Caught In A Line

The Motoric Movement Action – Addendum 1

The Quiet Eye (TQE) versus The Active Eye (TAE), two research propositions and the full motoric learning instructions regarding the free throw (basketball) and the golf put

Bètaversion

The first fully revised edition

N.J. Mol

Amsterdam, November 2016 ©

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Bèta-version

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The first fully revised edition – June 2018

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Contents

"The starting point is missing!"

"But how can relevant spatial information be distinguished from non-relevant information, before the information extracted by QE is transmitted to the brain? This is an important question because the explanations about the usefulness of QE rely on the assumption that gaze is fixated on "relevant cues". Information from these cues will then "feed" neural networks, allowing these brain structures to organize (programme) a motor response. For example, how does a dorsal attention network distinguish what is distracting or what is anxiety-producing for each individual (Vickers, 2016, p. 7)? Indeed, the explanation presented by Vickers (2016, p. 8) is that "the neural networks underlying high levels of performance are 'fed' very precisely with external visual information, and it is this information that is central to organizing the complex neural systems underlying control of the limbs, body and emotions."
The problem, we believe, is that the starting point is missing in an information processing explanatory framework: How does the brain tell the eye where to look (and perform the QE)? How is the action that allows the body to search for relevant cues and perform a QE "programmed by the brain"? A possible answer to these questions implies a clear understanding of the role of constraints and information in explaining how intertwined processes of perception, cognition and action subserve goal-achievement in athletes (Araújo et al., 2006). And this explanation cannot be confined to how task constraints and information are represented in the brain, because this will always postpone the answer to the question concerning how these task constraints and information sources were selected in the first place."[1]

[1] *What could an ecological dynamics rationale offer Quiet Eye research? Comment on Vickers*; Keith Davids & Duarte Araújo

Preface

Motoric movement and motoric learning processes are essential parts within our existence and that is why many scientific disciplines are actively involved within scientific research for more than a hundred years. Still there is a lot of confusion/discussion concerning the functional processes[2] in there. A universal basic model is missing that is able to explain all motoric processes as well as the perception processes. The Quiet Eye (TQE) is considered to form a possible explanation but, as the aforementioned quote[3] states, a lot of critics emphasize that the *starting point* is missing[4]. Along with this a dichotomy is noticed in explanations concerning bottom-up and top-down perception processes and scientists are also still having a lot of problems within explaining the function of the processing processes of the mainly visual perception, in casu the ventral and dorsal stream.
The explanatory model of the Motoric Movement Action, which in contradiction to The Quiet Eye (TQE) is called The Active Eye (TAE), describes many very active perception processes and offers the definite solution for all aforementioned problems. TAE provides a universal explanatory model which will cover just any motoric movement action and shows that every action needs an obligatory cooperation between bottom-up and top-down perception processes. It integrates both kind of processes in one overarching phenomenon and in this way ends the aforementioned (perception-action) dichotomy and with the complete appointing of the interaction between the bottom-up and top-down perception processes the function of the ventral and dorsal stream become clear as well.
Besides this the explanatory model automatically provides the most optimal motoric learning model. A learning model that doesn't show anymore loose ends[5]. Once The Active Eye (TAE) is approved motoric learning will never be the same anymore. Now it is formulated what a student should learn in a motoric learning process. Then there needs to be formulated what a teacher should teach to evoke an actual motoric learning process. Focus and flow will then be trainable in a full rational/explicit way.

The main part of my active career, I am close to retiring, I have been occupied with professional dance and tennis. Within there I have dedicated myself to develop the most optimal motoric learning methods as a pure scientist. Medio 2007 I gained the insight that a moving (tennis-)ball is always caught/trapped within a ball trajectory *shape*. That idea came to me in a time that I was consciously trying to link the ball to a larger, more comprehending, entity. I am able to recollect that I mentally really struggled with this part until the moment that I suddenly realised that it just was a fact. Every place P, of actually any moving object in any environment, is always glued to the adjacent places P within the line segment shape of the particular movement of that object because in our world no *time jumps* exist. So every place P(0) of every moving object is always connected to the places P(+1) and P(-1)[6]. It is exactly this limitation, within for example a tennis ball, which actually forms one of the

[2] F.e. Proske and Gandevia:
[3] P. 5.
[4] See: Quiet Eye research – Joan Vickers on target CISS Target Article 2016;
https://webapp.uibk.ac.at/ojs2/index.php/ciss/article/download/416/398
[5] Even the relative new, ambiguantly received, research of Wolfgang Schöllhorn concerning "differential learning" gets its own and definite place within the model.
[6] Now the original function of the visual organ can be explained in a definite way as a *bycatch* (!) of the explana-

essences in the explanation of the explanatory model because due to this limitation the *affordance* occurs that we are able to perceive *precise global* predictions of near future (latent) places P of the tennis ball on basis of gained cognitive knowledge.
So a tennis ball doesn't only create its actual ball trajectory shape but also needs to follow a perceptual image of a latent ball trajectory shape in a *precise global* way[7]. In short the explanatory model provides the novum that we perceive every movement, including every *zero*-movement, out of the (movement) action object (MA) but in fact in a set relation to the manifest and latent (movement action-) line segment shape (MA) of that particular action object. In which you need to remark that the manifest part of that line segment shape will often remain invisible in most actions. Conversely within for example the Motoric Movement Action *writing* the action trajectory shape indeed becomes visible. So the essential lesson within there will be that we always perceive the action object (MA) in one complex perceptual image in relationship to the manifest *and* (!) the latent part of the action object trajectory and that we are not capable of disconnecting the two and perceiving them apart. And that concerns all pixels which we visually perceive within the whole environment. So we see the apple lying still in the fruit basket and out of the zero-movement we actually don't see a manifest and latent action trajectory shape but a manifest and latent *zero*-action trajectory shape. So also within there we construct a perceptual image out of the manifest part that will provide a *zero*-movement. Conversely with the cyclist we construct a perceptual image out of the manifest and latent action trajectory shape in a *normal* (?!) way. Due to the shape of the actual movement of the cyclist we are able to construct the shape of the latent part of the future places of that cyclist in a *precise global* way.

This crucial understanding came to me medio 2007 and it was only from November 2015 on that I started to thrust my thoughts to paper. It took years to develop the original thoughts into the beginning of the explanatory model. Till now this has led to a tennis book with the title "Watch The Ball Trajectory!" and a general book with the title *Caught In A Line* with both have the general goal to clarify all the functional processes within all Motoric Movement Actions[8]. Till now I have added two addenda to *Caught In A Line*. This is the preface of the first revised version of the first addendum.

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tory model. Although the goal of all my efforts is to appoint all motoric actions in an ending description this mere bycatch might be several times more important within the scientific world than the whole explanatory model itself.

[7] I need to add two remarks in here. First the perceptual image of a latent shape will gain quality if the producer possesses a lot of experience concerning these shapes. Second *precise global* is the magic expression within the explanatory model. With that expression it tells *precisely* (!) how it works. The perceptual image needs to provide a very rough sketch of how the action will be executed and as soon as possible within the action so that the Motoric Movement (MM) will be able to start almost simultaneously in the same very rough sketchy way. So the rough sketch provides an early onset of the motoric action because it doesn't have to be very precise yet in that stage. The magic expression fits perfectly well within an ecological approach in which the preposition is formulated that organisms execute actions in the most efficient and effective, *parsimonious*, way.

[8] The explanatory model discloses that every Motoric Movement Action always comprises two autonomous parts. The Movement Action (MA) and the Motoric Movement (MM). The Motoric Movement Action forms a complex (dynamic) system and is the result of the product of these two autonomous complex subsystems. In a formula: MMA = MM x (MA). In that way the novum is introduced into the movement sciences that every motoric action doesn't comprise just one focus but two foci. Both foci produce an independent autonomous *tau*-value each. The *tau*-value of the Motoric Movement ($tau^{G}{}_{MM}$) always needs to be aligned with the *tau*-value of the Movement Action ($tau^{G}{}_{MA}$). Within tennis the leading/dominant *tau*-value ($tau^{G}{}_{MA}$) is produced within the perception of a tennis pro player by creating a perceptual image of the whole, latent, ball trajectory shape out of the initial phase of that ball trajectory which he fills with the actual, manifest, image of the ball trajectory till the contact point. In tennis the following/dependent *tau*-value ($tau^{G}{}_{MM}$) is created in a similar way. A pro player will also compare the manifest shape of the relevant stroke out of the perspective of the sweetspot of his racket to the whole latent shape of that stroke out of the perspective of the sweetspot to the contact/intersection point of the two ball trajectories within his perception. In essence that brings forward the functional *tau*-coupling. In catch actions we recognize the timing in there which is well-known within sports. However all *throwing* actions (the pouring of a liquid, but for example also all grab/take actions) do also comprise a *tau*-coupling in which the *tau*-

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The tennis book comprises a full explanation of what a tennis player *practically* needs to incorporate will he ever be able to obtain any resemblance with Roger Federer. Besides a full and ending display of how the tennis technique must be regarded as a complex subsystem the book unfolds exactly which perception processes are and must be a part of the two actions within tennis[9] which form the essence of the Movement Action (MA). These two actions are provided by the game idea which comprises two essential components. The game, the game idea, is only created/shaped by the (position of the) ball and attached to the awareness that all places P of all moving objects in our world, so also a ball, are linked to each other[10]. The egocentric task which sprouts from this notion is that 1. tennis players need to lengthen a chain of ball trajectories with an extra (legitimate) ball trajectory and *at the same time* 2. that tennis players will have to prevent opponents from doing so[11].
From this conclusion stems the idea that players continuously have to be occupied with the *end* of an outgoing ball trajectory shape (OTB) tactically but that the actual lengthening of the chain happens at the *beginning* of that outgoing ball trajectory shape (OTB)[12]. In tennis there is a strict relationship between ball trajectory shapes, game intentions and success percentages[13].

Due to the affordances of a *smooth round ball* (!) the end of a ball trajectory shape always sprouts within certain fluctuation boarders from a similar shape of the beginning, the initial phase, of that ball trajectory. In other words the tactical end of a ball trajectory shape must and can only be determined in the beginning. These complex facts bring forward the Actual Tennis Action (ATA) and the Tactical Tennis Action (TTA)[14]. When tennis players start to think/play in multiple stroke patterns both actions have to be considered continuously in varying degrees[15] during every rally over and over again. Then an elite player already needs to produce perceptual images of the next outgoing ball trajectory shapes (OBT^{+1}, OBT^{+2} etc.) even before the next outgoing ball trajectory shape (OBT^{0}) is created considering both these actions. The two tennis actions together are called the game action[16].

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value of the Motoric Movement ($tau^{G}{}_{MM}$) must be aligned to the *tau*-value of the Movement Action ($tau^{G}{}_{MA}$). The explanatory model introduces this as *self-paced* timing.

[9] With the complete and ending description of all functional processes the *non*-sense of all mental methods are revealed as well.

[10] This is an autonomous element within the *game* of tennis. The game is *played* by two players and is played with technique. The explanation of the playing says nothing about the explanation of the game and vice versa.

[11] A similar game dualism is occurring in multiple ways in many other sports. Also see: "Watch The Ball Trajectory!" ; p.

[12] Of course the actual linking happens *between* (!) the incoming ball trajectory shape and the outgoing ball trajectory shape.

[13] There is a universal factor in there. Players need to incorporate and develop them from universal to player specific and from there to opponent specific.

[14] The Actual Tennis Action (ATA) definitely ends the *open* versus *closed* skill debate. Tennis is considered to be an open skill sport and free diving for example is considered to be a closed skill sport. The explanatory model clearly shows that in the phase before a dive is handed to the jury free diving is maybe even a more open skill sport than tennis. However when the dive is handed to the jury that particular dive must be executed in a very precise way. Tennis should be regarded in the exact same way as very open and tennis beginners are showing that every day on courts all over the world because their only intention is to hit the ball is hard as possible. Professional players on the other hand need to produce an exact beginning, an initial phase, of an outgoing ball trajectory right after the tactical decision for one exact outgoing ball trajectory shape has been finalized. This ball trajectory shape must be actually executed in the same precise way when the dive will be actually executed. A ball trajectory shape can't contain 50% of this and 50% of that. For more information read: Dualism in ball trajectory shapes; "Watch The Ball Trajectory!"; p.

[15] This whole process is fully appointed in "Watch The Ball Trajectory!". In short it comes down to the fact that a player is always occupied with both actions but emphasizes the tactical action when the ball is further removed from him and emphasize the actual action when the ball is closer to him.

[16] In sports/games I decided to redefine the general term Movement Action (MA) more specific into the term Game/(Sport) Action (GA). The formula of the Motoric Movement Action then becomes $MMA_{(sport)}$ = TE x (GA). The GA only appoints the game (the action). The, *autonomous*, game can only be executed by technique

The general book with the title *Caught In A Line* first came to life as a bycatch of the tennis book. During the writing of "Watch The Ball Trajectory!" I slowly started to realize that what I described in tennis could also be considered within all Motoric Movement Actions. I tried to record lots of loose thoughts and fragments of ideas considering this discovery within one coherent general book about the Motoric Movement Action. So I first considered this book as extra evidence to support the findings in tennis. Time changed this view drastically. Now I consider the tennis book as an illustration for the general book and because of that all addenda are named after *Caught In A Line*. "Watch The Ball Trajectory!" is now also considered to be an addendum of *Caught In A Line* containing the specific Motoric Movement Action *tennis*. However to reappoint my first book is a bridge too far. I choose to appoint all other additions as addenda of *Caught In A Line*.

Soon I will revise *Caught In A Line* because at the moment when I wrote it for the first time I was only able to do that out of my own specific reference framework. I knew that current science wouldn't recognize it because it hardly showed any relations with current topics within the movement sciences. Till then I studied some of those topics marginally but I wasn't able to assess them in a sufficient way. Still I decided to present my ideas in that form on purpose at that time. I knew that for me it was the only, *organic*, possibility to proceed with my original thoughts.
At that time I already developed some critical thoughts about The Quiet Eye (TQE) and I tried to express that in a quickly written addendum belonging to *Caught In A Line*. After the publication of this first addendum I realized that the explanatory model would only start to count scientifically if I would translate/appoint it to the most approved phenomena within the movement sciences. That resulted in a nine month study and a twelve month period of writing of addendum 2. This particular addendum is now bringing clarity concerning all phenomena within the movement sciences towards the explanatory model. Now really every phenomenon gets its own rightful place and no more loose ends can be noticed[17]. So from a scientific point of view addendum 2 is the most important piece within all my writings.

Like aforementioned this addendum is just a further illustration of the explanatory model. Just like the tennis book "Watch The Ball Trajectory!" it shows how the explanatory model can be regarded and implemented in a practical way. However the free throw and the golf put are the main examples and those are two Motoric Movement Actions which are the subject within many scientific research. Now with this addendum a lot of this scientific research can be assessed and the misinterpretations c.q. the failures within this research can be revealed.
Still a lot of this addendum will be useless if addendum 2 finally will be understood. Then it will become clear that the perception processes and the motoric processes within actions can only be approached as a complex system and that all scientific explanations till now must be regarded as simple, naïve and linear. Then one can only come to the conclusion that besides a complex focus image one must construct a leading *tau*-value by creating a perceptual image of a latent line segment shape and align this with a perceptual image of the actual manifest part of that shape within just only the Movement Action (MA). This fact that will definitely end the perception-action dichotomy shows an expla-

(TE). TE is the Motoric Movement (MM) within the general description of the Motoric Movement Action.
[17] The explanatory model rejects just a very small number of previous scientific thoughts and those are just the elements which really violate the essences of the explanatory model. In that way all vector and position coding theories for example are totally rejected as well as all thoughts about *relative phase* in sports. On the other hand most other phenomena/data are not rejected at all but indeed acknowledged. However the new thing now is that the explanatory model is providing the right explanation. Also in here one can observe that all scientifically noticed phenomena are finally placed into a universal definite model. Most found data are indeed not false but the conclusions based on these data by scientist are false. Now with the explanatory model it is possible to appoint ending sequences of scientific research questions and to solve the phenomenon of motoric learning forever.

nation of such active perception processes that also all remarks and thoughts ever contributed to this phenomenon must be appointed as simple, naïve and linear.

There are more addenda upcoming. In spite of the fact that I already appointed the Motoric Movement Action *grabbing/grasping/taking/touching* for a major part within addendum 2 I need to appoint it even further. The novum within there revolves around the fact that the obligatory linked *touching* and *pressing/pushing* which are so characteristic for those actions are two obligatory linked but separate autonomous Motoric Movement Actions. If one considers those actions in such a way then you are able to give insight in almost the whole spectrum of *throwing* actions.
Also in this addendum the explanatory model will be able to specifically appoint all separate motoric actions on their own in a definite and ending way but especially will be able to provide the exact overlaps c.q. commonalities within all those actions[18].
In this addendum the explanatory model will show that within the Motoric Movement Action *playing the piano* and for example the Motoric Movement Action *billiards/golf* that the touching and the pushing/pressing both have their own autonomous *tau*-coupling process. They are obligatory linked actions but they don't and *can't* (!) have a functional relationship[19] because they are both autonomous complex systems.
Conform the Actual *Tennis* Action (ATA) and the Tactical *Tennis* Action (TTA) the Actual *Movement* Action and the Tactical *Movement* Action within the Movement Action (MA) of the Motoric Movement Action *grabbing etc.* will provide the final explanation in how we execute all these basic daily actions functionally[20].

The Motoric Movement Action *walking* as a very specific throwing action also needs to be appointed more thorough. In relationship to the previous paragraph first it will become clear that walking is not more than the Motoric Movement Action *touching* besides the simple fact that walking often consists many linked Motoric Movement Actions *touching* in which the egocentric formulated task *is to move the whole body* (!) from A to B[21]. This is a more complicating factor which must be added to the sole Motoric Movement Action *touching* because besides the *tau*-value within one step/action (at a micro level) a *tau*-value of the whole distance A-B (at a macro level) is added as well[22].

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[18] Although the explanatory model shows that within every action a complex system, containing two complex subsystems, is involved the simple nature of it all becomes evident. It shows that the origin of every action is equal, every action reveals much more overlaps than differences and that within an ecological approach of the evolutionary development of actions the explanatory model provides a very strong foundation. Or even stronger, in all the years I wasn't able to depict a stronger image of a model that could fit better into an ecological approach.

[19] For example Craig tries to capture the golf swing into one universal value. This will seem to be impossible. Both the touching and the pushing are the mere product of two complex subsystems and can only be approached in an individual, player specific, way. However within there both the coach and the player do have to work towards a set constellation of all parts.

[20] In short you are now able to witness that current scientific research is too much obsessed with the object which they want to grab. Conversely the explanatory model shows that the movement action object within the Motoric Movement Action *grabbing/taking/touching etc.* are those parts of the fingers that will touch the object. The action is much more about the path which those fingertips shape towards the object than the shape of the object itself. That object is just marginally considered within the Tactical *Grabbing* Action (MA).

[21] In that way walking belongs to the same group as biking, horse riding, rowing etc.. This whole group can be characterized as the Motoric Movement Action *moving A-B*.

[22] The addendum will extensively cover/appoint this very secure process. It will definitely show for example that if we approach a stairway, especially when we want to go down, we carefully asses all *tau*-values in an always unique optimisation process. We precisely time the distance A-B to the first step of the stairway and fill that distance with a random number of walking steps in which the last step to B is a very important and precise step. In daily life this process often can be executed in a slow and easy way and will be contrasted with the Motoric Movement Action *long jump*. That will finally provide the definite explanation why it is so hard to sprint and simultaneously assess the various *tau*-values. The situation in here is complicated due to the large step-size of

In here it will also become perfectly clear that we, as apes, used to move from A to B by slinging and scrambling in which we not only executed the Motoric Movement Action *touching* but also the linked Motoric Movement Action *pressing/pushing*. Also in here you will immediately be able to detect the overlaps c.q. commonalities between the primary action of locomotion and the primary action of touching/grabbing/grasping and to notice that they sprout from the same source.
Within the Motoric Movement Action *walking* our perception processes become an integral part of the *walking* trajectory shape. Conform the marble run or a tennis ball trajectory our whole body as the action object can now be regarded as a ball in a ball trajectory shape. We are still able to produce a *tau*-value then because we cognitively know that our whole body is glued to our visual organ and if we visually perceive that the wall in a blind alley is approaching we align the Motoric Movement (MM) in such a way that we make a nice stop just before the end of that alley is reached[23].
I already tried to appoint the Motoric Movement Action *walking* within appendix A of *Caught In A Line*. However the result was not satisfying and it needs to be supplemented because the action in which we bridge a distance from A to B with our feet and/or our hands can be considered as one of the most occurring actions which ecologically can be reckoned to one of the most basal actions. It is the subject within a lot of current scientific research. That is why it is essential to thoroughly appoint it within a short term because also within this research the two foci still haven't been discovered.

