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The rowing machine doesn't construct an action trajectory shape and solely requires a secondary (internal) focus

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*Caught In A Line*

The explanatory model of all motoric movement actions

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## Introduction:

Traditionally, science has assumed that one motor action encompasses one focus. This assumption has seemingly been so logical that it has never been questioned. However, this has led to the absence of a plausible explanation for the functional perception processes underlying the execution of all motor actions, even after 150 years of movement sciences. In 2016, an explanatory model was found that is capable of identifying all functional perception processes within any imaginable motor action. Beyond any reasonable doubt it conversely demonstrates that every motor action can only be executed through a compulsory coupling of two foci: an internal (secondary) focus must always be directed at an external (primary) focus. In which it should be explicitly noted that these two foci represent entities that fundamentally differ from current scientific terminology.

The explanatory model emphasizes that the essence of a motor task always involves the movement of an action object outside our body along an action trajectory shape, but that the action object will never be capable to move on its own along that line. The action object is often an inanimate object (pen, spoon, needle, bicycle, key, tennis racket, ball, letter, pointer (pc) etc.) that we hold during an action, and even though the fingertips, during a grasp action with the hand on the outside, consist of living cells, we absolutely aren't capable of moving them there. The explanatory model unequivocally shows that initiating the movement of an action object outside our body is only possible by using secondary perception of autonomous movements within our body.

Compared to the current state of science, the explanatory model represents a revolutionary breakthrough, revealing that two foci must enter into an obligatory connection simultaneously, and this universal stacking of two perceptions of two autonomous movements occurs in every motor movement action. They are clearly autonomous because they belong to two incompatible worlds. Observations of movement inside and outside the body are actually never able to overlap.

This article focuses entirely on rowing. It presents compelling evidence that only the boat c.q. the movements of the boat itself, akin to a marble in a marble run, executes this action trajectory shape, thus accomplishing the task's essence. For this reason, primary attention must be directed towards the external movement of the boat. The boat can only be set in motion by entirely different movements within the body that only extend to the outer part of the oars. The attention required for this must serve the main objective, hence referred to as the secondary (internal) focus.

What makes this publication truly exceptional is its comparison between regular rowing and stationary rowing. This demonstrates that the secondary (internal) focus is exactly the same for both actions, while the primary focus is entirely absent in the case of the stationary rowing machine. In contrast to regular rowing, no visual perception is necessary when using a stationary rowing machine. There is no merging of two attentional foci, and so no fixation (gaze) occurs. This finding should render further scientific discussion unnecessary, as the insight provides immediate clarity.

Furthermore, the explanation shows that all conceivable motor actions are based on these same two foci. Due to this universal nature, the explanatory model creates the most ultimate conceivable ecological argument. The article does not delve deeply into the differences with the current state of science because there is still no clear consensus on this subject within the scientific community.

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The primary focus within rowing encompasses the perception of movement outside the body



Images: Rowing solely encompasses the task of moving from point A to point B<sup>1</sup> using a boat. So the essence of this task is exclusively carried out by the autonomous movements of the boat, making it the primary process we need to observe. It is abundantly clear that the stationary rowing machine will never start to move, hence there will never arise a need to perceive an action trajectory shape within a primary focus.

In abstract terms the egocentrically formulated will while rowing encompasses the movement from A to B. In relationship to this egocentric formulated objective the explanatory model demonstrates that solely the boat (with the occupants), or rather, the movements of the boat (with the occupants), will execute the essence of this task, thus constituting the primary focus within this action. In addition the explanatory model provides scientific evidence that any imaginable motoric action comprises two subsequent autonomous phases. In the first, a tactical consideration aims to establish a perceptual image of a latent action trajectory shape in which, in this case, the boat (with the occupants) or the movements of the boat (with the occupants) will most likely succeed. Only then does one proceed to the factual execution of the action. So when we subsequently are going to carry out the action, we fill in that perceptual image of the latent action trajectory shape with the boat. Therefore, within the primary focus, this is the essential process our perception processes must guide, a process that science has entirely overlooked thus far. Subsequent articles will reveal that filling in the action trajectory shape by the boat yields the crucial *tau*-value to which the secondary focus is compellingly linked and will be explained how the cortical streams mediate this process.



Images: In every conceivable motoric movement action, the action object will traverse an action trajectory shape just like a marble does within a marble run. In most cases this action trajectory shape remains invisible. However, in competitive rowing, a marble run becomes visible. Wherein the current

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<sup>1</sup> The explanatory model defines all actions in which the primary egocentric objective involves a distinct movement from A to B as motoric movement action *moving A-B*. This encompasses activities such as walking, cycling, sailing, swimming, boating, skiing etc. etc..

