, the discussion that emerges can be a good way to begin to observe what you notice and what you miss. (You might consider video-taping so that you can watch the same person several times.)

“ Observe people engaged in different activities: playing a sport, making transitions from one position to another, lifting and carrying objects or people, and engaging in some delicate work. How can you categorize different activities according to the kinds of paths that people take? Which actions are linear? Which follow curves in a plane? Which benefit from three-dimensional spirals? How does the path relate to the movement’s relative efficiency, that is to say, to the relationship between effort and result? Think for a moment of the various lessons that involve moving from one position to another, say from lying to sitting. What kind of path do these lessons tend to follow? Can you think of exceptions to your generalization? Is there a difference between the trajectory of whatever part of the body leads the movement and how the rest of the person follows?

With these exercises, you will begin to develop a deeper appreciation for path, the third facet of the SPIFFER model. Notice what kind of questions this way of observing brings up for you and your colleagues. What is noticing path good for? What are its limitations?

In the next article in this series we will turn our attention to the relationships between initiation, sequence, and path. I invite you consider these relationships in advance. Your comments on them, as well as on any aspect of the series, are most welcome. I look forward to hearing from you.

1. Feldenkrais, M. (1972). *Awareness Through Movement*. New York: Harper and Row, page 53.
2. The idea of orientation is central to our work. In the San Francisco training, Moshe said, "Without orientation, there is no consciousness" (Personal communication, Dennis Leri). Perhaps Moshe was influenced by the Pierre Bonnier's classic study of vertigo (*Vertiges* published in Paris in 1893), in which he comes to a similar conclusion.

3. For instance, the Eskol-Wachman notation system is based on a radial frame of reference. See Eskol, N. (1980). *50 Lessons by Dr. Moshe Feldenkrais*. Tel Aviv: Movement Notation Society.
4. These are abstract ideas. For instance, side-bending occurs in the frontal plane, but it also requires rotational movement at the joints of the thoracic spine. For more information about this, check *The Physiology of Joints*, by I. A. Kapandji (Volumes I--III, 2nd Edition. London: Churchill & Livingstone, 1982).
5. For a great example of the notion of path in the martial check out Aikido and the dynamic sphere by A. Westbrook and O. Ratti (Rutland, Vermont: Charles E. Tuttle; 1970). For applications in the dance world, see Rudolph von Laban's *Choreutics* (London: MacDonald & Evans; 1966).
6. For more information about shape and about Laban's approach to understanding movement in space, see: Dell, C. (1970). *A primer for movement description: Using effort-shape and supplementary concepts*. New York: Dance Notation Bureau. and Bartenieff, I. (1980). *Body movement: Coping with the environment*. New York: Gordon and Breach.
7. Feldenkrais, M. (1995), *Dr. Moshe Feldenkrais at Alexander Yanai* (A. Baniel, translator and editor). Paris: International Feldenkrais Foundation.
8. See pages 23—29 of *The Potent Self* by Moshe Feldenkrais (San Francisco: Harper and Row, 1985).

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