Recently I also decided to depict the Motoric Movement Action *talking* with the help of the explanatory model. Previously I already appointed the Motoric Movement Action *blowing*[24]. Within the explanatory model the latter is a very obvious example of a Motoric Movement Action because one is able to notice an evident action trajectory shape between for example the opening of the mouth (A) and the candles on a birthday cake (B). There is an obvious movement from A to B perceivable in the airstream. For a long period I wasn't able to grasp the whole explanation within talking. I was unsure about how certain aspects worked and although I was able to completely appoint the phenomenon of stuttering with the explanatory model I thought it was wiser to leave it untouched for a while.
However due to a recent conversation I suddenly realised that we talk in the exact same way as we execute all other motoric actions. Ergo within talking we also need to create a *precise global* perceptual image of a whole latent sentence, or a whole latent part of a sentence, first before we will be able to actually fill the sentence with spoken words. With the actual production of words we also create a perceptual image of the manifest part of the action trajectory, in casu the sentence, which enables us to also construct a *tau*-value within talking.
With this definite explanation the functional processes within talking will now become perfectly clear and final answers can be formulated in why for example we are capable to add intonation to a sentence and/or to add accents. The processing processes of the perception, the ventral and dorsal stream, are at work in an exact similar way as in all other actions and although that is mainly executed with visual perception within most ordinary daily actions within the Motoric Movement Action *talking* this happens with auditory perception. Just like the tennis ball in a tennis ball trajectory shape the words in a sentence will be glued to each other. The tennis ball creates the actual action trajectory shape but will also be forced to follow a perceptual image of a latent action trajectory shape in a *precise global* way[25]. The processing processes of the visual perception will then audit the ball and its ball trajectory in a continuous mutual process. It will not be different within talking. Each specific word within a sentence can be assessed just like every progressive place P of the tennis ball. That is what our, also continuously active[26], auditory organ is checking every time frame. You are able to check this right

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the sprint and the accuracy which needs to be regarded in approaching an exact point B at the takeoff board.
[23] Like we also cognitively know that within the Motoric Movement Action *letter posting* (see addendum 2) the letter will come with us if we hold in our hand or in our inside pocket. We don't need to perceive constantly if the letter is actually following us.
[24] See: *Caught In A Line*
[25] Just like all other Motoric Movement Actions it is *Caught In A Line*.
[26] Just like it has never been understood within the visual organ the auditory organ is a continuously active or-

away within your own empiric experience if you have ever been confronted with an *echo* (!) while executing the action trajectory shapes (sentences) within for example a telephone conversation. The fact that you are not capable of precisely striking out the actual action trajectory against the latent shape is very confusing to most of us if we want to build an argument.
The scientific research towards talking and hearing shapes a huge and very important but very isolated part within science. If I quickly assess the situation then this part will also be covered by an explanatory model which will also provide definite answers to all functional questions in here as well. So a big novum in here will be that talking is covered by the explanatory model as well and that it functions alike all other Motoric Movement Actions.

The series of addenda will temporarily be ended with the appointing of the Motoric Movement Action *soccer/football*. Soccer is one of the biggest sports in the world, there are high stakes involved and within the working field one is enormously eager to obtain the ultimate learning model. Within this addendum I will appoint all essential aspects of soccer towards the explanatory model like I did within "Watch The Ball Trajectory!" towards tennis. Among many things one will be able to discover that many commonalities between soccer and whatever other ball game can be noticed.
Also in here the two foci will provide the full and final explanation of all functional processes in soccer. The primary focus must be directed on the game and the game is only shaped by all places P of the ball. Also in soccer the score is only related to the position of the ball and nothing else. The game idea, and the linked egocentric formulated task, which can be derived from there dictates a similar game dualism as within tennis. Soccer players also have two specific tasks. They have to 1. create a chain of ball trajectory shapes in which the end of the last ball trajectory must end in the goal of the opponent and 2. they have to prevent the opponent from doing so. So again the game itself has nothing to do with the execution of the game[27]. The game can *only* (!) be executed/played with technique[28]. Only with very weird/awkward body movements (MM) soccer players are capable of producing a linked chain of nicely curved ball trajectory shapes. So soccer as well can only be executed due to the cooperation of two complex subsystems but in fact actually consists two autonomous entities. This division finally leads to the full and definite explanation of what you functionally need in soccer.
The explanatory model will exactly show which new developments within soccer are in line with the explanatory model and which not. One is experimenting a lot with *soccer arenas* in which a soccer player within a closed environment/room is asked to connect a specific incoming ball trajectory shape to a specific outgoing ball trajectory shape within a specific game situation. The addendum will fully assess these arenas, will show the failures and the ways to optimise these aids. Also the longer existing *rondo* exercises will be fully reviewed as well. It will become perfectly clear which actual aspects of soccer are reinforced with these exercises but also very clear what one doesn't practice with them.
In comparison to the other addenda this addendum feels like a strange bird. Scientifically we of course first want to know more about basal daily actions then about something so trivial as soccer. However it seems to me that it is very nice to produce and it gives me the opportunity outside the scientific world

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gan. Every time frame it records *static still* (!) images. But instead of visual images the auditory organ is recording sound images. In relation to movement both organs don't do a lot with these separate images. However within the linked visual and auditory perception those images are compared continuously and only the difference of the dynamic which will occur within the sound is providing us an understandable sound.
I have to remark in here as well that the auditory perception organ is doing nothing in relationship to recognizing one sole sound image as compared to the visual organ and that the latter has led to current scientific research which profoundly is occupied in appointing this cognitive task. Just like the auditory perception the visual organ is originally most and for all a comparison organ and the explanatory model shows that this function keeps its elementary significance.

[27] This fact leads in "Watch The Ball Trajectory!" to the unique insight that the game can be fully developed off-court. Especially within tennis there are many moments when one isn't able to make use of a tennis court and the playing of MindTennis provides many advantages.

[28] The game is only shaped by all places of the ball but isn't capable of executing anything. With technique you are only capable of *playing* (!) the game but it doesn't explain anything about the game.

to find recognition. Recognition which I am still eager to find within science which can be characterized as a very closed subculture.

Introduction

The first time that I was confronted with The Quiet Eye (TQE) was when I looked for scientific sources to add to the explanatory model. At the internet I was confronted with an abundant supply of articles concerning this phenomenon and I was stunned by the contents of it all. How could inter alia highly educated, well-thinking and well-treated professors embrace a theory in which one concludes that professionals in for example tennis, golf and basketball wouldn't possess a broad special knowledge within the relevant actions of the aforementioned sports. That in short it was all a matter of *emptying* (!?) your mind and to allow *something* (!?) *unconscious* to happen. It would have remained a good joke if I wouldn't have discovered that it was all treated in such a serious way.
The theory of TQE can be attributed to professor dr. J. Vickers. For almost forty years now she is trying to prove that it is a legitimate theory. In an in 2016 published collection[29] of her work the final conclusions of her work as well as the essence of the criticism is displayed in there. The predominant argument against TQE comprises the fact that the starting point is missing. If people "automatically" create an image of the right action path[30] (although that path remains vague within science) then the brain must have learned to distinguish the specific features within that *automatic* perception process. So one isn't able to construct any link between the ball and the basket/hole if one doesn't possess a cognitive image of that task beforehand. Ergo in an earlier phase we must have learned where to look at c.q. what to look for.

"The problem, we believe, is that the starting point is missing in an information processing explanatory framework: How does the brain tell the eye where to look (and perform the QE)? How is the action that allows the body to search for relevant cues and perform a QE "programmed by the brain"? A possible answer to these questions implies a clear understanding of the role of constraints and information in explaining how intertwined processes of perception, cognition and action subserve goal-

[29] *Quiet Eye research – Joan Vickers on target*;
http://visualcognition.ca/spering/publications/Spering.Schuetz.CISS.2016.pdf.

[30] In retrospective one will be able to conclude that at this moment current scientific research is still miles away from the explanatory model. They hardly have any clue of what a human being needs to actually perceive to be able to successfully fulfil a Motoric Movement Action. At one moment Vickers let test subjects concentrate on the *beginning* of the golf put (the beginning of the ball trajectory shape) and the other moment she let test subjects concentrate on the basket,(the *end* of the ball trajectory shape). The explanatory model will show that she came more to the truth within the golf put because within a throwing task we need to construct a perceptual image of a latent action trajectory shape between the ball and the goal, within an egocentric formulated task, and bring that back to an initial phase because we are only able to *motorically* (!) influence it there. But also in the golf put task so much substantial knowledge of the Motoric Movement Action is missing that one could say that TQE could never have led to the explanatory model.
Also Lee and Craig both appointed the golf put. Currently Craig tries to develop practical methods to optimise the execution of golf putting. However the explanatory model is showing us that the touching of the ball and the pushing/pressing of the ball are in fact two separate autonomous Motoric Movement Actions. Of course they must be linked in a set order but they remain two autonomous complex systems and that is why a golf put can never be captured in one feeling or one movement. Pro players will explicitly have to become aware of both separate complex systems during the execution of one golf put and that they are only able to influence the product of both systems as part of an optimization process. Within addendum 3 of *Caught In A Line* the golf put as a touching and pressing/pushing action will be appointed definitely within the whole spectrum of throwing tasks.

achievement in athletes (Araújo et al., 2006). And this explanation cannot be confined to how task constraints and information are represented in the brain, because this will always postpone the answer to the question concerning how these task constraints and information sources were selected in the first place."[31]

Still many researchers, who want to appoint the functional side of the Motoric Movement Action, tend to the acceptance of TQE and so still a lot of active research is going on to prove the existence of this phenomenon[32]. That also seems to sprout from the fact that the scientific world hardly has any clue considering the major part of a functional explanation of a motoric action[33] and it appears that one thinks that one has to look for an answer somewhere. Like a drowning person clings on to a boat. The explanatory model will show that it all was a waste of time because it will appoint all phenomena within a Motoric Movement Action in a definite way and by doing so will prove that TQE is just the *consequence* (!) of the many necessary, very active, perception processes. With this full explanation the explanatory model provides full clarity within the perception-action dichotomy and shows that we have to perceive and for thousands of years actually do have perceived much much more within one action than was ever assumed. We are only capable of constructing a *tau*-value within the Movement Action (MA) if we create a perceptual image of a whole latent, *precise global*, action trajectory shape and fill that with a perceptual image of the actual manifest action trajectory shape. If the manifest action trajectory filled the latent image for most of its part, ergo if the *tau*-value of the Movement Action ($tau^{G}{}_{MA}$) approaches zero, then the Motoric Movement (MM) needs to be aligned in such a way that the corresponding *tau*-value ($tau^{G}{}_{MM}$) also approaches zero. So in retrospect it was never the question which part of the dichotomy was more right. Within one Motoric Movement Action they must be considered in an obligatory relationship in which both were *just* (!) a part of a much bigger overarching phenomenon which explains the whole Motoric Movement Action.

The explanatory model will show that the already existing criticism within science against TQE is well-founded. Within TQE *gaze* is the magic word and it is linked to the seemingly *freezing* or a fixation of the head in the final phase just before (!) the actual execution of an action. The explanatory model absolutely doesn't deny that this gaze exists and the difference between TQE and TAE is definitely not situated in there. Conversely the explanatory model will show that gaze is not the cause but the effect of the very many active perception processes. That is why I named the explanatory model The Active Eye (TAE) in comparison to TQE. That was an easy one and just needed to be scored.

In this addendum I will confront The Quiet Eye (TQE) with The Active Eye (TAE). However it will become clear that any theory which puts the eye in such a predominant place and even involves *the eye* in the name of the theory will never be able to provide a complete explanation of the Motoric Movement Action[34]. If you would study addendum 2 you soon will be convinced that TQE is not able

[31] *What could an ecological dynamics rationale offer Quiet Eye research? Comment on Vickers*; K. Davids & D. Araújo

[32] You can read in the preface that I don't consider this addendum as very important. Especially when you compare it to addendum 2. Still lots of money, time and intellectual capacity is spent on TQE research and the acceptance of the explanatory model will make clear that that has been an enormous waste.

[33] The full explanation within addendum 2 shows that the current state of science is still at a very remote distance from the explanatory model. For example the scientific research concerning the focus is still stuck in regarding just one focus. It misses the two autonomous complex subsystems and the two foci involved within a Motoric Movement Action and by doing so it comes forward with huge misconceptions concerning which parts of the action need functional attention. Rightfully they claim that an action benefits when you focus more on the outside of the body but they never come as far outside the body that they would be able to distinguish the action trajectory shape as the furthest part outside of the body. The attention within current focus research remains to be on an aspect of the body and according to the explanatory model that is the privilege of the Motoric Movement (MM) and within there the attention must be focussed on systems (the technique) *within* the body.

[34] For example the explanatory model shows clearly that many actions can be executed successfully without any visual sight and it will show clearly that that never can be done without proprioceptive perception processes. Conversely the explanatory model will show that we are even capable of creating an action trajectory shape within the Movement Action (MA) with the sole use of these proprioceptive perception processes.

to provide such a full explanation. An explanation will definitely need to show much more features of a complex system like within the explanatory model. Consequently a full integral description of the controversy TQE versus TAE isn't that interesting and so in this addendum I will appoint this controversy just marginally. However I did decide to write this addendum because a few interesting questions concerning this phenomenon need to be answered.
First of all it is of scientific interest to appoint why the phenomenon of The Quiet Eye (TQE) could become such a leading theory and why it remained to possess such a special appeal. Because the explanatory model is now able to provide full insight in which functional processes are demanded within one Motoric Movement Action it is now also able to show where the *automatic* perception processes which TQE bring forward take place. Conversely this addendum will show that no automatic, unconscious, process is involved but a very conscious process which we simply don't understand. It even comprises multiple conscious processes in which two images need to be perceived within one complex focus image. Therefor this addendum will thoroughly elaborate on the fact that in every Motoric Movement Action we need to bring together two foci within one complex focus image will we be able to successfully execute an action. For that matter it will be shown that within the grabbing of a coffee cup one (primary) focus must be pointed at the action trajectory shape between the outside of the relevant fingertips and the outside of the cup that is going to be touched (on the outside of the body) and that simultaneously another (secondary) focus must be pointed at all motoric movements (MM) towards the inside of the relevant fingertips on the inside of the body[35]. Accordingly it will become clear that the processing processes of the (visual) perception, the dorsal and ventral stream, provide us the possibility that we are able to fill a perceptual image of a whole latent action trajectory shape with a perceptual image of the actual part of the manifest action trajectory shape. Only due to this *double* mutual system we are able to make *precise global* predictions about the completion of the latent part of the action trajectory shape and to determine the *tau*-value in a *precise global* way. In this addendum the explanatory model will show that within daily traffic for example that is the only way how we are able to construct intersection points with action trajectory shapes of other traffic participants and enables us to create the latent part of our own action trajectory shape.
Second the golf put and the throwing in basketball are frequently subjects within scientific research. It is of importance to exactly show how elite players, who implicitly have found the principles of the explanatory model, execute those shots and how this final explanation simultaneously leads to the most ultimate motoric learning instruction. The added research proposals within this addendum will show significant better motoric learning outcome than whatever other motoric learning instruction. Within there one will also be able to detect that the outer characteristics within the execution of the action will reveal the exact same similarities if one would compare the elite player with the novice test person if one for example should record them on video.
This addendum also enables me to reveal a major part of the spectrum of all *throwing*-actions. Within scientific research for example the free throw and the golf put remain fully isolated phenomena. After studying this addendum you conversely will be able to much more appoint the commonalities between the free throw and golf put in particular and all throwing-actions in general and for example to be able to rank them concerning their complexity.

[35] You are only able to directly control movements on the inside of the body until *the inside* (!) of the relevant fingertips motorically. That is the last point within the body relevant for this action which you are able to manipulate directly. The movement of the outside of the relevant fingertips can only be perceived visually and not ever be manipulated directly.

Chapter 1 - The Quiet Eye (TQE)

"It is of the utmost honour to feature such an internationally acclaimed researcher for her discovery of the "Quiet Eye" (QE), a relatively long-lasting fixation before movement initiation that enhances complex motor performance. ……. This is a CISS target article, which includes an editorial, an index of contents, a main article authored by Joan N. Vickers, 16 peer commentaries and an author's response. Individual contributions can also be retrieved under the respective dois.
Since her first publications of this visual-motor dependency in her – numerously cited – studies on golf putting (Vickers, 1992) and basketball free-throws (Vickers, 1996a, 1996b), a multitude of further QE studies have been conducted by Vickers and other research groups (for an earlier overview, Vickers, 2007). All in all, the existing evidence clearly proves the performance-enhancing effect of a long QE duration as a noteworthy phenomenon in experts' sensorimotor behaviour."[36]

"... The QE was defined by Vickers (1996Vickers (, 2007) as the final fixation or tracking gaze that is located on a specific location or object in the performance space within three degrees of visual angle for a minimum of 100 ms prior to the onset of a critical movement. The quiet eye has been shown to underlie higher levels of skill and/or performance in a wide range of skills, including golf (Vickers, 1992Vickers, , 2004Vickers, , 2007Vine, Moore, & Wilson, 2011); basketball (de Oliveira, Oudejans, & Beek, 2008;Harle & Vickers, 2001;Vickers, 1996;); rifle and shot gun shooting (Causer et al., 2010;Janelle et al., 2000;Vickers & Williams, 2007); billiards (Williams, Singer, & Frehlich, 2002) and ice hockey goaltending (Panchuk & Vickers, 2006). Participants who have been tested in high pressure situations have a higher frequency of gaze, more fixations of shorter duration (Behan & Wilson, 2008;Janelle, 2002;Williams, Vickers, & Rodrigues, 2002;Wilson, Vine, & Wood, 2009), as well as a reduced ability to detect information in the periphery (Janelle, Singer, & Williams, 1999). …."[37]

The Quiet Eye (TQE) is a theory developed by professor dr. Joan Vickers. It encompasses a phenomenon which still gets a lot of attention within the scientific community. They are still hoping that it will be able to offer a final explanation of the execution of all motoric actions. In this chapter I will not profoundly discuss the content of the sole theory of TQE. You will be able to find hundreds of sources, links etc. on the internet yourself. There are many scientific articles as well as many (amateurish) methods based on the principles of TQE. You are able to shape a profound image of TQE if you are willing to study the aforementioned *CISS target article*[38]. In this chapter I will just provide and discuss a few quotes.
The next quote mentions the clear criticism against TQE that it isn't capable of appointing the underlying functional causal relationships in a clear way.