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position of the boat, like the marble, precisely delineates the separation between the manifest and latent parts of the action trajectory shape.

Maybe we do construct perfect straight action trajectories when we create (latent) perceptual images of the future positions of the boat within rowing. However, due to the fact that you can only execute the movement of the boat with the perception of an entirely different autonomous movement, the boat will inevitably deviate from that "perfect" original pre-perceptual image at every position P within the action trajectory. This process is, therefore, guided by the double and mutual process of the cortical streams, representing the brilliant ecological response of the body to execute every motor action in the most efficient and effective way possible. The ventral and dorsal streams continuously interact with each other to correct the inevitable deviations, but this interaction does require a (very short) reaction time<sup>2</sup>. As a result we can never perform one motor action identically (conform Bernstein) and the boat will always follow a different zigzag pattern while biking. As a result, we (following Bernstein) can never perform any motor action in an identical manner, and therefore, the boat (with its occupants) will always follow a continuously different zigzag pattern. Upon which the explanatory model hastily emphasizes that achieving an identical execution of motor actions has never been the objective of parsimonious organisms and therefore doesn't fit into an ecological evolution. Generating form similarity is far more efficient and effective.

#### The secondary focus within rowing encompasses the perception of movement inside the body

When one starts to realize that the primary focus solely concerns the movements of the boat, it implicitly becomes evident that the boat itself isn't capable to move at all. This analogy is strikingly similar to a ball during a free throw in basketball or various other inanimate objects like tennis rackets, cricket bats, spoons, knives, bicycles, bottles, pointers (pc) and more, which clearly never move on their own. But even when we grasp a coffee cup with our hand, the explanatory model demonstrates that the hand, and consequently the relevant fingertips, must also be considered as lifeless action objects. The outer layer of the fingertips does comprise living cells, but it is absolutely incapable of moving the fingertips in an action trajectory shape outside the body with those living cells. We can only induce movement in the outer layer of the fingertips through internal body movements. While they may approach the outer surface of the fingertips, they will always remain within the confines of the body. In the case of rowing, we can only perceive the (outer surface of the) oars using (the outer surface of) our hands, and we can only proprioceptively<sup>3</sup> perceive how movements within our body influence the haptic contact between the hand and the oar.

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<sup>2</sup> The specific reaction time concerning cortical streams in relation to the explanatory model has never been examined. General information and empirical experiences provide an indication that the reaction time is estimated to be around 0.1 seconds; "It takes about one-tenth of a second for information about the visual scene to reach the back of the brain or the occipital lobes. During the next tenth of a second, the visual information is analysed in two separate ways. Figure 2 shows the two pathways of the dorsal stream and the ventral stream. The dorsal stream runs from the occipital lobes to three locations, the back of the brain at the top (called the posterior parietal lobes), a vertical strip of brain in the centre (called the motor cortex) and the front of the brain (called the frontal cortex). The ventral stream runs from the occipital lobes to the back of the brain at the bottom (called the temporal lobes)": Cerebral Visual Impairment - Working Within and Around the Limitations of Vision; Gordon N Dutton; [http://www.liv.ac.uk/~pcknox/Publications/trimble/CVI%20chapter%20for\\_hers-Dutton.pdf](http://www.liv.ac.uk/~pcknox/Publications/trimble/CVI%20chapter%20for_hers-Dutton.pdf)

<sup>3</sup> Scientific research has demonstrated that proprioceptive perception encompasses two autonomous phenomena, namely: 1. Limb Position (LP) and 2. Movement (M). The explanatory model clearly illustrates this within the context of rowing as well. LP is linked to the overall rowing technique, while M pertains to the specific point where this overall perception needs to be transferred to the oars.



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Images: Within this article, it must be made entirely clear that the secondary focus makes absolutely no distinction between regular rowing and stationary rowing. The transfer to the oars is entirely identical. The only difference with a rowing machine is that steering is not necessary.

Even in the context of rowing, the objective of the task is inherently linked to the observation of the primary focus. As a consequence, we frequently find ourselves not fully conscious of the secondary focus during numerous motor actions, primarily due to their often uncomplicated nature. Nonetheless, in very complex motor tasks, like executing a tennis serve, undivided attention is directed towards the secondary focus c.q. the precise technique of the serve. Completely overshadowing the fact that the primary focus pertains to create an outgoing ball trajectory shape (OBT).

With dedicated practice and refinement, it becomes entirely feasible to consciously engage with both foci concurrently even within the realm of rowing. This ability to dualistically perceive and comprehend the intricate interplay between the primary and secondary foci is a skill that can be honed through diligent training and application.