*"**The QE***

In recent years, attention has been devoted to examining the gaze behaviours employed by expert performers across different sports, as well as in other domains. Vickers (1992 Vickers, J. N. (1992). Gaze control in putting. Perception, 21(1), 117–132. doi: 10.1068/p210117[Crossref], [PubMed], [Web of Science ®], [Google Scholar]) highlighted distinct gaze patterns that differentiate expert and novice golfers while performing putts and identified that experts kept a steady fixation at a specific location

[36] Hossner, E.-J. (Ed.) (2016). Quiet Eye research – Joan Vickers on target. Current Issues in Sport Science, 1:100. doi: 10.15203/CISS_2016.100; https://webapp.uibk.ac.at/ojs2/index.php/ciss/article/download/416/398
[37] J. Vickers; The quiet eye: it's the difference between a good putter and a poor one. Here's proof; https://www.researchgate.net/publication/235328258_The_quiet_eye_it%27s_the_difference_between_a_good_putter_and_a_poor_one_Here%27s_proof
[38] See: ad. 36.

before ball contact. This steady fixation just before movement initiation was later identified in basketball players and termed "quiet eye" (QE; Vickers, 1996 Vickers, J. N. (1996). Visual control when aiming at a far target. Journal of Experimental Psychology. Human Perception and Performance, 22(2), 342–354. doi: 10.1037/0096-1523.22.2.342[Crossref], [PubMed], [Web of Science®], [Google Scholar]).
The QE corresponds to the final fixation within 1–3 degrees of visual angle and with a duration of at least 100 ms prior to a movement. Longer quiet eye durations (QED) are exhibited by experts compared with non-experts, and within-participant analyses show that they are characteristic of successful rather than unsuccessful attempts (Vickers, 1996 Vickers, J. N. (1996). Visual control when aiming at a far target. Journal of Experimental Psychology. Human Perception and Performance, 22(2), 342–354. doi: 10.1037/0096-1523.22.2.342[Crossref], [PubMed], [Web of Science ®], [Google Scholar]; Vickers & Williams, 2007 Vickers, J. N., & Williams, A. M. (2007). Performing under pressure: The effects of physiological arousal, cognitive anxiety, and gaze control in biathlon. Journal of Motor Behavior, 39(5), 381–394. doi:10.3200/JMBR.39.5.381-394[Taylor & Francis Online], [Web of Science ®], [Google Scholar]). In addition, with the use of video-based mobile eye-tracking systems, these findings have been replicated across various types of aiming and interceptive sports, including shooting (Causer, Bennett, Holmes, Janelle, & Williams, 2010 Causer, J., Bennett, S. J., Holmes, P. S., Janelle, C. M., & Williams, A. M. (2010). Quiet eye duration and gun motion in elite shotgun shooting. Medicine and Science in Sports and Exercise, 42(8), 1599–1608. doi:10.1249/MSS.0b013e3181d1b059[Crossref], [PubMed], [Web of Science ®], [Google Scholar]), darts (Rienhoff et al., 2013 Rienhoff, R., Hopwood, M. J., Fischer, L., Strauss, B., Baker, J., & Schorer, J. (2013). Transfer of motor and perceptual skills from basketball to darts. Frontiers in Psychology, 4, 593. doi:10.3389/fpsyg.2013.00593[Crossref], [PubMed], [Web of Science ®], [Google Scholar]), billiards (Williams, Singer, & Frehlich, 2002 Williams, A. M., Singer, R. N., & Frehlich, S. G. (2002). Quiet eye duration, expertise, and task complexity in near and far aiming tasks. Journal of Motor Behavior, 34(2), 197–207. doi:10.1080/00222890209601941[Taylor & Francis Online], [Web of Science ®], [Google Scholar]), table tennis (Rodrigues, Vickers, & Williams, 2002 Rodrigues, S. T., Vickers, J. N., & Williams, A. M. (2002). Head, eye and arm coordination in table tennis. Journal of Sports Sciences, 20(3), 187–200. doi:10.1080/02640410231728475[Taylor & Francis Online], [Web of Science ®], [Google Scholar]) and football (Piras & Vickers, 2011 Piras, A., & Vickers, J. N. (2011). The effect of fixation transitions on quiet eye duration and performance in the soccer penalty kick: Instep versus inside kicks. Cognitive Processing, 12(3), 245–255. doi:10.1007/s10339-011-0406-z[Crossref], [PubMed], [Web of Science ®], [Google Scholar]).
A number of researchers have successfully used the QE as a training tool to improve performance in different targeting sports (Causer, Holmes, & Williams, 2011 Causer, J., Holmes, P. S., & Williams, A. M. (2011). Quiet eye training in a visuomotor control task. Medicine and Science in Sports and Exercise, 43(6), 1042–1049. doi:10.1249/MSS.0b013e3182035de6[Crossref], [PubMed], [Web of Science ®], [Google Scholar]; Moore, Vine, Cooke, Ring, & Wilson, 2012 Moore, L. J., Vine, S. J., Cooke, A., Ring, C., & Wilson, M. R. (2012). Quiet eye training expedites motor learning and aids performance under heightened anxiety: The roles of response programming and external attention. Psychophysiology, 49(7), 1005–1015. doi:10.1111/j.1469-8986.2012.01379.x[Crossref], [PubMed], [Web of Science ®], [Google Scholar]; Vine & Wilson, 2011 Vine, S. J., & Wilson, M. R. (2011). The influence of quiet eye training and pressure on attention and visuo-motor control. Acta Psychologica, 136(3), 340–346. doi:10.1016/j.actpsy.2010.12.008[Crossref], [PubMed], [Web of Science ®], [Google Scholar]) and recently, outside the sporting area such as when training surgical skills (Causer, Harvey, Snelgrove, Arsenault, & Vickers, 2014 Causer, J., Harvey, A., Snelgrove, R., Arsenault, G., & Vickers, J. N. (2014). Quiet eye training improves surgical knot tying more than traditional technical training: A randomized controlled study. American Journal of Surgery, 208(2), 171–177. doi:10.1016/j.amjsurg.2013.12.042[Crossref], [PubMed], [Web of Science ®], [Google Scholar]) and in clinical populations (Miles, Wood, Vine, Vickers, & Wilson, 2015 Miles, C. A. L., Wood, G., Vine, S. J., Vickers, J. N., & Wilson, M. R. (2015). Quiet eye training facilitates visuomotor coordination in children with developmental coordination disorder. Research in Developmental Disabilities, 40, 31–41. doi:10.1016/j.ridd.2015.01.005[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). In these studies, QE training (where to look and for how long) results in enhanced performance linked to relative increases in QED (for a detailed review, see Vine, Moore, & Wilson, 2014

Vine, S. J., Moore, L. J., & Wilson, M. R. (2014). Quiet eye training: The acquisition, refinement and resilient performance of targeting skills. European Journal of Sport Science, 14(Suppl 1), S235–S242. doi:10.1080/17461391.2012.683815[Taylor & Francis Online], [Web of Science ®], [Google Scholar]). However, whether or not the duration of the QE per se causes these improvements in performance and how these benefits come into place are still subjects of interest. This research has highlighted the need to better understand the underlying mechanisms of QE and, in particular, investigate the beneficial effects of the QE on performance to implement effective training protocols (Behan & Wilson, 2008 Behan, M., & Wilson, M. (2008). State anxiety and visual attention: The role of the quiet eye period in aiming to a far target. Journal of Sports Sciences, 26(2), 207–215. doi:10.1080/02640410701446919[Taylor & Francis Online], [Web of Science ®], [Google Scholar]).[39]

Even when you study TQE into detail you will only understand that the whole theory of Vickers is based on the observation that elite sports men show a relative long visual fixation and the observation that they are successful. On logical grounds that provides a possibility to assume that there can be a direct relationship between gaze and a superior motoric action. However if you are only able to scientifically prove that gaze exists, which the explanatory model definitely doesn't deny, and only are able to appoint how it all works in a hazy way then the assumption of such a successful relationship remains a rather non-scientific speculation.
Fortunately the explanatory model of the Motoric Movement Action will appoint this all too by providing the complete functional explanation of all motoric actions. Although it will show that the explanatory model will hardly reject any data provided by TQE. Or to put that even stronger the explanatory model exactly confirms the majority of the observations and like with most other key issues within the movement sciences it only attaches the right explanation to the obtained data and also ends the theoretical speculation within this scientific research.
The explanatory model will also show that within the fault analysis of a Motoric Movement Action multiple aspects in a large number of grey tones can be acknowledged. The explanatory model will show that a sports man is maybe very well capable of creating a perfect perceptual image of a latent ball trajectory shape between the golf ball and the hole within the Movement Action (MA) but isn't capable of bringing back that whole shape to an initial phase which belongs to that ball trajectory. Or conversely he is able to construct the exact right initial phase belonging to the perceptual image of the ball trajectory but then it appears to be that this initial phase always belongs to an unsuccessful ball trajectory shape. Besides that it is possible that this complex subsystem can be mixed in many variations with the fact whether a player possesses a set technique within the Motoric Movement (MM) with which he is able to hit the ball via the transition point into the initial phase of the ball trajectory shape. So faults within a golf put or free throw can have a wide variety of sources due to the fact that two complex subsystems are involved.
But even if we would accept TQE for now then the explanation of the theory forms a striking contrast with the description of the explanatory model of the Motoric Movement Action. Then the theory of TQE remains to be a very naïve, linear and simple explanation which will become clear within chapter 3.

[39] C. C. Gonzalez, J. Causer, R. C. Miall, M. J. Grey, G. Humphreys & A. M. Williams; *Identifying the causal mechanisms of the quiet eye*; https://www.tandfonline.com/doi/full/10.1080/17461391.2015.1075595

Chapter 2 - The Active Eye (TAE)

In this first addendum of *Caught In A Line* the explanatory model of the Motoric Movement Action is opposed to The Quiet Eye (TQE). The Active Eye (TAE) sprouts from the explanatory model which provides a full insight in all functional perception and motoric processes which all Motoric Movement Actions in a very strict way demand. In the books "Watch The Ball Trajectory!", *Caught In A Line* and mainly addendum 2 belonging to that last book the explanatory model is appointed towards all noticed phenomena within the movement sciences[40] and it leaves no functional question unanswered. In that way all related scientific articles can be relieved from their misconceptions in a definite way although it will appear that almost all gathered scientific data are correct but that the theoretical conclusions are incorrect. The explanatory model will now provide an ending universal explication.
The explanatory model shows that always two foci are involved within the execution of all Motoric Movement Actions. It explains that one Motoric Movement Action is executed or only can be executed by the means of two (almost[41]) completely separated autonomous complex subsystems which need to be executed or need to be perceived simultaneously. Those complex subsystems are 1. the Motoric Movement (MM) and 2. the Movement Action (MA). In a formula: MMA = MM x (MA)[42]. It shows that even in the simplest Motoric Movement Actions one very actively needs to create perceptual images out of two different perspectives. It is obligatory in every action. Only the product of the combined process can lead to the fulfilment of the egocentric formulated goal. To let you feel awkward about this I already stated in "Watch The Ball Trajectory!" that you never will be able to post a letter and have posted a letter. The letter is an autonomous entity and posts itself[43]. We are only capable to execute this autonomous posting process[44]. Only when you will understand this you will be able to grasp the essence of the Motoric Movement Action. The direction of the water in a mountain stream,

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[40] Now the terms visuo-motoric and sensori-motoric processes are also fully appointed by the explanatory model within addendum 2. If you used to look for descriptions of those two you indeed were confronted with an explanation that there is a relationship between visual/sensoric perception and the motoric execution but substantially it wasn't appointed any further. Conversely the explanatory model clearly shows that if visual perception is involved within a motoric action, because that is not obligatory at all, that it remains just a part within the Movement Action (MA) and never will become a part of the motoric movement (MM). So in that way one can never link the word *visuo* to *motoric* if that is the intention with this word coupling. However proprioceptive perception processes are always needed within every execution of a motoric action. So an action can never be *executed* (!) without proprioceptive perception and very well without visual perception.

[41] The Movement Action (MA) and the Motoric Movement (MM) always meet each other in one exact point. Or with other words there is always one point where they transition. The explanatory model defines that point as the transition point. For more information see: *Caught In A Line*; p. 52.

[42] Within the formula the Motoric Movement (MM) shows a dependent position in relationship to the Movement Action (MA). The Movement Action (MA) namely provides the primary focus and the leading *tau*-value within the always occurring *tau*-coupling. The *tau*-value within the Motoric Movement (MM) needs to align its secondary focus towards that primary focus.

[43] The explanatory model instructs that we need to consider the body much more as linked but autonomous components. Although we do understand this when we consider for example the different functions of the heart and the lungs within the Motoric Movement Action we still try to see one undivided body. The strange thing however is that we perceive the movement of our hand at a different place when we try to grasp a coffee cup than within the relevant fingertips. The explanatory model shows that we need to experience the Motoric Movement Action much more out of our own perspective than mainly out of the perspective of the environment. Therefor the egocentric formulated task of the grabbing of a cup is wrong and should be changed into a formulation in which we want to move the fingertips towards the cup because after the tactical decision for a certain action trajectory shape the main goal of the motoric action is to move the fingertips in a closer position to the goal. The emphasis in this motoric action should be placed on the fingertips and not on the cup.

[44] In the same way a wordplay can be noticed in ball sports. Only the ball plays the game or all places P of the ball shape the game and we are only capable of playing/executing the autonomous game with technique. So the game will never become a part of us but also isn't able to do anything on its own.

the letter in a letter trajectory, the ball in a ball trajectory and even the outside of the fingertips moving towards a coffee cup in a line segment shape can only be perceived *indirectly from the outside* (!) as an autonomous entity.
So the Movement Action (MA) needs to be perceived out of the perspective of the (movement) action *object* (the ball, the letter, the outside of the fingertips) because in essence only this object will fulfil the egocentric formulated task. That is why we need to keep the primary focus on this part of the action. Conversely the Motoric Movement (MM) needs to be perceived out of the perspective of the *subject* that executes the action. The (body of the) subject executes the Movement Action (MA)[45] and is also the only autonomous organ that is capable of executing anything. Because the Motoric Movement (MM) needs to follow the Movement Action (MA) the secondary focus must be pointed at this part. However they are both simultaneously necessary within the successful fulfilling of one Motoric Movement Action[46]. Because mere mortals are not able to focus on two completely separated images the two foci will need to be combined to one complex focus image in which the perceptions of both complex subsystems need to come together.

"*The focus image is being instructed out of the Motoric Movement Action. It is not a free choice. We have to develop thoughts and perceptions when we execute a Motoric Movement Action because there is a task involved. In games/sports we continuously have to develop tactical plans. The perception processes need to check the actual situation constantly but also have to create future images of the (movement) action object continuously. So we must develop a strategy, which we use as a basis for near future places of the (movement) action object and act in the present. That is 100% contradictory to all mental methods that tell you to be without thoughts or to be in the present. You don't play chess without thoughts or drive your car without thoughts? Do you? In daily traffic you determine purposely your route and you compare your action trajectory with the action trajectories of other participants. With the latent and with the manifest parts. Out of the current position and the manifest part of the action trajectory of other participants you sketch the near future places where they probably will be. You look at the nothing of their action trajectories and use that as space to manoeuvre.*
Your motoric movements (MM) in driving a car are probably automatized. However you are still executing the secondary focus towards the transition point subconsciously. You will notice that if you have to use a different car one day. The foot pedals feel strange for a while but you integrate it soon because of your vast knowledge concerning this motoric movement (MM)."[47]

You know that 100% visually disabled human beings, like 100% visually able people in pitch black darkness, are also capable of very successfully executing many actions without any visual perception. The explanatory model interprets this again and again in the same similar way. It shows that we always need a perceptual image of a latent action trajectory shape in order to perceive a *tau*-value within the Movement Action (MA) but that we don't necessarily need actual vision to achieve this goal. In

[45] In here a difficult mind twist is demanded. The Movement Action (MA) is occupied with the egocentric formulated task but can only be (indirectly) perceived and not directly executed. It is like the water in a mountain stream. It is an autonomous phenomenon but it isn't capable of executing anything by itself. It can only be altered by the Motoric Movement (MM) which on its turn is not capable of directly influencing the Movement Action (MA). We are only capable of perceiving movement within the complex subsystem of the Movement Action (MA) indirectly and to influence it with complete other movements within the complex subsystem of the Motoric Movement (MM) within an optimization process. We are only capable of influencing the direction of the water stream by moving rocks and only perceive how that changes the direction of the water. We are not able to directly control *matter* (!) (the water, the letter, the fingertips etc.).
[46] The involved principles are also present within the linguistical term Motoric Movement Action. A new name needed to possess the ability to show the word movement twice within one description. The term Motoric Movement Action can be divided in the terms Motoric Movement (MM) and Movement Action (MA) and that exactly shows the interdependence which is needed within the execution one action. We need to perceive the unique movement within the Movement Action (MA) outside of the body within the primary focus and align this with other, *very awkward*, movements which we simultaneously need to perceive within the Motoric Movement (MM) inside the body within the secondary focus.
[47] *Caught In A Line*; p.30.

addendum 2 it is demonstrated that we often use visual perception but that we are also able to construct action trajectory shapes with just auditory perception (which recently has been approved within science) but that the novum is formulated that we are also able to construct a perceptual image of a latent action trajectory shape with the help of just proprioceptive perception. In pitch black darkness with the key in the key hand and the other hand besides the lock we are able to construct a *precise global* action trajectory shape between the tip of the key and the lock on basis of this proprioceptive perception and cognitive knowledge. Maybe even more important in there is to notice that we are able to perceive the *tau*-value within the Movement Action ($tau^{G}{}_{MA}$) approaching zero when we execute this action. Or with other words with just proprioceptive perception processes we are capable of filling a perceptual image of a whole latent action trajectory shape with a perceptual image of the manifest action trajectory shape. Accordingly one can only come to the conclusion that the processing processes of the perception, the ventral and dorsal stream, can exclusively be fuelled proprioceptively[48].
However within many Motoric Movement Actions we construct a perceptual image of a latent action trajectory shape with the help of mainly visual perception. But this visual perception is only involved within the Movement Action (MA) and that is just one of the two complex subsystems within the Motoric Movement Action. Within the explanatory model the Movement Action (MA) only provides the primary focus. The secondary focus will always be provided by the Motoric Movement (MM) and will only be perceived in a proprioceptive way. The secondary focus always needs to be pointed at the transition point towards the action trajectory within the Movement Action (MA). Ergo theories which solely put the eye in the centre are never capable of providing a full explanation of the execution of an action and in this way the explanatory model covers a larger phenomenon than The Quiet Eye (TQE). With this statement I admit however that the term The Active Eye (TAE) is also not capable of doing that. Then the role of the secondary focus linked to proprioceptive perception processes within the Motoric Movement (MM) will be denied in a completely unacceptable way[49].
So although the term The Active Eye (TAE) is actually too limited to cover the explanatory model I conversely use it anyway. In this addendum especially the very active perception processes are highlighted and opposite The Quiet Eye (TQE) a nice contradiction could be found in the term The Active Eye (TAE).

As aforementioned the explanatory model provides a full explanation of all functional processes within all Motoric Movement Actions. It is an important finding. For the first time a complete and ending description becomes available of all relevant functional perception processes as well as all motoric processes. Now all within the movement sciences recognized phenomena can be positioned at their definite positions and it will leave no functional question unanswered anymore. The explanatory model will make it possible that science will be able to formulate and answer an ending sequence of follow-up questions within scientific research which one isn't able to do now. It will unambiguously have the consequence that the scientific research concerning the functional aspects of a Motoric Movement Action can definitely be ended and that it will become a part of the history books.
Besides this motoric learning instruction will never be the same anymore. In *Caught In A Line* the complaint is appointed that it is a wonder that *in spite of* so much inferior (!) motoric learning instruction still so much has been learned. If you Google this term now you will find what mainly a pupil must do to master a skill. Conversely the explanatory model shows that the pupil was never the weak link in the motoric learning process but the teacher and that is very confronting for all those teachers who read this right now. If in the near future one will Google with the goal to master a certain skill one needs to find mainly information about what a teacher should do to provoke an actual motoric learning process.

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[48] This leads to the conclusion that proprioceptive perception processes can be linked to three completely different aspects within one Motoric Movement Action. Within the Motoric Movement (MM) towards 1. the *movement* and 2. the *limb position* which has already been noticed within the movement sciences and within the Movement Action (MA) with the execution of the leading *tau*-value which provides a novum within the movement sciences.

[49] The indication of primary and secondary in relationship to the foci is not saying that one of them is more important than the other. The *dependent* secondary focus within the Motoric Movement (MM) only needs to follow the *leading* primary focus as part of a strict *tau*-coupling within every Motoric Movement Action over and over again.

However I need to make a remark in there. The explanatory model provides a full and ending description of all functional processes which are involved within an action within any sport. All components within both complex subsystems and all relationships are displayed. However within every Motoric Movement Action, within every sport, this exact pattern/layout will definitely need to be fed with much more practical contents. Within the sport tennis I have fully worked that out for my own pupils but in "Watch The Ball Trajectory!" I only appoint the mandatory structure of the explanatory model and not any learning method at a substantial level. Within the Movement Action (MA) practical tennis learning methods need to be developed definitely in which the relevant ball trajectory shapes[50] are subdivided/classified with the goal to become a part of the cognitive knowledge[51] within executers of these actions.
Within the Motoric Movement (MM) one will have to optimize the three complex subsystems[52]. The explanatory model defines the complete Motoric Movement (MM) at large as technique. In a strict way, vernacularly speaking, technique has much more to do with the sole complex subsystem of the body movements (BM). In tennis I conducted empirical research for years concerning the underlying technique models within professional strokes but the body processes (BP) on the other hand will definitely need the same attention. Besides this the complex subsystem of the individual conditions (IC) needs to be optimized within learning methods as well. So in here the explanatory model is again providing the *where* and *why* in the recently by Wolfgang Schöllhorn discovered subjectivation process but also in here the explanatory model leaves the *how* to the relevant professionals within the sport at hand. Each sport, each action and each player will need a different configuration within the optimizing of all complex subsystems and that is why a coach needs to start a brand new process over and over again with each new pupil.

Closely related to all the above the explanatory model will now exactly make clear what *flow* or *playing in the zone* in fact is. All myths concerning this phenomenon will now be explained[53] as well and that starts with the understanding that you already have executed all simple Motoric Movement Actions in complete flow for years/decades. You ride your bike in flow and you also grab a coffee cup in complete flow. Within riding your bike you observe the action trajectory out of the perspective of the bike and you completely oversee all possible action trajectory shapes due to a huge reservoir of cognitive knowledge because you are a very experienced traffic participant.

The *throwing* action trajectory shapes in these examples are so familiar to us, relatively very simple and you keep an eye on them with visual perception[54]. Also within these examples you are only capable of executing them with the help of the Motoric Movement (MM). Only due to very *awkward* (!) movement trajectories (MM) within the body towards the transition point within this autonomous complex subsystem the *smooth* (!) movement of the movement action object within the Movement Action (MA) is provided. Within biking the transition point is positioned between the outside of the sole of the shoe and the outside of the pedal which touch each other. Out of the perspective of the body it is only towards this point that we are able to influence the action trajectory shape. Within riding a bike (but also think about riding a car) you completely perceive the Motoric Movement (MM) in a proprioceptive way. The visual perception of the action trajectory shape and the proprioceptive perception of the movement trajectories are perceived simultaneously but we don't process them apart. It

[50] From *universal* to *player*-specific to *opponent*-specific.
[51] In "Watch The Ball Trajectory!" it is explained that tennis in the field of ball sports shows a limited supply of ball trajectory shapes. Just like other sports which are characterised by a limitation due to a net that divides the playing court has the consequence that ball trajectory shapes always need to possess a significant horizontal component. That hugely limits the amount of shapes which need to be mastered and that is the main reason why tennis players are able to fully master this component. Within for example soccer this definitely isn't possible. The diversity of ball trajectory shapes is so huge that in soccer one needs to look for much more abstract methods to reinforce the cognitive knowledge. At least if one wants to be successful.
[52] The complex subsystem of the Motoric Movement (MM) is further subdivided into three complex subsystems. The individual condition (IC), the body processes (BP) and the body movements (BM). In a formula MM = (IC) x (BP) x (BM).
[53] See: *Caught In A Line*.
[54] Within biking you are only capable of monitoring the action trajectory shape with visual perception.

is more than likely that we create one complex focus image based on the complex system of the Motoric Movement Action. However because the components remain to be very simple the whole system remains simple and can be executed in a very easy way and that is why we hardly have to pay any substantial attention to any component within these simple actions. The grabbing of a coffee cup is appointed in appendix D of addendum 2 and I only mention in here that like riding a bike it is a very simple Motoric Movement Action. We are able to continuously adjust the action trajectory shape within the Movement Action (MA) and the Motoric Movement (MM) towards the transition point encompasses a very simple technique about which we furthermore stored a huge amount of information maybe even from before the time we were born.
So flow is a very common phenomenon and is something that we already experience a lot. This forms a huge contrast with what mainly is ventilated about flow. Namely that it encompasses a very exclusive experience which, just seldomly, can only be obtained by elite sports men. The explanatory model conversely shows that it naturally belongs to the action just as long as the action is executed just like it demands it. I still find the latter hard to explain but if an action is executed like the body naturally demands it then the action will not experience any hindrance and will naturally and automatically be executed in flow.
That is experienced much different within sport actions in which much more complex components can be distinguished. Because the explanatory model never has been discovered the weirdest opinions have been ventilated in there concerning these components. I will not tire you with that. If you finally will understand the explanatory model you will be able to conclude that till now the ball trajectory shape within sports isn't recognized, that the daily teaching practice is still at a remote distance from that explanatory model and that that is the reason why one never was able to reach the level of flow. Moreover players/pupils indeed get more alienated from the natural task at hand because coaches often enforce things which the body deliberately doesn't want[55]. Within the penalty in soccer all official coaches and also all coaches in front of the tv demand that you need to be focussed 100% on the goal during the execution. Due to this demand all players of course are going to believe this and instead of focussing 100% they now start to focus 200% at the goal with the result that their error rate will become twice as high.
Like within the grabbing of the coffee cup the penalty in soccer has always been appointed in the wrong way. In short it comes down to the fact that the egocentric formulated task has been formulated incorrectly. We do want to grab the cup but functionally we primarily want to move the fingertips closer towards the cup out of the perspective of the fingertips. The action must be assessed out of the perspective of the fingertips which are linked to a specific line segment shape and definitely not out of the perspective of the cup. Conform this thought we definitely must not reinforce that a player shoots the ball at an exact spot in the goal. If we ever want to successfully execute a penalty in pure flow then we need to be fully occupied with getting the ball closer to that spot out of the perspective of the ball. A penalty (like a tennis service or a pitch in baseball) can only be influenced at the penalty spot and nowhere else. A player needs to focus a 100% at that spot and the initial phase of the ball trajectory shape which sprouts from there when a penalty is actually executed.
So in summary I want to bring forward in here that the body has a natural tendency of executing actions in flow as long as one only reinforces those processes which the body naturally demands within that action and I want to express that it is peculiar that in spite of so many inferior motoric learning instruction still so many heights have been achieved by elite players.

[55] Or to put it in the words of Timothy Gallwey, most learning instruction reinforces *self 1* to become manifest and not *self 2*. *Self 1* and *self 2* are more extensively discussed in chapter 1 of "Watch The Ball Trajectory!". In there it is also explained why the explanatory model in fact rejects most of the solutions which Gallwey suggests. The famous mantra "Watch The Ball!" or "Concentrate on the seams of the ball!" has nothing to do with the functional execution of tennis. In no way whatsoever will it become a part of a Motoric Movement Action. Paying attention to things which do not demand attention has the adverse effect and indeed keeps you from the state of *flow*.

Chapter 3 - The Quiet Eye (TQE) versus The Active Eye (TAE)

a. Introduction
b. The failures within The Quiet Eye (TQE)
c. The explanatory model versus the sprouting of the idea of The Quiet Eye (TQE)

a. Introduction

The separate clarifications of The Quiet Eye (TQE) and The Active Eye (TAE) in the previous chapters quickly reveal that TQE will never be able to provide a full explanation of the practical execution of a motoric action. A functional explanation definitely needs to approach much more the description of the explanatory model which comprises a thinking approach with a complex dynamical system as the basis. The future will show that TQE must be ranked as a naïve, linear and much too simple explanation. Although it must be said that it is not that awkward why they primarily linked such an explanation to for example a simple grab or throwing action. That couldn't be that difficult, could it? That is very likely why scientists clung on to the idea that an explanation had to be simple and did they never consider to look for a solution with a complex system as the basis. They never looked for a *complex* explanation and ditto system model in spite of the fact that they were never able to appoint a conclusive explanation. The fact that one kept thinking that a motoric action just comprises one focus, one point of attention, definitely made it impossible to gain the essential insight. Therefor earlier within the movement sciences discovered and acknowledged phenomena couldn't be placed at their definite places and wasn't one able to get a first control as to what shape the model must be like. In retrospect one will be able to conclude in relationship to TQE that an explanation which puts *the eye* in the centre of it denies the crucial part of the proprioceptive perception processes within the autonomous Motoric Movement (MM) which also provides a *tau*-value. The explanatory model will show that we have to perceive and indeed do perceive much more within a Motoric Movement Action than ever was assumed.
So the explanatory model indeed shows an obvious complex system model as the basis in which just two complex subsystems are operative within an optimization process[56]. Every action always comprises two simultaneously working foci which need to be assembled into one complex focus image and which will fulfil the always present *functional* (!) *tau*-coupling. But although even the simplest Motoric Movement Action as a whole must be approached in a much more complex way it will appear to be that the separate components within an action are much simpler complex subsystems[57] then how science till now ever has approached the phenomenon of the motoric action as a whole. Now with the explanatory model (TAE) one is able to formulate a conclusive and full explanation of all Motoric Movement Actions. It will be able to place all noticed phenomena within the movement sciences in one definite model which leaves no more holes.

b. The failures within The Quiet Eye (TQE)

[56] The acknowledgement of the optimization process in each and every motoric action leads inter alia to the conviction the we never construct *perfect* (!) vector positions etc. in actions. This is only one of the very few occurring phenomena within the movement sciences which the explanatory model completely rejects. Within every action we shape perceptual images of latent *precise global* line segment shapes out of the perspective of the action object and fill that with the manifest shape during the actual execution.
[57] If you finally will start to understand the explanatory model then you will be struck by its beauty. Within an ecological concept it enables you to go back to the original basis of our existence because it is the most efficient and effective, parsimonious, model that one would be able to develop. It exactly resembles the development of other organ systems and one will be convinced at once that a complex body chose this *simple* complex solution.

As opposed to the explanatory model (TAE) TQE shows many failures. In this paragraph I will just appoint of few of them.
A major failure relates to the linear character of the theory because it poses that first a visual fixation occurs and that subsequently the whole (motoric) execution is *fully* (!?) arranged. So according to TQE within a free throw in basketball we don't have to perceive anything during the actual execution of the initial phase of that free throw in which most players on average still actually guide the ball for over approximately half a meter? So that initial phase will always *automatically* be executed in a standard way in which the shape is always an exact copy of the previous free throw and the player will never have to correct occurring deviations within that line segment shape? And TQE also imposes that no exact *tau*-coupling is needed at the end of the initial phase when the ball is finally fully released because a longer fixation took care of this all? As opposed to TQE The Active Eye (TAE) conversely shows that we continuously have to simultaneously perceive within both complex subsystems till the moment we actually don't feel the ball anymore within throwing actions in which we actually let the (movement) action object (MA) go and that in there the dependent *tau*-value of the Motoric Movement ($tau^{G}{}_{MM}$) must be aligned with the leading *tau*-value of the Movement Action ($tau^{G}{}_{MA}$). In fact TQE poses that even if you are slightly interrupted within your movement during the initial phase of a free throw that you are not capable of restoring anything as opposed to TAE which tells us that you quickly be able to create a new perceptual latent image of an initial phase then and that you are able to actually influence that motorically until the moment that you will finally have to let the ball go.

Because TQE isn't formulated within a complex system it was able to just find an explanation within relative simple sport actions. Like the previous chapters demonstrate the free throw and the golf put belong to the most simple Motoric Movement Actions within sports and TQE wasn't able to produce unanimous descriptions even within there. Within the golf put a player needed to focus on the ball and within the free throw a player should focus on the basket[58] and because TQE wasn't able to produce a unanimous explanation in those simple complex sport tasks they of course weren't able to assess much more complex processes within more complex sports in any way. Conversely the explanatory model of the Motoric Movement Action (TAE) does indeed explain all motoric actions[59]. Tennis for example as one of the most complex sports has been completely explained now[60] and the explanatory model now also provides the definite interpretation within a lot of data within for example scientific research concerning basketball and cricket[61].

In comparison to the explanatory model TQE therefor also wasn't able to produce the overlap within simple daily tasks like making tea which forms the central task within scientific research of Hayhoe, Land, Foulsham etc.. The explanatory model shows the overlaps from the simplest daily household duties to the most complex tasks in sports or juggling for example.

Another very weak point within TQE is the fact that it isn't able to explain why a pro player who excels in his sport (due to explicit learning instruction) is also missing many golf puts or free throws. On that same path TQE is also not capable of explaining why absolute beginners conversely are able to show a definite success percentage within these actions without this professional gaze. Again the explanatory model conversely is indeed able to explain this all. The (action trajectory) *line segment shape* which we need to create during a motoric action actually hosts two independent phenomena. The line is the basal aspect within a line segment shape. Even without any knowledge about the specif-

[58] So although TQE describes the right focus within the golf put the TQE description remains at such a remote distance from the explanatory model that it could never have led to a breakthrough in science.
[59] Because all Motoric *Movement* (!) Actions can now be appointed also all motoric (*non-movement* (!)) actions (like sitting still, standing still etc.) can definitely be explained as well. For further information read *Caught In A Line*.
[60] See: "Watch The Ball Trajectory!".
[61] In almost all cases the explanatory model is completely acknowledging all produced data within almost all scientific research. In most cases the explanatory model often only rejects the linear and naïve conclusions produced by researchers which they base upon those data. So the explanatory model will not change the discovered data but is only adding the definite explanation of it all.

ic shape we always will perceive the filling of a line. In that way we will always experience a *tau*-value approaching zero within the Movement Action ($tau^{G}{}_{MA}$). This is the leading *tau*-value within a Motoric Movement Action. The shape on the other hand is the part of the line segment shape about which cognitive knowledge can be gathered if you gain more experience[62] and that will for example provide the possibility to create exact intersection points within tennis[63] between the incoming ball trajectory shape and the racket trajectory. So a professional in golf will be able to *read* (!) a green and is able to transition this to an initial phase of a scoring ball trajectory shape much better. Still he will also have to and is only capable to optimise all perception and motoric processes within each stroke over and over again. The smaller deviation possibilities which will occur within every complex sub-system which the pro player as it were enforces due to his broad cognitive knowledge will take care that he significantly will score more but will also take care that the pro player always will experience an error rate.

The next quote is exemplary for the naïve reasoning within TQE:
"…"I couldn't beat people with my strength; I don't have a hard shot; I'm not the quickest skater in the league. My eyes and my mind have to do most of the work" (Gretzky & Reilly, 1990, p. 128). This quote illustrates how cognitive capacities, and specifically the control of the gaze and attention, play an important role in distinguishing good performers from the greatest. In all sporting activities, elite performer are able to focus intently not only on what location is most relevant, but also when information from that location must be accessed and for how long, relative to the phases of the movement."[64]
Vickers uses this quote in the opening paragraph of the aforementioned CISS-article that has to display the essence of her work and so she definitely thinks that this is an important quote[65]. In fact the explanatory model absolutely doesn't deny that cognition and more specific the control of gaze and attention plays a crucial/distinctive role but that doesn't imply that you automatically have explained the functioning of it all. Besides this Vickers also contradicts herself in here and this can be linked to the main critic against her work which also is cited in the opening of this addendum[66]. Namely that the starting point is missing. She clearly admits with this quote that elite players possess more and better information. So these sports men exactly know *when* and *how* they *where* have to focus and it can definitely not be linked to an *abstract* (!) gaze which we are not able to exactly appoint which *automatically* gathers information which we are also not able to appoint any further as well. That is in utter contradiction with the on average 10.000 hours training periods of elite players. It is much more likely that they have developed an obvious cognitive element within those periods. That this element till the rising of the explanatory model of the Motoric Movement Action couldn't be appointed explicitly doesn't mean that elite players weren't able to find it in an implicit way.

Besides this I want to stress in here that the explanatory model (TAE) of the Motoric Movement Action also provides a clear and definite explanation for the phenomenon of *flow* or *playing in the zone*. The internet is packed with all sorts of mental training methods which promise to provide flow but only the explanatory model will be able to finally unravel this for the first time and make flow completely available to everybody. TQE and related focus research is still examined in relationship to stress/anxiety or to approval (rewards, positive feedback etc.) because elite players under these circumstances perform significantly better than non-elite players. The explanatory model will unambiguously show that stress or reward are definitely no deciding factors in here. If you namely will be focussed at just looking for that information which is essential for the execution of an action, which as it were the action itself demands, then your body/mind is absorbed in such a way that it doesn't get a chance to get distracted by secondary thoughts like stress, winning, losing, anxiety etc.. And exactly

[62] In addendum 2 these two dimensions of the line segment shape are extensively reviewed.
[63] This is extensively appointed within addendum 2 of *Caught In A Line* and within "Watch The Ball Trajectory!".
[64] Joan N. Vickers; *Origins and current issues in Quiet Eye research*; Abstract.
[65] This quote also illustrates that Vickers absolutely doesn't perceive anything *between* (!) the animal and the relevant location and that is why she misses the essence of the Motoric Movement Action.
[66] See p. 5.

that being distracted within the quest to obtain all the right information is the aspect that prevents distracting emotions to become manifest. Within there the explanatory model clarifies that the desired information must be easily accessible but must be able to absorb your mind for a major part. So if a pro golfer is actively looking for a successful *latent* ball trajectory shape, in the proper way[67], and is actively reducing it to the initial phase of that whole shape then no or at least less *room* (!) will be left to give attention to a possible victory, a loss, the prize, the public, the press (photographers) etc. or other not-task relevant information. With other words then the player is absorbed with the right task in the proper way.



Images: A pro golfer needs broad cognitive knowledge within the task of *reading* the green. All slopes, weather and *green* conditions etc. need to be translated into one successful latent ball trajectory shape out of the place c.q. the perspective of the ball towards the hole and he will have to reduce this shape to an initial phase out of that perspective of the ball. The only thing what a golfer is actually able to execute is *to hit a ball in the beginning of a ball trajectory shape*. Nobody will be able to ever influence anything else within (*letting go*) throwing actions, except for curling.

Besides the previous information about flow TQE related research is also dedicated to the question if the time period within gazing influences the outcome of an action because if TQE is a valid theory then you would expect constantly improving results when you start to gaze longer and that apparently is not the case. Scientific research shows that there is an optimum in executing the action shortly after the gaze. That again doesn't plea for TQE and again favours TAE. Again the explanatory model shows that the three golfers in the above shown pictures after the creating of the right perceptual image of the initial phase of a whole successful ball trajectory shape need to actually execute this initial phase as soon as possible. Because all acquired knowledge relates to *invisible* (!) perceptual information concerning a latent ball trajectory shape within their perception. The *invisible* element will cause that the obtained *successful* (!) right information will quickly be a prey for disturbing factors. So a longer gaze will actually cause that the right information will be lost.

TAE will soon be seen as the definite explanation of each motoric action. It will be admitted as the complete description and will have the consequence that TQE will not be regarded as the cause but as the result of the many very active perception processes which till now have been denied or haven't been recognized. If doubt should occur then two clear research propositions are handed within this addendum which will exactly establish how elite players execute motoric actions. The propositions will 1. in an irrefutable way demonstrate that test subjects due to TAE motoric learning instruction will show the exact same outer characteristics which elite players also display within their actions when video footage of the two groups will be compared and 2. will show that TAE motoric learning instruction produces significant better test results than any other group.

c. <u>The explanatory model versus the sprouting of The Quiet Eye (TQE)</u>

[67] For the first time the explanatory model appoints how all Motoric Movement Actions should be executed. Also the actions in all sports. In that way the explanatory model now provides an ultimate and ending motoric learning instruction. However till now not one player is explicitly raised in that way and although many elite players implicitly found many aspects of the explanatory model one still will be able to witness a lot of hybrid manifestations within the execution of an action at this moment.

Still it is scientifically very important to formulate the question why The Quiet Eye (TQE) did attract so much attention and why it remains to have such an appeal to so many serious researchers. Although I personally wanted to get rid of TQE as soon as possible when I first was confronted with it (How were sane professors ever able to think that such a phenomenon could exist?), a valid explanation had to be available somewhere. The human being in me by no means wanted to solve this. The scientist in me had to formulate an answer although it is hard to provide a conclusive explanation concerning a theory which eventually needs to be rejected completely. However in here I will try to elucidate the sprouting of ideas concerning TQE in relationship to TAE as complete as possible .

An explanation out of the explanatory model in regard to a phenomenon like TQE in the end must be focussed at the "automatic processes" which TQE assumes to happen and this is the exact same characteristic what struck me from the beginning. The following text will show that within the body indeed automatic never noticed processes and systems can be appointed but that besides noticeable basal elements distinct cognitive perceivable elements can be appointed. The explanatory model will show that we consciously execute motoric actions but that current science was never able to acquire the right insight of where those elements are situated.
I will start with again bringing into mind that two foci are involved within the Motoric Movement Action. Those foci have never been recognized before because it definitely looks like only one focus is present in one action. However every Motoric Movement Action can only be executed as an optimization process in which a strict *tau*-coupling must be fulfilled. Within the *tau*-coupling the *tau*-value of the secondary focus needs to approach zero if one perceives that the *tau*-value within the leading primary focus approaches zero[68] as well. The explanatory model definitely shows a universal character within all descriptions of all Motoric Movement Actions concerning this *tau*-coupling. It is very likely that those separate foci have never been recognized c.q. acknowledged because we always perceive them simultaneously and if I continue in this line of thinking then the logical conclusion is justified that we shape one complex focus image out of those two separate (linear) foci. However you still are able to experience/perceive these separate foci. You are actually able to disconnect them and you will be precisely able to understand how they work together[69].
I use the example of the complex focus image to reveal the assumed *automatic processes* within the body and in this line you will need to follow the subsequent steps in this paragraph. It encompasses a long discourse because I am (still) not able to appoint it quickly. The reasoning eventually comes down to the fact that we also perceive two images within our visual perception within the execution of the complex subsystem of the Movement Action (MA) itself. We also *automatically* blend these two images together and so we also don't experience them consciously. The explanatory model will show that the visual perception and particularly the processing processes of the perception, i.e. the ventral and dorsal stream, translate all visual stimuli into one complex perceptual image in which we shape a perceptual image of a whole latent action trajectory shape and simultaneously blend that with a perceptual image of the manifest action trajectory shape. Different to the complex focus image we are never able to disconnect those images even if we deliberately want that.

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[68] Within for example the grabbing of a coffee cup with the hand you are only able to visually perceive the *tau*-value of the Movement Action (MA) coming down to zero. This *tau*-value of the Movement Action ($tau^{G}{}_{MA}$) is situated on the outside of the body within the action trajectory shape between the outside of the coffee cup that will be touched and the outside of the fingertips that will touch the cup. You simultaneously will have to align this with the *tau*-value of the movement trajectory shapes ($tau^{G}{}_{MM}$) which we are only able to perceive proprioceptively within the body just until the outside of the fingertips.

[69] When I fast forward to the end conclusion of this all than conversely you will not be able to disconnect the also existing complex combined image of 1. the manifest perceptual image and 2. the latent image of an action trajectory shape in the same way because that complex image is constructed within the exact same part of an action. That makes it just impossible to perceive them apart. The two foci within the complex focus image on the other hand are pointed at two completely different areas within our perception. When we grab a coffee cup the primary focus is pointed at a part between our fingertips and the cup on *the outside of our body* and the secondary focus is pointed at motoric movements *within our body* to just the outside of the fingertips.

Within the explanatory model the ventral stream is mainly connected to perceptions concerning the whole action trajectory shape and the dorsal stream is mainly connected with perceptions of the (movement) action object (for example the fingertips within the Motoric Movement Action *grabbing* or the letter within the Motoric Movement Action *letter posting*). More and more current scientific literature also suggests that between the two a mutual relationship must exist and the explanatory model exactly appoints this suggestion. If you would be willing to study the Motoric Movement Action *letter posting* then you would be able to discover that if we stand in front of the mailbox that we first construct a perceptual image of a whole *precise global* latent action trajectory shape out of the perspective of the letter towards the slit of the mailbox during the tactical movement action (MA). In the beginning only a *precise global* shape is necessary because at first the only thing important within the action is that the letter is *getting closer* (!) to the slit[70]. What by the way is the essence within most throwing actions and that is the cause of the essential misconception within science until now[71]. Still it is essential that a shape is constructed because otherwise it would remain to be too global and would the Motoric Movement (MM) not get the minimum input it requires. Ergo the shape provides just very little *guidance* (!) but that very minimal guidance exactly fulfils the minimum requirement that a void[72] within a Motoric Movement Action can be bridged successfully. Within this very ecological approach an organism is able to execute an action in a very efficient and effective, *parsimonious*, way. The organism doesn't have to calculate a long time for the exact coordinates because he just needs a *precise global* shape which allows him to start with the action. But this *precise global* very quickly constructed action trajectory shape, *this quickly obtained solution*, of course has a downside. There needs to be a system that each *time frame* (!), or with every advancing place P of the (movement) action object (MA), is capable of analysing and correcting the deviations of the action object within its action trajectory shape. And that is exactly the system that the explanatory model ascribes to the processing processes of the (mainly visual) perception. The explanatory model explains that they form a *double* system in here. The ventral stream is mainly perceiving the whole (manifest and latent) action trajectory shape but in a definite relationship to the (movement) action object (MA). Vice versa the dorsal stream is mainly perceiving the (movement) action object (MA) but in a definite relationship to the whole (manifest and latent) action trajectory shape. In that way a double, *mutual* (!), system occurs in which actual deviations of the (movement) action object (MA) in regard to the perceptual *precise global* image of the latent action trajectory shape will at once provide a new perceptual *precise global* image of a new latent action trajectory shape (of the part that is still latent) which the (movement) action object (MA) will then have to follow again. So if the letter deviates from the *precise global* latent action trajectory shape, and within a parsimonious system the (movement) action object (MA) will always deviate, then immediately a new perceptual image of the latent part of the action trajectory shape will be constructed out of the manifest part of the *letter* trajectory shape and the letter will have to follow this new part again till the moment that the next deviation occurs c.q. will be perceived[73].

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[70] Letter posting is an example of a throwing task in which we mainly hold on to the action object (the letter) although a very tiny throw can be experienced within the very last part of the action.

[71] In grabbing/grasping research one always did focus on the coffee cup and in letter posting (with the patient D.F. for example) one mainly focussed on the slit. Conversely the explanatory model shows us that all perception and motoric processes within those actions are mainly occupied with bridging a gap *out of the perspective* (!) of the letter or the relevant fingertips. The slit and the cup are tactically considered in a previous phase but during the execution we mainly perceive the letter c.q. the fingertips bridging a line segment shape to whatever.

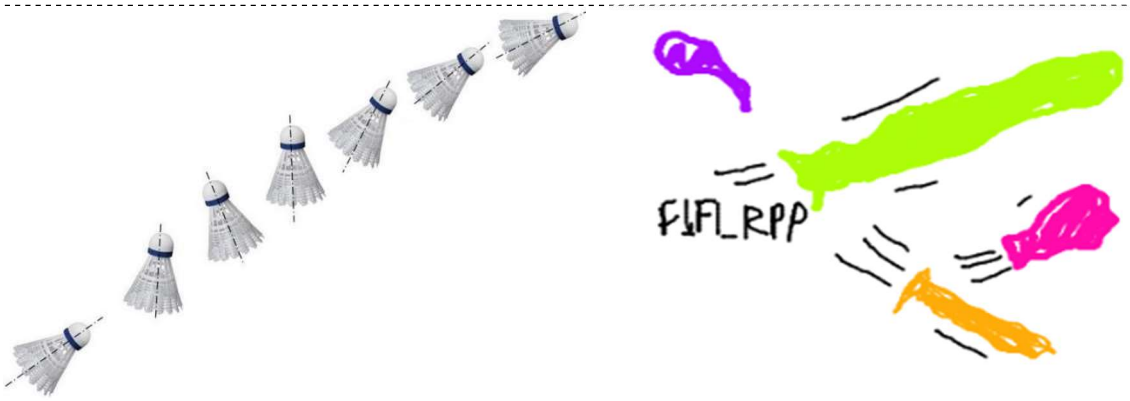
[72] The void, the action-*space* (!), is the third and concluding entity within the animal-environment relationship which Gibson was never able to recognise as an *affordance*. In addendum 2 you will be able to read that the explanatory model not only thinks that within the void a relationship can be shaped between the animal and the environment but that the explanatory model considers the void to be *the* (!) relationship between the two.

[73] A great example of this mutual process can be witnessed within the Motoric Movement Action *nerve spiral*. Almost all of you are familiar with this game and during the execution you were able to observe that you were caught within the two processing processes of the visual perception. In spite of the fact that it appears to be that we execute straight line segment shapes within our actions this specific motoric action conversely shows that also within the Motoric Movement Action *grabbing/taking/touching* we just aren't able to construct exact straight action trajectory shapes but that we first bring the hand or even better the fingertips *closer* (!) to the coffee cup within an optimization process (until we are finally able to hold it due to the separate autonomous Motoric Movement Action pressing/pushing) and within the void between the animal and the environment that is exactly the main goal of the action.

This aforementioned process is very clearly captured within the term *Caught In A Line*. The letter itself will finally create its actual action trajectory shape but it will indeed also have to follow the latent action trajectory shape. It creates the line but is also caught in that line. Also the tennis ball will create its actual ball trajectory shape with all its actual places P but it will also have to follow a (well-created) perceptual image of the latent part of the action trajectory. About which I have to remark that the perceiving of the actual place of the letter or the tennis ball (within) and the perceiving of a whole latent perceptual image of the latent action trajectory shape is the only way how the leading *tau*-value within the Movement Action ($tau^{G}{}_{MA}$) can be constructed and that the determining of this fact definitely ends the action-perception dichotomy. Moreover this is what D.N. Lee as the first scientist, although rather hazy, appointed as *tau*-value:
"3.1 Action-gap
An action-gap is defined, in general, to be the changing gap between two measurable states. For example, the changing gap between the measurable state an animal is currently in and the goal state that it wants to be in is an action-gap."[74]

In this section[75] I will assess one exact equal incoming ball trajectory shape with a bounce (!) within the regular game of tennis and in there I will appoint the essential differences when that happens with a normal tennis ball versus a Z-ball. The assumption is that the bounce behaviour within both balls are comparable.
As soon as possible an elite tennis player will try to mold an incoming ball trajectory into a perceptual image of a *precise global* shape of a specific, intensively trained, *reference* ball trajectory and during that task he will witness the closing of the gap of the latent part of the ball trajectory line segment until the bounce in the exact same one-dimensional way with both balls. Also in the same way the *tau*-value of the ball trajectory after the bounce can be determined based on cognitive knowledge concerning the bounce behaviour of the (movement) action object. So just like with a tennis ball we are able to also shape a *precise global* image of how a Z-ball will one-dimensionally close that gap after the bounce. However the only thing what mere mortals cannot do in there is to construct a *precise global* image of the shape of the Z-ball trajectory after the bounce. The shape of the bounce can still be predicted quite well but behind that point no, set, Z-ball bounce behaviour can be recorded into our cognitive basis. So we are able to construct a *precise global* image of the closing of a gap of the whole ball trajectory but we are not able to link it to a whole *precise global* Z-ball trajectory shape[76] if the opponent just struck the ball. Z-ball bounce behaviour in relationship to the *shape* of the trajectory is just too chaotic, too complex, for our perception organs to be able to record anything in our cognitive basis. So we are only able to start to construct a *precise global* latent image of the shape of the incoming Z-ball trajectory after the bounce[77]. Because only from that time on we are able to start to construct a latent image of an intersection point with an outgoing ball trajectory shape with an optimal game intention. This is due to the fact, and in short this contains the essence of this all, that only from that moment on we are able to provide such a detailed image of the fluctuation boundaries of the ball trajectory shape that we are able to *answer* (!) those sufficiently within the fluctuation borders of, our *limited* (!) technical abilities, within our motoric movement (MM).

[74] *How movement is guided*; David N. Lee; p. 5/6.
[75] Excerpt from addendum 2; p. 31.
[76] Within the Motoric Movement Action cat and mouse game (appendix E) the exact opposite is happening. Due to the set shape of the tube one can even construct already a precise image of the latent action trajectory shape in there. But the one-dimensional tau-value can't be distinguished very well because the melon/ball emerges out of a non-transparent tube at the very last moment.
[77] In spite of the fact that indeed the starting point of the upcoming ball trajectory is already known for quite some time. But we are not able to work with that precise global beginning. Cognitively the fluctuation boundaries within the perception must be narrowed much more if we want to be able to cover them sufficiently within the fluctuation boundaries of our motoric movement (MM). But in here it must be acknowledged that this fact is by far the most limiting factor concerning what ball trajectory shapes can be expected.



Images: Within badminton shuttles (left) or not-tied up released balloons (right) no perceptual image of a latent ball trajectory needs to be created after any bounce[78]. However it is interesting to classify those two (movement) action objects (MA) within the range of the tennis ball, Z-ball and cricket ball. If one releases the same balloon at the exact same spot over and over again never a for mere mortals cognitively recognizable pattern of the whole object trajectory shape will be revealed[79]. A balloon however shows an even more complex pattern than a Z-ball. Because when a Z-ball just bounced the shape till the next bounce can conversely be predicted in a *precise global* way. A balloon trajectory shape will always show many erratic inflexion points due to the irregular deflation and the flexible structure of the balloon and so with a balloon there is never a moment where one is able to construct a *precise global* image of any latent shape. Also the *tau*-value is the hardest to define within the use of the balloon. With most objects one will be able to perceive a *regular deceleration* within the closing of the gap. Conversely within the balloon an *irregular acceleration* is involved and that sometimes leads to such fast speeds that mere mortals are not able to determine any *tau*-value at all. Within the range of other objects the badminton shuttle shows the largest deceleration in the *ball* behaviour and due to that it will show the largest fluctuation borders concerning the speed of a (movement) action object. This makes the task of determining a *tau*-value a little more complex. However badminton shuttle behaviour is stable in such a way that players are able to construct *precise global* images of ball trajectories which can be answered sufficiently within the fluctuation boundaries of the motoric movement (MM)[80]. So within the use of a balloon the only thing we cognitively know for sure is that also all

[78] From this phenomenon can be deduced that the bounce spot is emphasized far too much in many scientific research and learning methods. It must be regarded much more as just a specific inflexion point within a whole shape, a whole range, of coupled places P of the (movement) action object. This overarching line segment shape needs to encapsulate this bounce point within learning methods in such a way that players will understand this. It seems that elite players, within for example tennis or cricket, look at the bounce point after the saccade but to put it black/white that isn't true. After the saccade they are focussing at the *precise global* spot from which the ball will rise and will fulfil the last part of the incoming ball trajectory shape. In there they are mainly occupied with an optimization process in which they let the ball come to a pre-set intersection point (due to the tactical movement action) with the outgoing ball trajectory. The description of the optimal strategy within the Motoric Movement Action *cat and mouse game* (appendix E) shows that they execute this task with direct vision on the virtual intersection/contact point towards the outgoing ball trajectory and that they observe the last part of the latent incoming ball trajectory shape from the bounce point with peripheral vision.

[79] In here the contrast should be mentioned between bullets and arrows (archery). No mere mortal is able to construct any shape or any *tau*-value when a bullet is fired out of a gun. When an arrow is fired the speed is still at a pace that the shape and *tau*-value conversely can be determined. Arrows also behave like most, normal, aforementioned (movement) action objects. However the huge difference with the other objects comprises the fact that the shape of the action trajectory of the arrow provides such a small time frame that one most of the time isn't able to execute whatever motoric movement (MM) successfully ($\Delta t_{\text{action trajectory}} << \Delta t_{\text{movement trajectory}}$) if one for example wants to flee from its shape.

[80] Otherwise badminton could only be played with a very small success rate and then it would never have developed into a successful sport. So from another point of view one can determine that within most ball sports the ratios concerning the complexity, of for example the constructing of a precise global image of a latent ball trajectory shape and the *tau*-value within there, demand that they can be executed successfully for 70-90%.

places P of the balloon will be connected and that *a* gap is filled. However the final balloon trajectory shape will only be revealed at the moment the balloon will actually occupy a place P(x) and then there is nothing we are able to anticipate to, then no latent line segments can be constructed beforehand, and that is why human beings are not able to play any sport with deflating balloons.

With these details we are now also able to define the complexity of cricket. A cricket ball is by far not comparable with a Z-ball but it is neither a smooth round ball as within tennis. A cricket ball has an obvious seam and players are allowed, according to the game rules, to polish one side of the ball which will take care of the fact that the ball trajectory shape within cricket will show a wider range of fluctuation borders of deviations than with the use of the tennis ball. So just like within tennis an elite cricket player will be able to construct a comparable *precise global tau*-value of the whole ball trajectory but will have to consider a definite wider range of ball trajectory shapes after the bounce than an elite tennis player has to do. Although elite players within tennis and cricket in general already shift their attention to the catching process[81] one can determine that cricket concerning this phenomenon is more complex than tennis. That means that cricket players for example need to emphasize the receiving process more and/or better, or that they have to adjust their game intentions to the corresponding (higher) error rates, etc..

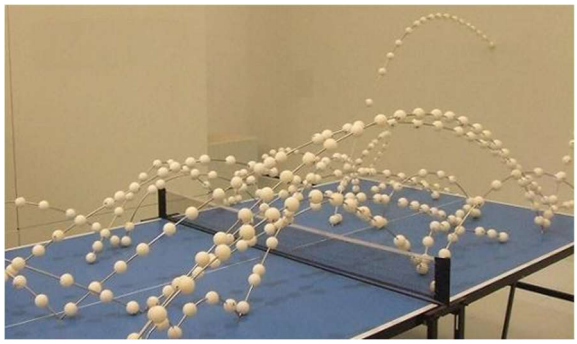
But before I am able to return to the *automatic double* image which the processing processes of the visual perception are providing I will have to elucidate a few other matters. First I will have to clarify the essence of our visual organ as a comparing organ which hasn't been remarked until now. Each time frame our visual organ creates one static still complete image of the environment in which the explanatory model completely follows Gibson in the conclusion that visual perception is direct. Hence the visual organ is implicitly an active organ that continuously projects static still images. We are not able to perceive the static still nature of those images because the visual organ continuously refreshes the image each and every time frame and the visual perception in relationship to movement only is interested in the comparison of those images[82]. Although current science now is mainly interested in which cognitive perception processes are involved within the (*cognitive*) identifying of objects within one visual image now the novum can be formulated that we perceive everything as part of movement due to the nature of the visual organ itself[83]. In which the objects which show a zero-movement within our perception are standing still but are perceived as active as the objects that move.
Second another never recognized fact must be mentioned. Within our visual perception, due to the dimension we are living in, all places P of all objects present in an environment/vista are always linked to each other. Hence every place P(0) is always connected to the places P(-1) and P(+1) and not any other place
These two clarifications are able to shape the main part within an ecological explanation which is able to stand its ground even until the development of the earliest organisms and within there the philosophical question can be answered why those two exact phenomena arose in that way. With Gibson's *affordance* theory in mind one could argue that the linking of all places P within our visual perception could arise because that factually is possible c.q. *afforded* within the dimension of the world we are living in. Just like light/darkness and the space *between* (!) the animal and the environment as a matter of fact is offered to us[84] just because they exist within our environment. That simple fact just caused that a system was able to develop which was able to *record* (!) exactly those limitations within the places P of all subjects within every environment. Just like the computer could only be developed due to the strict limitations if a basal computer unit either comprises the digit 0 or the digit 1 and nothing

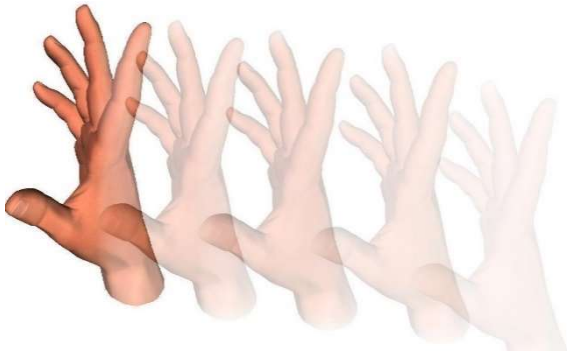
[81] See: Appendix E; The Motoric Movement Action *cat and mouse game*.
[82] The same relationship can be noticed within our auditory organ and our auditory perception.
[83] The explanatory model shows that the experiencing of movement can be linked to the origin of the development of our visual perception. That must have been developed ages before any cognitive development occurred. For movement organisms at first didn't have to perceive what was moving, in what shape it was moving etc.. Of course within the evolution it is apparent that later on those cognitive abilities were developed as well.
[84] Also the difference in dimension of water and air could be mentioned in here.

else. Within here the explanatory model unfortunately shows that no deeper meaning is involved within the whole evolution. In fact it shows that there is no meaning at all and that the whole concept of meaning doesn't fit in here. It just was possible/afforded, it provided more possibilities/chances and that is why it developed. Period.

Wherever you are or whatever you do you will always be part of an environment/vista. The next two phenomena concerning this environment are hardly recognized anywhere.[85]

1. You will always perceive a vista in *linear* movements[86]. If we limit ourselves in there only to the visual perception then you will experience either ob-/subjects move or that they remain, are standing still, at their exact same spot. In which standing still, out of the principle of relativity, scientifically must be seen as a zero-movement out of the specific beholder. If you think about riding your bike for you the bike is standing still but for the other person it's not. So your visual perception organ will create, always in the same active way, ongoing sequences of still standing static images which out of your perspective either in comparison of these images show a 0-movement or in comparison of these images show a linear movement[87].





Images: If you look at a picture you think you are experiencing one representation of one moment in time. It could provide the suggestion that if you look at an image of multiple table tennis balls or hands that movements in *linear* line segment shapes are involved. You are able to perceive movement but that is just an illusion. If you look at these pictures your visual perception organ produces like within all pictures continuous sequences of static still places of *the same picture* (!). Within there the visual perception organ will never be able to perceive a difference in places P in the continuous comparison of those separate static still images and that's why it looks like we are experiencing one representation of one moment in time.

Ob-/subjects which out of your perspective are (*still*) standing still show with their consecutive places P, in contrast to moving ob-/subjects, no deviations of those places P and will not create a line segment or will show a zero line segment shape. Or in other words all places P(x) *must* be connected to the exact same place P(x) within the visual perception. Ob-/subjects which out of your perspective are (*already*) moving conversely show a line segment shape in which the places P(x) are always connected to the places P(x+1) and P(x-1). So all ob-/subjects which out of

[85] Excerpt from addendum 2; p. 59.
[86] Within an ecological approach this fact can be linked even to the earliest forms of life. Before the evolutionary development of perception one can deduce out of this proposition that differences in places P could already have led to the *sensation* of movement/change. So that is in the eras long before one was cognitively able to perceptually lengthen a manifest line segment shape or one was cognitively able to determine what was moving. In those earliest times the only thing that mattered was *if something changed* in relationship to the position of the animal.
[87] The explanatory model concerning Motoric Movement Actions mainly considers the visual perception organ as a *comparison*-organ.

your perception perspective move are *caught* in lines because they not only shape the line but they will also have to follow the perceptual line segment image that you shaped because no ob-/subject is yet capable to jump from P(+1) to for example Q(+6) to R(-16) etc.. So balls will always be connected to *linear* (ball trajectory) shapes and the same can be applied to all actions which we execute with our body in an environment[88]. If we kick a ball with our feet or if we grab an apple with our hand all consecutive places P of the foot or the fingertips are also linked in such a way that you perceive them as line segment shapes. In the case that we want to clap behind our back or if we want to dispel a nightly mosquito from our head, ergo if we execute an action towards our own body, then we need to observe the action out of the (movement) action object and then is the environment the location of where the end of the action trajectory shape is planned. So in case of the mosquito the action trajectory must be shaped out of the perspective of the relevant parts of the hand through the *nothing* towards our head.

2. Classic explanations connect the initiative within an action mainly to the animal towards the environment. According to those explanations the action finds its origin in the formulating of an egocentric will within the animal. Conversely J.J. Gibson with his *The Affordances Theory* emphasizes that the environment is providing the *possibilities/affordances* and that an action must be assessed much more from an animal-environment relationship. However within his exposé one can notice that he either puts the attention on the animal side or on the ob-/subject in the environment side. So if an apple can be grasped then Gibson mainly points at the specific possibilities within the apple that will provide the opportunity to grab it.
   The explanatory model doesn't contradict with that view at all but conversely adds an extra and final step in here as well and notices that Gibson neglects a very important third entity which, besides the animal and the environment, is blatantly present. In every environment/vista there needs to be an obvious space with *nothing*, between (!) the animal and the environment, to make movements possible. Without empty space (*manoeuvring room*[89]) movements wouldn't exist and due to that the Motoric Movement Action wouldn't exist. So the explanatory model acknowledges three obvious entities in each vista/environment. The animal, the environment and the *nothing* between the two of them and clarifies that the *nothing* shapes the relationship between the animal and the environment. The explanatory model even wants to express that more profoundly by stating that the nothing *is* (!) the relationship between the animal and the environment. The explanatory model acknowledges those three entities completely and that is why they all together shape the essence of one of the two complex subsystems, the movement action (MA). Within the movement action (MA) they are moulded to one overarching entity, the *action trajectory shape*. The ball trajectory shape is the specific action trajectory shape within ball sports and is *the* (!) connection between the player and his opponent.

So conform Gibson you have to notice that the visual organ could only be developed because the environment provided the *affordance of light*[90] (as opposed to darkness) and that essential within there is

[88] The explanatory model adds one new insight to the *animal-environment* relationship. Within Motoric Movement Actions there is either a clear action from the animal towards the environment or a clear action from the environment towards the animal. In that way the explanatory model explains that there are two main groups of actions, namely the throw and catch actions. Although both need timing and therefor a *tau*-coupling the, self-initiated, throwing actions can be defined as the actions with *self-paced* timing.

[89] Also think about the water in the swimming pool. Just like we are confronted with or daylight or darkness from the earliest times, so the earliest organisms are familiar with two kinds of *nothing*. From the earliest evolutionary developments we either execute actions in the water or in the air.

[90] Conform Gibson the whole explanatory model shows that also in relationship to the evolution no deeper meaning can be formulated why an organ system developed in a certain way because an affordance can as a matter of fact be seen as a factual presence which allows an evolutionary development to just occur/arise. The bodily adaptation to that factual presence within a vista would likely just have caused an advantage as opposed to the then present competition. Hence the perceiving of movement in no way would have been a part of the origin of the visual perception. The visual organ most likely arose first because there just was light and that it could be re-

the fact that within our animal-environment dimension each place P of all present objects are always linked to each other[91]. Ergo we don't perceive a vista in static still places P of the present objects but we (relatively) perceive the whole environment in linear line segment shapes or zero line segment shapes. Or more precisely we (relatively) perceive the whole environment in *movement* line segment shapes or zero *movement* line segment shapes. Like it is explained in the excerpt within the frame work just above this passage our visual organ is intrinsically an active organ which each time frame captures a static still image which within the visual perception takes care of the fact that they can be compared and an interpretation can be added. So this activity is intrinsically founded in the organ itself. We construct ongoing sequences of static still images of the apple within the fruit basket as active as we construct ongoing sequences of static still images of the tennis ball going from Federer to Nadal. Only it looks more active within the example of the tennis ball because we think movement is involved in there. However the only reason why we are able to perceive movement in there is the fact that within the comparison of the ongoing sequences of *static still* images of the tennis ball differences in places P can be noticed.

Now after I explained how the visual organ and the visual perception within the explanatory model relate as in regard to movement I am now able to establish the link towards the Motoric Movement Action *catching* although the Motoric Movement Action *not-catching* is linguistically the much better description for it. I have to do that because I want to show that the significance of the aforementioned perception processes, in relationship to perceiving movement line segment shapes or zero movement line segment shapes, within an ecological approach can be linked to the earliest organisms. Since the very beginning organisms are only interested in a few things and that, according to their probable priority, is 1. mating (reproduction), 2. eating and 3. take care you will not be eaten. Within all three phenomena we want to establish if the shape of the movement line segment shape or the zero movement line segment shape of every ob-/subject in every vista will create an intersection point with the shape of our own movement line segment shape or zero movement line segment shape (in case we don't move) from the beginning of time. Mating and eating can be accommodated within the Motoric Movement Action *catching* and preventing that you will become food within the Motoric Movement Action *not-catching/fleeing/avoiding*. Especially the explanation within not-catching provides most obvious that we *continuously* (!) have an interest (each timeframe) to be able to experience whether a competitive action trajectory is able to threaten us. Hence that is why the explanatory model produces the central thought that we continuously need to experience a matrix of latent action trajectory shapes within every vista because we don't know when something is going to do that.
So in summary the explanatory model shows in here that we *automatically* perceive action trajectory shapes and that we *automatically* link the actual place of the (movement) action object (MA) to a manifest and a latent part of the action trajectory shape of the action object.

The explanatory model of the Motoric Movement Action attaches great value to the Motoric Movement Action *not-catching/fleeing/avoiding* because it holds an important clue for the existence of a continuous matrix[92] in which all possible action trajectories are already present in a latent form[93]. Out of a previous formulated egocentric will we are able to deliberately *not-catch* something and also in the sport dodge ball a player actively doesn't catch the ball. However most of the time the Motoric Movement Action *not-catching/fleeing/avoiding* is a reactive action which only be-

ceived and nothing else. Only in later stages that probably led to for example generating energy or the later cognitive developments within the visual perception. So the only legitimate evolutionary reason why it arose is the observation that it was possible. The conclusion that it remained and could develop is of course due to natural selection.

[91] In which also must be noticed, for the sake of completeness, that movement only could be provided due to the manoeuvring-*space* (!) between the animal and the environment. That implicit affordance within the animal-environment relationship has never been noticed.

[92] See: *Caught In A Line*; p.23.

[93] This observation aligns with the suggestions of J.J. Gibson that affordances are not created at the moment that we develop an egocentric will but that the relation animal-environment has a structural, abstracted and actual component.

comes manifest if an action trajectory threatens our position or action trajectory. And like aforementioned within the reactive and latent Motoric Movement Action *not-catching/fleeing/avoiding* the movement action (MA) is equal to the movement action (MA) in deliberate catching. However the difference with deliberate catching is that we don't see a specific action trajectory yet but that we are actively looking for action trajectories that could become such an action trajectory. All objects and subjects in the environment are able to become a manifest threat at every moment. So this forms an important clue that we shape a continuous relationship with the complete environment in action trajectories from the moment we enter a new environment. So the conclusion for the explanatory model is that every time frame we are latently fleeing in every environment. Or with other words in every environment we are actively catching all zero-moving and moving objects with the objective to not actually get them into our hands.

"In a park we also relate to the surroundings in a matrix of latent action trajectories. It doesn't appear that way but our perception processes continuously scan the complete environment. We perceive how we relate to the trees, the branches of the tree, the pond, the stray dog, the cyclist, the jogging athlete etc.. It is all part of our latent reactive Motoric Movement Action avoiding/fleeing/not-catching. That will become clear if our action trajectory is threatened by action trajectories of third parties. For example in case the storm tears of a branch from the tree right above our head, the jogger suddenly comes around the bench on a narrow road, the dog just exits the pond and starts to shake his body to get rid of the water or a bug is heading exactly in the direction of our mouth."[94]

We don't really execute the Motoric Movement Action *catching* a lot. Conversely the Motoric Movement Action *not-catching* we do experience and execute countless times every day within for example daily traffic[95]. Within there you will have to determine all, *relevant* (?!)[96], action trajectory shapes of all traffic participants and within there all linked *tau*-values. In no other way you will be able to plan your own void of your own latent action trajectory shape as opposed to the voids within the action trajectory shapes of the other participants. Ergo you create a perceptual image of the latent action trajectory shape of every traffic participant and fill that with a perceptual image of the manifest part of it[97]. With your cognitive knowledge as the basis that will enable you to construct *tau*-values which provides you the possibility to construct intersection points between your and their action trajectory shapes and that will allow you, in case you are a secure traffic participant and hardly take any risk, to cognitively determine gross margins if you will be able to create your own planned action trajectory shape in time[98].
If you want to cross a street as a pedestrian and you approach a cross road in which you have to give the right of way to the other traffic participants then you will handle the situation like this. If you notice a power wheelchair at a considerable distance of the crossing then you probably perceive at that moment that this participant is filling its latent action trajectory shape out of perceptual image of the manifest shape in such a slow way that you will be able to very easily create the *tau*-value within your own action trajectory shape long before the wheelchair even will come close to the crossing. For the sake of correctness I have to remark in here that you don't determine any time frame in this situation

[94] *Caught In A Line*; p.24.
[95] As a bycatch I want to remark in here that if you are willing to study the Motoric Movement Action *catching* and especially the overlap within the not-catching you are able to conclude that very hopeful entries/solutions become available towards the latent parts within the *Neuron Mirror Imaging* research.
[96] In the following parts of this discourse it will appear to be that you will have to include all traffic participants within the tactical movement action (MA) because only then it will become apparent which latent parts of which latent action trajectory shapes will become relevant for you.
[97] Just like we logically aren't able to actually perceive the latent part of the action trajectory shape we also aren't able to actually see the manifest part of the action trajectory shape. Within there we will also have to rely on a perceptual image out of the actual place of the (movement) action object (MA) in relationship to previous places P (P(-1), P(-2), P(-3) etc.).
[98] Time is actually the very wrong word. We perceive this traffic situation in relative space.

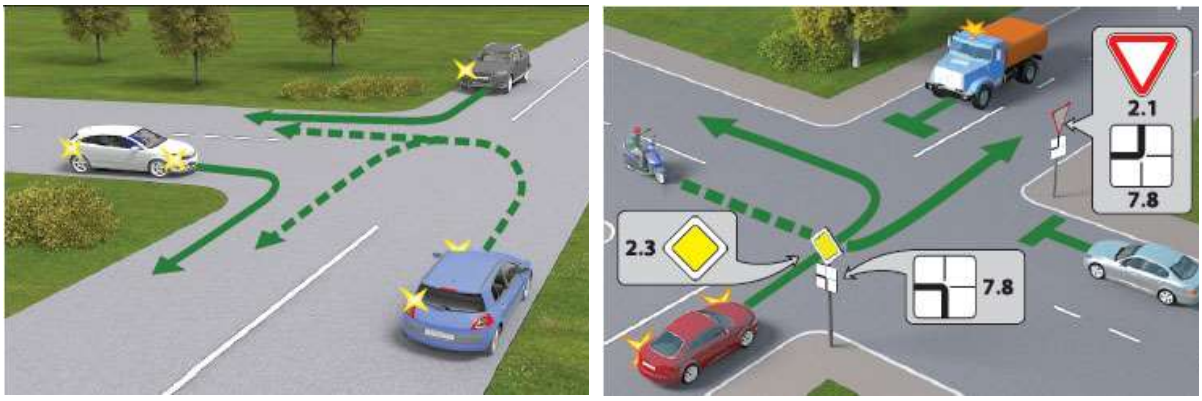
but you perceive that the *tau*-value within the action trajectory of the wheelchair is approaching zero in such a slow tempo that you know for sure, based on your cognitive knowledge, that you are able to let your own *tau*-value approach zero much faster. Of course that is different when a Ferrari is involved. Although it is located at the exact same remote distance as the power wheelchair was positioned you as the secure traffic participant will now not be able to establish with certainty how the Ferrari will shape its *tau*-value[99]. Just like with the wheelchair you shape a latent action trajectory shape out of the actual place of the Ferrari till the intersection point with your own latent action trajectory shape and you now also want to establish the relevant *tau*-values. Or in fact you now also perceive with which speed the *empty* (!) space within a latent line segment shape will be filled and you judge with a security margin if you will be able to fill the empty space of your own line segment shape before the Ferrari will complete its action trajectory shape. If you (cognitively) judge that both *tau*-values show a definite intersection point in the form of a collision point then you decide to let the Ferrari pass first.

The *tau*-coupling within the Motoric Movement Action *traffic*[100]

Assignment 3 is a *weird* far sought assignment to show that we assess action trajectories of other ob-/subjects in our daily actions indoors like we assess action trajectories in daily road traffic[101] outdoors. In here I will briefly appoint the Motoric Movement Actions *in daily road traffic* and the relevant *tau*-coupling. First it is important to understand that the functional *tau*-coupling within the timing of the Motoric Movement Actions is based within the Motoric Movement Action of one road user itself[102]. Each vehicle in the accompanying images below is familiar with its own autonomous Motoric Movement Action and within there with its own *tau*-coupling. So the functional *tau*-coupling has nothing to do with other traffic participants.
Each vehicle from bike to car is characterized by the fact that the action trajectory is created by its own (motoric) movement object which only can be influenced by a set intermediary constellation[103]. The transition point within for example a car is therefore situated, within the legs, between 1. the outside and the bottom of the sole of the shoe which will touch the relevant pedal and 2. the outside of the pedal that will be touched by the shoe.
The line segment over which, the transition point of, the specific pedal can be moved determines the *tau*-value of the motoric movement ($tau^{G}{}_{MM}$). Just like within most other Motoric Movement Actions we don't have to perceive this *tau*-value with direct vision. Certainly in driving a car we perceive this

[99] Besides the universal differences between a Ferrari and a powered wheelchair I also need to remark in here that we possess cognitive knowledge concerning the fluctuation boarders of lots of (movement) action objects (MA). The velocity of an action object is definitely a part of the action trajectory shape and so the much wider acceleration possibilities within the Ferrari cause that we have to reckon with much wider fluctuation boarders within the creation of the relevant *tau*-value.
[100] Excerpt from *Caught In A Line*; addendum 2; p.26.
[101] Remark the commonalities between the marble within the marble run (opening addendum 2 of *Caught In A Line*) and the car within its lane. Although the choice for an example like the marble run at first looks *weird* as well it is exactly this phenomenon which we experience in every Motoric Movement Action and definitely within how we arranged to move from A to B.
[102] Within short notice I definitely will have to reappoint this more profoundly. Your own action trajectory shape relates to a *throwing*-action with an autonomous *tau*-coupling. The action trajectory shapes of the other traffic participants conversely need to be caught with the intention to actually not get them into your hands. Hence the *tau*-values of those participants must definitely be determined but they are not allowed to provide intersection points with our own *throwing*-action just like is the case within tennis for example. Traffic must be regarded much more as juggling a x-number of balls in a cascade. Within juggling one also needs to actively catch and specifically use the voids of the moving balls to launch the relevant ball in its ball trajectory shape once more.
[103] In determining the transition point of a (motoric) movement object it is essential to know whether the object is flexible (f.e. spoon, tennis racket etc.) and adds an extra movement trajectory to the motoric movement (MM) or whether the object must be qualified as a set intermediary constellation (f.e. computer, car etc.) and that the object doesn't add an extra movement trajectory. See also *Caught In A Line*; Chapter 3-4 and 3-5.

in a proprioceptive way. Just like within most other Motoric Movement Actions we do have to perceive the *tau*-value of our action trajectory ($tau^{G}{}_{MA}$) with direct vision. So if we suddenly have to queue behind another car the distance of the line segment between our car and the car in front of us determines, the gap or the latent action trajectory shape. When we observe the closing of this gap we are able to determine the leading *tau*-value of the movement action ($tau^{G}{}_{MA}$). The *tau*-value of the motoric movement ($tau^{G}{}_{MM}$) will have to follow the leading *tau*-value within the execution of one specific Motoric Movement Action with one vehicle. Or with other words the brake pedal foot will need to put pressure in such a way to the pedal that it will correspond with the possibilities which the distance between the two cars offer ($tau^{G}{}_{MA} \approx tau^{G}{}_{MM}$).



Images: In daily road traffic we continuously use the fact that other participants are *caught in a line*. Our perception processes in daily traffic especially observe the latent parts of the action trajectory shapes belonging to the present vehicles. This looking at *nothing* is an important function of the perception processes in all Motoric Movement Actions because in there we visualize the latent action trajectory shape of our own Motoric Movement Action *moving A-B*.

The other traffic participants produce their own action trajectories with their own *tau*-coupling like moving children or moving chain saws in a kitchen. So they don't form a *tau*-value which has a direct consequence for the egocentric formulated task within your own Motoric Movement Action. Fortunately we don't have to actually catch other participants in daily traffic but we only have to avoid them. That is why they will not become a part of the functional *tau*-coupling within the actual movement action. The *tau*-values of other participants only need to be judged marginally during the tactical movement action[104]. Therefore we only need to perceive the *tau*-value of the action trajectories of other road users (A, B. C etc.) and to take care of the fact that they don't collide with the timing of our own action trajectory ($tau^{G}{}_{MA\ (own)} \neq tau^{G}{}_{MA\ (A,\ B,\ C\ etc.)}$)[105].

So all movements of third parties within any environment will always cause *automatically* that the Motoric Movement Action *catching* is triggered and do all other traffic participants provide not-catch actions.
Across the catching I now want to address how the throwing actions conversely must be considered and within there I will discuss the crucial differences within all those actions which need to be mentioned in the range of possible throwing actions what also causes that the explanatory model elucidates the whole range of throwing actions at the same time. I will start by appointing (*hold on*) throwing

[104] In actual catching the timing but also the shape within the movement action (MA) must be aligned with the timing and the shape within the motoric movement (MM). That is a far more complex task. See appendix B; The Motoric Movement Action *catching/not-catching*.
[105] You are able to distil in here that a conscious act to bump into another car, which is the task within for example the bumper cars at a fair, is a more complex task than to avoid a car in normal daily traffic.

actions with the whole body (for example walking), then continue with (*hold on*) throwing actions with a part of the body (for example grabbing with the hand) and end with (*let go*) throwing actions in which we finally will arrive at the free throw and the golf put which forms such a prominent part within the development of The Quiet Eye (TQE) theory.

We return to the traffic situation with the wheelchair/Ferrari in which we now particularly will appoint our own action trajectory shape. In *Caught In A Line* every Motoric Movement Action which hosts the egocentric formulated task of moving the complete body from A to B is defined as the Motoric Movement Action *moving A-B*. It comprises many specific actions like walking, riding a bike, rowing, sailing, swimming, riding horseback etc. etc. and it relates to a big part of our *normal* daily motoric actions. Within the Motoric Movement Action *moving A-B* all perception processes become part of the transfer A-B and so become an actual part of the Movement Action (MA) itself. Ergo within the Motoric Movement Action *moving A-B* we don't see the tennis ball *from the outside* (!) in a ball trajectory shape but we perceive the movement of the tennis ball *from the inside* (!) of the action trajectory shape itself. So if we traverse a crossing we ourselves are the tennis ball within a ball trajectory shape. Then we also are able to construct a *tau*-value because it is possible to also create a perceptual image of a whole latent action trajectory shape and to fill that with the perceptual image of the actual manifest action trajectory shape. If you walk into a blind alley you will *automatically* create a perceptual image of the whole (ending[106]) latent action trajectory shape and you will *automatically* construct a perceptual image of how your manifest action trajectory shape is actually filling this latent image. But in fact functionally you will only perceive how *the gap* between 1. the actual place of the (movement) action object (MA) c.q. your body and 2. the end of the whole latent action trajectory shape is approaching zero[107] and if you actually perceive this you will command the motoric movement (MM) to reduce the speed of your body in such a way that the last part towards the wall of the blind alley can be bridged gradually and safely.
The Motoric Movement Action *moving A-B* is an example of a throwing action with the whole body. It completely follows the universal layout of the explanatory model. Within there we also construct a *precise global* latent action trajectory shape and actually fill that shape with the help of the processing processes, the dorsal and ventral stream, of mainly the visual perception[108]. As a (*hold on*) throwing action it must be typified as opposed to (*let go*) throwing actions which within vernacular speech only counts as throwing. Of course the obvious difference is that we hold on to the (movement) action object (MA) within (*hold on*) throwing actions and this provides the novae that we are allowed but also are obligatory c.q. compelled *to continuously throw* (!) in (*hold on*) throwing actions. In comparison with (*let go*) throwing actions that allows continuous guidance c.q. adjustments from within the motoric movement (MM) but also makes that imperative.

In comparison with the Motoric Movement Action *moving A-B* the visual organ will not become a part of the Movement Action (MA) within the Motoric Movement Action *grabbing/taking/touching*. So if we bring our hand towards a coffee cup we are able to observe this like we experience the tennis ball from the outside in a ball trajectory shape. Conform how the tennis ball will fill a latent tennis ball trajectory shape we are also able to perceive how our fingertips will bridge the gap within an action trajectory shape. In which the fingertips will be slowed down motorically (MM) when the end of the action trajectory shape is perceived in the exact same way like we execute the walking within a blind

[106] In the upcoming addendum in which the Motoric Movement Action *walking* will be fully appointed the far jump particularly will be appointed and will D. N. Lee's long jump research be completed. This addendum will show that we in a similar way bridge the gap within a blind alley, a far jump or to the beginning of a stairways if we want to descend or ascend it multiple times per day.
[107] So in principle we are not occupied with our speed in there. In either case of crawling or dashing/sprinting it is only essential with which value the manifest part is filling the latent part of the action trajectory shape. With this value we control the dependent yet autonomous complex subsystem of the motoric movement (MM).
[108] It is crucial to understand that we never will be able to produce exact straight lines with our body although it appears that way. If you would magnify the movements you would be able to experience a zigzag pattern within f.e. walking just like you will experience within the Motoric Movement Action *nerve spiral*. It is crucial to understand that the egocentric formulated task within these actions is to *tactically* (!) arrive in B but that the *actual* (!) functional task during this action is *only* (!) to get in a position closer to B and nothing else.

alley. Or to phrase it more theoretically the (relative) till zero approaching *tau*-value within the Movement Action ($tau^{G}{}_{MA}$) will *automatically* take care that the complex subsystem of the motoric movement (MM) will be aligned in such a way that the corresponding *tau*-value ($tau^{G}{}_{MM}$) also approaches zero.
Just like the Motoric Movement Action *moving A-B* the Motoric Movement Action *grabbing/taking/touching* is an example of a (*hold on*) throwing action in which the (movement) action object (MA) can and must be adjusted continuously because it will never be released. Hence the processing processes of the visual perception are allowed to but also need to be active all the time and have to correct deviations within the action trajectory shape till the action is fully completed. Just like within (*hold on*) throwing actions with the whole body.
The Motoric Movement Action *grabbing/taking/touching* is just one example of a motoric action which we execute with a part of the body and in which the visual organ, and especially the eyes, doesn't become a part of the movement. We are able to close an open refrigerator door with the help of many body parts (left foot, right elbow, bum etc.). So the (*hold on*) throwing action will become more complex if the head actually gets involved within the action in for example a header in soccer.

If we now finally arrive at the (*let go*) throwing actions which form the subject within most TQE research then the explanatory model shows that we exactly have to execute all processes like within all throwing actions with the clear distinction that within (*let go*) throwing actions we are only not capable of holding on to the (movement) action object (MA). So also within (*let go*) throwing actions we first have to construct a perceptual image of a whole *precise global* latent action trajectory shape between the (movement) action object (MA) and the goal which have been formulated within the egocentric will just like we do within all other throwing actions. But this whole action trajectory shape must be reduced to an initial phase. In which the initial phase will have to host such a shape which will provide a successful end of that shape because we are not able to continuously correct the (movement) action object (MA) along its way. Then a strict *tau*-coupling will have to take care that the (movement) action object (MA) will have to be released at the exact end of the initial phase which will have to be executed by the motoric movement (MM). Within for example the Motoric Movement Action *letter posting*[109] that means that this strict *tau*-coupling will have to take care that the letter at the end of the initial phase will have to be released by all relevant fingertips at the exact same moment[110].
Also in here we are only capable of executing this if we fill the gap within a perceptual image of the whole *latent* shape of the initial phase with a perceptual image of the manifest part of the initial phase because only during that period we are able to actually influence/guide the (movement) action object (MA). Within the free throw and even within most throws within basketball this initial phase can be observed quite well. Within most players this initial phase comprises at least half a meter. That forms a huge discrepancy with for example the golf put, the hitting of a ball in tennis or the initial phase of the letter within the Motoric Movement Action *letter posting* but also in there very tiny initial phases are necessary and only then a successful autonomous object line segment shape can be achieved due to a strict *tau*-coupling.
So in resumé the conclusion can be drawn that within all catch and throwing actions the explanatory model is followed in the exact same universal way and that several crucial phenomena have never been acknowledged till this moment. Just like the complex *double* focus image it also becomes clear within there that the processing processes of the visual perception also provide a *double* complex im-

[109] For a complete explanation of the Motoric Movement Action *letter posting* read appendix C of addendum 2 of *Caught In A Line*.
[110] The explanatory model inter alia shows that the removing of the relevant fingertips within the motoric movement (MM) comprises an optimization process. Nobody is capable of removing the fingertips at the exact same moment. We try to achieve this but all relevant fingertips will always show relative deviations within the removing but as long as we strive to and manage to keep these releasing times within certain boarders the letter will experience no hindrance of this optimization process.
This exact at the same time releasing of all relevant fingertips will for example also have to be executed when a pitcher in baseball wants to construct a straight ball trajectory shape of a *fast ball* and he will definitely not execute this when he wants to create any kind of rotation within that ball trajectory shape (*screw balls*). Within the latter the relevant fingertips must be released from the ball apart from each other due to exact differences within the relevant *tau*-couplings.

age[111]. That at itself explains why motoric actions can't be explained in a linear way but now also provides the clarification why we always experienced actions with a touch/hint of magic/*automatism*. Especially when one isn't able to even explain a part of a very common phenomenon in the right way but on the other hand is able to execute actions easily and successfully people are quickly prepared to label it in this way.
I myself for example have searched decades for a linear explanation when I performed a simple catch action. I was *always* (!) able to catch the ball but till the final moment of holding the ball it remained a *weird* and insecure process to me. Then I already felt that an optimization process was involved but my speculations remained fruitless concerning all processes which happened *automatically* and *successfully*. Now I precisely know that 1. only the ball will deviate in a *precise global* way within a perceptual image of a latent ball trajectory shape which I created myself till a certain catching point, 2. I am only able to visually perceive this process within the primary focus on the outside of my body, 3. that I need to align that simultaneously with proprioceptive perception processes within the secondary focus within my body especially pointed towards (the inside of) the fingertips of my catch hand within my catching technique with which 4. I will be allowed only at the end of the incoming ball trajectory shape within the catch point (the cognitively determined intersection point between the incoming ball trajectory shape and my catch movement) to execute an almost 1:1 (*hold on*) catch action[112] with a very strict *tau*-coupling I now realize that a very complex system is involved but that you are also able to execute all involved processes *automatically* and successfully without being able to appoint it.
I assume that you also are able to catch successfully yet you never knew explicitly what functionally had to be executed. With the explanatory model all processes become clear and causes the magic to disappear. Like the magic disappears when a magic trick is finally explained to you and so it becomes clear that no *automatic* magic trick/process is present in a motoric action but a very conscious executed complex system which science was only never able to perceive.

Now it will become crystal clear that test persons factually execute *each* (!) free throw and golf put exactly conform the ratio of the explanatory model and that is what you are able to witness within each free throw and golf put and which you are at once able to confirm in there out of your own empirical observations. Because in comparison to TQE the explanatory model shows that also the *not-scoring* (!) free throw and golf put is executed by all test persons precisely conform the aforementioned (*let go*) throwing actions and that the success rate is actually quite high in spite of the fact that TQE labels them as misses. TQE only counts the balls which will go into the basket or the hole as successful motoric actions but the explanatory model evaluates results much more out of the *precise global* character of all motoric actions. It shows that each and every test person actually constructs *a* (!) line segment shape between the ball, the (movement) action object (MA), and the within an egocentric will formulated goal and accordingly throws it in that shape. Out of my own empirical observations I can't recall anyone throwing/hitting the ball the other direction. As well within the free throw as within the golf put the not-successful ball trajectory shapes contained a high percentage of characteristics of successful ball trajectory shapes and the ball always significantly came closer to the goal. The explanatory model prefers to appoint the commonalities and what succeeds within all motoric actions rather than solely elaborate the scored balls which TQE solely does[113]. In that way the explanatory model (TAE)

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[111] In retrospect you will able to conclude that we were only capable of executing actions if we created a perceptual image of the manifest action trajectory shape within a perceptual image of a latent action trajectory shape. Then you will be able to conclude that the body hid that from the eye of scientists in an ingenious way.
[112] In tennis, badminton, etc. we also have to catch but don't need to hold the (movement) action object (MA) permanently at the end of the incoming ball trajectory shape. That reduces the complexity of a motoric action considerably. If we want to execute a (*hold on*) catch action then all the relevant fingertips need to be closed simultaneously within a very strict *tau*-coupling as a part of the motoric movement (MM) when the *tau*-value within the Movement Action ($tau^{G}{}_{MA}$) is approaching zero.
[113] For that matter TQE doesn't notice that a fault analysis within the explanatory model is able to reveal multiple sources because two autonomous complex subsystems are involved within the action.

- It is possible, even as an absolute beginner, that a player is able to construct perfect perceptual images of latent ball trajectory shapes and is perfectly able to construct the exact initial phase belonging to that whole shape but isn't able to actually throw the ball into the beginning of that ball trajectory shape at the transition point because the player is lacking the right technique within the motoric movement (MM). Or with other

shows that every Motoric Movement Action encompasses an optimization process which needs to be executed entirely within each action over and over again and that successes from the past are no guarantee for successes in the future. The explanatory model also shows that a scoring ball comprises multiple components and especially that a ball is an autonomous entity which also can miss the target even when all the components within the Motoric Movement Action are executed perfectly. Because the ball can *decide itself* (!) to deviate within its ball trajectory shape due to a sudden gust of wind or a tiny bump on the green.

So in conclusion it can be noticed that the aforementioned never acknowledged and recognized processes have led to the feeling that something *automatic* was going on and that the eye executed something *quiet/automatic/secretly.* The processes appointed by the explanatory model indeed possess something magical because it is very hard to imagine that we construct one complex perceptual image which contains multiple images and that is why TQE kept its appeal as central idea.
And along with that TQE was also able to provide significant research results. How was that possible then? The explanatory model explains this as follows. Even a simple throwing action encompasses a very complex process in which the secondary focus must be aligned with the primary focus of the Movement Action (MA) within the transition point. Within for example the golf put the focus of the motoric movement (MM) needs to be pointed at the exact transition point towards the ball trajectory shape. The transition point within there is the extraordinary tiny area between the outside of the putter that will touch the ball and the outside of the ball that will be touched by the putter. If within scientific research you ask test persons to fixate the head with more care, which can be noticed as a general characteristic within elite golfers, then it is more than likely that you reinforce that the test persons will more precisely execute *the transition* (!) of the motoric movement (MM) towards the Movement Action (MA) in a significant positive way.
So the explanatory model shows that this is the very likely reason why TQE showed positive results within their research. The explanatory model conversely shows that it is very unlikely that TQE instruction has led to any increase of the perception of the shape within the action trajectory line segment. The shape hosts the cognitive component. If a shape could be influenced then it must be the action trajectory shape in the free throw. The action trajectory shape within the free throw is by far one of the simplest action trajectory shapes and hosts universal characteristics everywhere in the world. So maybe within there it could be possible that if you take care of a longer fixation of the head that the shape will be perceived slightly better but also within the free throw that still will be very unlikely. Cognitive processes in general are definitely not developed in short time periods but can only be obtained by many intensive and long training sessions. So the explanatory model is absolutely not able to picture that you suddenly are able to read greens in action trajectory shapes within golf where you weren't able to do that before just because of a fixation of the head.

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words you are able to execute the Movement Action (MA) perfectly but are not able to control the motoric movement (MM).

- It is also possible that the motoric movement (MM) is perfectly capable to launch the ball in the initial phase of the by the player selected ball trajectory shape but it appears to be that the chosen initial phase doesn't belong to any successful end of the required ball trajectory shape. Or in other words you are perfectly able to execute an action within the motoric movement (MM) but you are not able to construct a successful ball trajectory shape or initial phase of that ball trajectory shape within the Movement Action (MA). The source within this remark can even be twofold. Is a player capable of constructing a successful whole latent ball trajectory shape but is he only not able to reduce that to an initial phase or vice versa.

Chapter 4 - Research proposition TQE versus TAE within the free throw (basketball)

a. Introduction
b. The position of the free throw (basketball) within the spectrum of all throwing actions
c. The complexity of the free throw (basketball) versus the complexity of the golf put
d. The research proposition TQE versus TAE within the free throw (basketball)

a. Introduction

Out of the previous chapters one will only able to conclude that TQE hosted a much too simple and a much too naïve explanation in comparison to the complex process which the explanatory model of the Motoric Movement Action (TAE) now fully and endingly appoints. TQE unmistakably shows the still widespread urge to primarily try to explain things/phenomena in a linear way[114]. Fortunately also within the movement sciences very clear criticism can be heard that TQE isn't able to address the exact origin of the execution of a motoric action and this critique ergo formulates that a (cognitive) starting point is missing[115]. Besides this specific fact science itself more generally pleas for searching for explanations within motoric actions which must be based on the principles within the *complex dynamical systems* approach. However in spite of the conclusion within many corresponding scientific articles that solely such a complex approach will be able to provide a definite/final description TQE research just continues emphatically.
Out of the previous chapters one is also able to conclude that the controversy TQE versus TAE can be reduced to a ruling about *cause* and *effect*. The explanatory model definitely shows that very active perception processes need to be involved within a motoric action. Even within the simplest actions two foci out of the Movement Action (MA) and the motoric movement (MM) will need to arise and together form one complex focus image. Within the Movement Action (MA) a perceptual image of the latent action trajectory line segment shape needs to be filled with actual perception of the manifest action trajectory shape. That is the only way how we will be able to create a perceptual image of the *tau*-value within the Movement Action (MA) and this will definitely end the perception-action dichotomy[116]. Hence it was never the question which of the two phenomena within that dichotomy was most important or which of the two led the action. They were both essential *but only* (!) a part of a much

[114] Although the ITF (International Tennis Federation) itself basically implemented the tactical tennis action (TTA) they are not aware that by doing so they allowed a *complex system* to enter their training courses. However within these courses the explanation of the TTA sustains to possess a huge linear character. The TTA is still only defined as the tennis action, forms one of the essences of the curriculum and is explicitly instructed in a linear way. So within my KNLTB A-education I had to learn this tennis action by heart and so I learned that 1. the Perception was executed (completely) first prior to 2. the Decision, which had to lead to 3. the Execution which finally had to end with 4. a Feedback phase. This linear approach is also known as the *PDEF*-rule and had to show that 1. a tactical decision always precedes a technical execution and that 2. this relationship concerns a mandatory linked phenomenon.
[115] See the quote at p. 5.
[116] Besides the ending of the perception-action dichotomy the explanatory model provides a very convincing clarification concerning the function of the ventral and dorsal stream and so it is very likely that it ends the philosophical discourse concerning the processing processes of the perception as well.

larger overarching universal phenomenon[117]. They are mandatory linked and must always be regarded in unity during the execution of a Motoric Movement Action.
Due to the description within the explanatory model of many very active perception processes one is now clearly able to determine that the consequence of all these processes is that the head, which hosts the eyes (which in many cases form the basis of the usual required visual perception[118]) will need to be controlled in such a stable way that it allows all the precise actions to happen. Ergo it will have to provide a solid basis for the eyes in order to allow those eyes to make *fixations* (!) possible. Even in relative simple sports actions, like the free throw or the golf put[119], one needs to throw a ball in the right way into the initial phase of the whole ball trajectory shape with the support of two different foci. A *stuttering* visual perception[120], a visual perception that doesn't behold the desired ball trajectory shape out of one strict perspective c.q. one stable standpoint (of the eyes), will be detrimental towards that process[121]. In the previous chapter an extensive explanation shows that it is very likely then that the main cause of errors within gameplay of non-elite players is due to the fact that the *transitioning* (!) of the motoric movement (MM) towards the Movement Action (MA) is unfolding less clearly c.q. more sloppy and that is mentioned as the main cause why TQE also is able to reveal significant positive test results. It is just not possible that an implicit cognitive knowledge process is enforced that *automatically* enables players to better construct successful perceptual images of latent action trajectory shapes just by fixating their head but it is more than likely that the ball will experience less random deviations within the transition point. Especially within the golf put in which the Motoric Movement Action *touching* must be linked to the Motoric Movement Action *pressing/pushing* (throwing) many things within the strict *tau*-coupling can go wrong because the transition point encompasses the very tiny area *between* (!) the outside of the ball and the outside of the putter that will make contact in which that transition point is also located at a relative remote distance from the visual perception organ within the (movement) action object (MA) c.q. the golf club.
Within the free throw the ball can be guided continuously during the initial phase and so within there no mandatory linked touch and push action hosting two autonomous *tau*-couplings needs to occur

[117] And only this whole overarching phenomenon within the Movement Action (MA) is the leading part within all motoric actions.
[118] Usually we construct action trajectory shapes within the Movement Action (MA) with the help of visual perception but addendum 2 of *Caught In A Line* extensively shows how we are able to execute Motoric Movement Actions without any visual process. You are able to unlock a door in pitch black darkness with solely proprioceptive perception processes. Even within the Movement Action (MA) one is capable of constructing an action trajectory shape (between the *hole* of the lock and the *tip* (!) of the key) with the help of proprioceptive perception due to the place of one hand near the lock and the other hand which holds the key. In that way the explanatory model shows that proprioceptive perception processes can be linked to at least three explicitly different phenomena within one motoric action. It also shows that visual perception isn't needed at all in a motoric action but that it always requires multiple forms of proprioceptive perception.
[119] They comprise inter alia just one *throwing*-task in which the player is also capable of maintaining its static position. Tennis as one of the most complex sports on the other hand encompasses for example a mandatory direct linking of a catching action to a throwing action in which the player due to the direct game dualism within tennis is often compelled to visually perceive during the movement of his head.
[120] The explanatory model shows that our visual organ in relationship to the phenomenon of movement must be considered as mainly a comparison organ. The visual organ is an implicit active organ which is only capable of sending ongoing sequences of static still images towards the visual perception (or maybe that happens vice versa). Our visual organ creates as actively the same amount of static still images of the apple in the fruit basket as it creates images when a cyclist passes you. Only within the comparison of those images our visual perception perceives movement within the cyclist and not within the apple. But the apple isn't lying still within our visual perception. It creates a *zero*-action trajectory shape or an active (!) *zero*-movement.
[121] In the various descriptions of the free throw and the golf put one is able to determine that within the free throw players are able to remove actual vision on the ball and the initial phase relatively very soon. Because they already hold the ball the Motoric Movement Action *touching* doesn't have to be executed which conversely in golf needs to be obligatory linked to the Motoric Movement Action *pushing/pressing* (throwing). Due to this fact the transition point within the free throw will hardly experience random deviations which will definitely occur within the touching phase of golf. This exact fact demands that actual vision towards the transition point must be maintained much longer within any golf swing. But this is also due to the fact that the transition point, the point *between* (!) the outside of the putter that will touch the ball and the outside of the ball that will be touched by the putter, within a golf put comprises a very small area (Maybe this component is the most complex in golf).

because we already possess the ball c.q. are already *touching* (!) the ball continuously. But also in here will fixation of the head have the consequence that the transitioning of the motoric movement (MM) towards the Movement Action (MA) within the transition point will experience less random deviations. The explanatory model shows that every motoric action comprises an optimization process in which one can only aspire to limit the always occurring deviations as sound as possible and if one is able to keep these deviations within certain values the action will be completed successfully[122].
So both TQE and TAE come to the conclusion that the *head* (!) needs to quiet down. The argument is definitely not situated in there. TQE isn't capable to clearly address the cognitive element which the explanatory model (TAE) so prominently appoints and which must/can be tutored explicitly. In that way the explanatory model provides a full description of what elite players now actually master and what/that they trained for years to develop a huge *cognitive reservoir* (!) of successful action trajectory shapes which they are able to quickly reduce to the corresponding initial phase with which they are able to feed the two essential foci within the Motoric Movement Action. Only that understanding will finalize the Motoric Movement Action[123].

Because TQE isn't able to understand or isn't able to position this cognitive element many research data are not understood and that accordingly leads to poor conclusions in which many actual occurring phenomena are confusingly linked to very subjective opinions. Fortunately the explanatory model now provides a full and ending clarification and although the explanation actually must be sufficient by itself the superiority of the explanatory model can be researched rather easily. Therefor two scientific research proposals are devised within this addendum. One proposal towards the free throw within basketball and one proposal towards the golf put.
These proposals need to be approached in a modified way. They are proposed with mainly the explanatory model in mind and don't comply to the current demands of scientific research. They probably will have to be adjusted considerably before they are able to become real scientific research proposals. I leave that to the professionals. However it embodies the essence of all functional perception and motoric processes which are practically linked to a motoric action and definitely need to be instructed. In that way the final description of the explanatory model implicitly provides the final 1:1 motoric learning instruction at the same moment[124].
Each research proposal contains two essential components. First the execution of the research proposal will show that TAE motoric learning instruction will provide superior learning outcome. It is expected that TAE will show very significant positive differences in the comparison with any other motoric learning instruction. The second component shows an obvious different approach. Due to the fact that the definite explanatory model is missing a lot of scientific research is executed by only observing what elite players are *seemingly* doing. Within that research scientists often draw very incorrect conclusions because it is only based on the outer characteristics the elite players are showing. TQE is just one example within a wide range of such scientific research. So the research proposal contains a part in which the (gaze) behaviour of test persons upon TAE motoric learning instruction is compared to the (gaze) behaviour of elite players. It is expected that TAE test persons and elite players will show many significant commonalities.

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[122] Within this YouTube clip (https://www.youtube.com/watch?v=3kYNjoUqohc) Tiger Woods is endlessly executing a golf put during a warm up. You will be able to find all elements which are appointed within the explanatory model. Within this clip Woods is not occupied with scoring the ball, although he uses the end of the manifest ball trajectory shape to provide feedback, but is he completely executing the always unique emerging optimization process over and over again. The complex process of aligning two foci to one point, the transition point, is positioned at the boarder of what human beings are capable of executing in regard to the complexity of this action and that is why we will have to train this transitioning all our lives.
[123] Within the free throw and the golf put TQE is still able to raise some doubt. But take it from me that nobody untrained will ever take a position on the platform of a 10 meter high diving tower and subsequently will execute a demanded professional dive by only visualizing the dive c.q. the action trajectory shape. I am sure you won't! The execution of that *dive* trajectory shape requires very specific knowledge. In which you have to experience this shape like you are the ball itself within the ball trajectory and you need to align this within the motoric movement (MM).
[124] The explanatory model is not only providing the ultimate motoric learning instruction similarly but will also take care that any motoric action will be executed in complete flow.

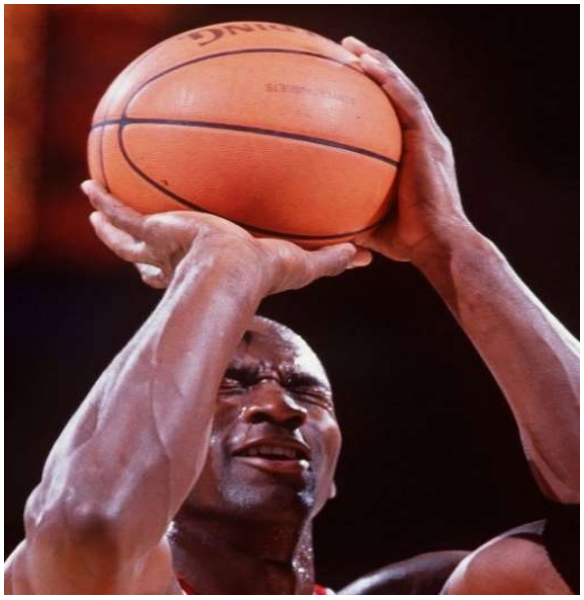
As a concluding remark within the introduction of this research proposal I would like to appoint this. In this addendum the Motoric Movement Action *free throw* and the Motoric Movement Action *golf put* are the main examples because they often are the subject within scientific research. That is why I also will appoint the complexity of those individual actions themselves but also how the two specifically relate. After reading this explanation no questions will be left concerning the functional processes within one motoric action and you will be able to classify all components in regard to the complexity within the spectrum of all throwing actions.
It is appointed in this chapter with the goal to increase the general knowledge within the free throw and due to this final understanding of the complexity it already anticipates to upcoming related scientific research and/or the perusing/studying of already executed research and the acquired data within there.

b. The position of the free throw (basketball) within the spectrum of all throwing actions

All motoric actions can be divided in two main groups. A motoric action is either a catch or it is a throwing action[125]. The throwing actions indeed also possess a *tau*-coupling but in comparison to catch actions throwers are completely in charge of the action and the explanatory model defines this as *self-paced* timing.
Only three kinds of (movement) action objects (MA) can be involved within throwing actions. In fact throwing actions can be executed 1. *with the whole body*[126] (walking, biking, rowing, climbing, car driving etc.), 2. a *part of the body* or a (motoric) *movement o*bject[127] (MM) that is continuously held (for example the Motoric Movement Action *grabbing* (hand) or *eating* (spoon)) and 3. with an *external* (movement) *action object* (MA) (a ball, a letter etc.) that will actually be released during the action. The first two categories are examples of throwing actions in which the (movement) action object (MA) will not be released. Hence these (*hold on*) throwing actions can be adjusted continuously and that is why those actions are far more simpler than the (*let go*) throwing actions of category three. The free throw and the golf put are examples of (*let go*) throwing actions and definitely can't be corrected once the initial phase has been executed. With the exception of curling.
In spite of the differences within those categories we always shape a perceptual image of a latent action trajectory within the tactical movement action (MA) first within all motoric actions before we throw the (movement) action object (MA) in the beginning of that shape during the start of the actual movement action (MA). Within the Motoric Movement Action *walking* or the Motoric Movement Action *grabbing* of a coffee cup we throw the action object (respectively the whole body and the relevant fingertips) also in the beginning of the action trajectory after tactically determining a whole latent successful *precise global* action trajectory shape. Just completely equal to how we throw a tennis ball in the beginning of the initial phase of its whole ball trajectory shape. So although the explanatory model finally appoints within there what all throwing actions share the main difference of course remains the fact that within (*hold on*) throwing actions one is able to continuously manipulate the action

[125] The Motoric Movement Action *catching* is extensively appointed within appendix B of addendum 2. It is characterized by the fact that an independent entity enforces a compelling *tau*-value which needs to be aligned with the throwing process within the catcher. This explains the term timing which we commonly use. Within throwing actions such independent entity doesn't exist and this could probably render the idea that no timing is needed within those actions. But that is definitely not so. Throwing actions also need timing but can be controlled by the thrower self. The explanatory model defines that as *self-paced* timing.
[126] Within *Caught In A Line* those actions are defined as the Motoric Movement Actions *moving A-B*. They are characterized by the egocentric formulated goal of moving the whole body from A to B in which the perception becomes an integral part of that specific transfer. With other words like we perceive a tennis ball *from the outside* within its tennis ball trajectory we then perceive our movement from the perspective out of the ball *from the inside* of a ball (*walking*) trajectory. Then we are still able to construct a *tau*-value within the leading Movement Action (MA).
[127] If a tennis racket, a pen etc. is permanently held within the execution of an action then it remains a part of the motoric movement as an (motoric) movement object (MM). If I want to throw the racket towards the referee then the racket becomes the (movement) action object within the Movement Action (MA).

trajectory shape even when the initial phase is completed. The processing processes of the visual perception, the ventral and dorsal stream, will then enable that the action trajectory shape continuously can and must be adjusted during the actual movement action (MA) based on cognitive knowledge and the tactical movement action (MA)[128]. So within the free throw and the golf put that is not possible and that implies that the end of the action trajectory shape within those actions already need to be embodied within the initial phase of the action trajectory shape. The end of an action trajectory has a set relationship with the beginning of that shape.



Images: Generalising the left image displays an organism that already perceives that a ball needs to reach the basket over *a* (!) *line* segment shape[129] but has no clue whatsoever which optimal/successful *shape* belongs to that line. This child predominantly looks at the basket because the teacher told him that the ball needs to be scored there (or do we always want to throw a round thing into a slightly bigger opening?) and actually throws the ball *towards the basket* (!) and not in the derived beginning, the initial phase, of a line segment shape between the ball and the basket. However within the golf put and

[128] The explanatory model unmistakeably shows that every motoric action encompasses an optimization process in which it is not possible to directly influence the line segment shape of the (movement) action object (MA) itself. Out of the most parsimonious possibility within an ecological approach the explanatory model shows that with this system we are able to very quickly construct a perceptual image of a *precise global* latent line segment shape and correct that image later on more precisely. Just when it is needed. In almost all motoric actions we first need to bridge *a void with nothing* in which the only concern within the action is that the (movement) action object (MA) will come closer to the destination formulated within the egocentric will. When we actually execute a letter post action in front of the mailbox our perception processes are only occupied with the fact if the letter comes closer to the slit and not with the posting itself. The action trajectory shape within this action needs to become very precise only in the very last part of the actual movement action (MA) and that again is possible because then only a very small latent void still needs to be crossed and the (movement) action object (MA) will hardly have a chance to deviate from the latent perceptual image.
A very important conclusion sprouting from this fact is that we always have approached motoric actions incorrect. The egocentric formulated task is not that we want to grab a coffee cup but that we first want to bring our fingertips closer to the coffee cup in such a way that we are able to *touch* (!) it and subsequently we want to push/press the relevant fingertips in such a way towards each other that it allows us to hold the cup. Although this looks like a word game it exactly expresses the essence of our perception processes. The egocentric formulated task needs to be regarded egocentrically.

[129] I know it sounds very dumb and superfluous but in here the child is only able to perceive a connection between the ball and the basket because *nothing* (!) can be seen within that void. That is one of the many very important abstractions we possess within this task. If for example an obvious shop window would be situated between the ball and the basket a player even wouldn't try to throw the ball into the basket.

the free throw most all human beings will still fulfil the general goal for its major part. Ergo to get the (movement) action object (MA) *precise global* closer to a goal[130]. Michael Jordan shows that we don't need any actual vision at anything when a motoric action is executed during the actual movement action (MA) right after the tactical movement action (MA) has been finalized. Then he only needs to actually throw the ball into the beginning of the ball trajectory shape which has been constructed within the tactical movement action (MA) and Michael is perfectly capable to execute that with just proprioceptive perception processes. He would even be able to execute the whole Motoric Movement Action *free throw* without any direct vision because this specific action, in great contrast to the golf put, hosts such universal characteristics which will hardly show any deviations from place to place all over the world. Still you are very well able to observe that for safety reasons MJ even in here tactically checks the most optimal ball trajectory shape a few times with direct vision before he starts the actual execution[131].

c. <u>The complexity of the free throw (basketball) versus the complexity of the golf put</u>

The final and ending description of the explanatory model now also enables us to rank all motoric actions in regard to their complexity. It is necessary to partly address this within this chapter. Of course the explanation will appoint the differences between the specific motoric actions but much more important will also completely reveal the coherence/connection/commonalities within these actions. In that way one will be able to grasp why a specific Motoric Movement Action as a whole must be considered as far more complex than other actions but will be able to host components which in itself can be ranked as relatively more simple[132].
In this addendum I will just address the complexity in a limited way. The complete picture as in regard to the complexity you only will be able to acquire by studying all facets within addendum 2 and the still to be written addendum 3. In this last addendum I will try to appoint the Motoric Movement Action *golf* within the complete spectrum of actions in which one egocentric formulated goal can only be executed successfully by the two specific obligatory linked Motoric Movement Actions *touching* and *pressing/pushing*[133]. Within that addendum the Motoric Movement Action *playing the piano* which hosts these two specific motoric actions within a mandatory linked script as well will be compared with the Motoric Movement Action *billiard sports* in which those specific motoric actions also must

[130] I have never witnessed a person throwing a basketball towards the center line or hitting the ball in another direction than the hole. Although it is not regarded as a successful attempt, when the ball doesn't reach the basket/hole, the explanatory model provides with this observation a very important aspect of motoric actions.
[131] Moreover the closing of the eyes could be an important aid to implement the Movement Action (MA) of the free throw in the proper way. As you will be able to read within the upcoming motoric learning instruction at a certain moment right after the tactical movement action (MA) and right before the start of the actual movement action (MA) a curtain needs to be raised between the ball and the basket which forces a player to just throw the ball in the beginning of the action trajectory shape. Closing the eyes could be a helpful aid within there although disorientation could be able to cause a negative effect at first.
[132] The golf put for example is by far more complex than the free throw. However the ball-goal ratio is within basketball just a little bit smaller and that makes that action in regard to this point just a tiny bit more complex. Also is one able to understand that within the Motoric Movement Action *chess* the tactical movement action (*Where* do I place *what*?) is far more complex than the actual movement action (MA) in which the chosen chess piece only needs to be transferred to the chosen spot. In chess no direct game dualism is present (the opponent doesn't bother you *during* (!) the transfer, no chains of action trajectory shapes need to be created directly and a player also doesn't have to perceive the end of action trajectory shape in regard to the position of the opponent. Besides this the technique within chess is stunningly simple and completely resembles the Motoric Movement Action *grabbing/taking* (*transferring* and *putting down*).
[133] For example Craig and Lee still consider the golf put as one undivided motoric action like I used to do. Until I realised that the touching, the approaching of the outside of the putter just until the outside of the ball, must be considered as a separate motoric action with an autonomous *tau*-coupling. That awareness originated out of the fact that our perception processes then factually are only occupied with the bridging of the third entity within the animal-environment relationship. The never before noted *void* (!) between the animal and the environment.

be linked in the exact same way[134]. All aforementioned motoric actions, playing the piano and all aforementioned sports, possess their own autonomous *tau*-coupling[135]. The pressing/pushing within these actions will have to provide such a force on the goal object that it will start *to move* (!) because that is what the egocentric formulated will wants. That maybe sounds like "Captain Obvious" to you but conform this mere fact now the Motoric Movement Action *grasping/grabbing* and the Motoric Movement Action *touching* can finally be fully appointed and will the whole spectrum of throwing actions become clear. In short it comes down to the fact that if you want to grasp a coffee cup the exact same two linked motoric actions are at work as within billiard sports, piano playing or golf. The main difference however is that within the Motoric Movement Action *pushing* within these also obligatory linked motoric actions not a movement vector but conversely a zero vector (*0-vector*) (!) needs to occur[136]. Within the grasping/grabbing of an object with the hand it might well be the idea that you move it (pen, letter, chess piece etc.) but the (movement) action object (MA) needs to keep a set (steady/static) position relative to the hand.
The Motoric Movement Action *touching* now also receives a full and ending explanation/framework and it becomes clear that the sole touching of a suitcase (for example lying on a conveyer belt at an airport) at any place of the suitcase requires a much different preparation in the form of a whole different tactical movement action (MA) then as you will need when you conversely want to grasp the hand grip of the suitcase. If we only want to touch something then no second mandatory motoric action pressing/pushing needs to be executed and although that pressing in playing the piano comprises just a minimal movement no second *tau*-coupling is needed and maybe more important the latter pressing process doesn't have to be considered beforehand within the tactical movement action (MA) of the touching. This last remark shows one of the essential novae which the explanatory model is now finally able to provide and where current science desperately fails.
Within the aforementioned, the depiction of the whole spectrum of *touching-pushing* actions, the free throw (basketball) can now finally be explained as well. It constitutes only the sole Motoric Movement Action *pushing/pressing*. In that way it has been put in an ending range of motoric actions in which the ball is continuously held before and during the initial phase. These motoric actions are considerably less complex because no motoric actions need to be linked and nothing can go wrong within the *tau*-coupling of the Motoric Movement Action *touching*.

Both the free throw and the golf put are optimization processes which implicates that across the incorrect assumption that motoric actions encompass set cognitive knowledge and processes that they have to be executed completely anew over and over again[137]. Each time anew the (movement) action object (MA) is able to randomly deviate. Even a perfectly fired ball (basketball ball/golf ball) is able to miss the basket/hole due to for example a gust of wind. That is definitely not the fault of the player[138]. Once

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[134] Another part of that spectrum is shaped by the specific obligatory linked Motoric Movement Actions *catching* and *throwing* which are required within sports like tennis, baseball, badminton, cricket, soccer etc.. In "Watch The Ball Trajectory!" and especially addendum 2 of *Caught In A Line* that part of the spectrum is fully appointed. It for example shows that if a player is pressurized it should transfer the emphasis of the attention towards the catching process instead of the throwing. However in tennis this has never been acknowledged until now and this adaptation can only be seen within players who implicitly discovered that solution themselves.
[135] Within playing the piano one can very well observe that the transfer of the fingers within the touching phase have no set relationship with the pressing of a piano key. They have a relationship because they can't be executed without each other but the energy from the movement of the touching is for example not required within the subsequently *pressing/pushing* of the piano key. You are also able to observe very well within playing the piano that *the timing* of the striking of a piano key belongs to the *tau*-coupling within the touching and that the *musicality* obviously belongs to the *tau*-coupling within the Motoric Movement Action *pressing/pushing*.
[136] The resulting force of all movement vectors which are involved within the pressing has to remain zero.
[137] With the description of all Motoric Movement Actions the explanatory model shows that an obvious cognitive component can be developed with which one is able to gain more control within the process of constructing the right/demanded ball trajectory shapes. So although a pro player is more capable to construct the exact ball trajectory shape he will have to execute the whole motoric action every time anew. Within that unique actual process all parts will be open to always occurring deviations every time anew as well and that is why certainly every (*let go*) throwing action hosts an error rate and that makes that the pro player will also miss a shot once in a while.
[138] Within for example tennis a player will have to learn to play realistically. Within a universal success rate of

the initial phase is completed, in which the motoric movement (MM) guides the ball in the beginning of the ball trajectory shape, the ball becomes a completely autonomous entity. The complexity of the action is partly determined by the fact with what percentage the action object is allowed to deviate within the action trajectory shape to still be successful as in regard to the egocentric formulated task.

Images: The complexity of a motoric action is also determined by the fact as to what extent the action object is allowed to deviate within its action trajectory shape and still be successful in regard to the egocentric formulated task. Addendum 2 extensively appoints two tasks in which the action object is hardly allowed to deviate at the end of the action trajectory shape. Within a key insertion task into a door lock and within a needle threading task the key and the thread[139] almost need to fit 1:1[140]. So a key *tip* isn't hardly allowed to deviate from the end of its action trajectory shape and therefor it has a tapered tip and does the key hole possess a spherical notch to absorb the always occurring deviations within the action trajectory shape. The thread and needle task can't be helped with these kinds of adjustments and therefor special threading aids are developed to successfully manipulate the (flexible) tip of the thread in the eye of the needle. Fortunately the basketball and the golf ball don't need to exactly fit 1:1 into the basket/hole. Otherwise these tasks would become well-nigh impossible to execute because different to aforementioned not-sport related tasks we are not able to continuously guide the ball within its action trajectory shape within the free throw and the golf put. If you would only regard to what extent the (movement) action object (MA) is allowed to deviate within a successful

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one stroke a percentage of the strokes will definitely fail. This notion will partly help to channel incorrect developed behavioural expectations within players.

[139] Within here you could get the impression that the whole action trajectory shape from the tip of the key towards the lock isn't allowed to possess any deviations. That must be avoided at all costs. Just like within the Motoric Movement Action *nerve spiral* the tip of the key will touch the (*trrrringgg*….-)spiral everywhere and that is not a problem at all. *Till* (!) the lock the only goal within our perception processes is to bridge the void between the tip and the lock out of the perspective of the key. Within there it only matters that the key is *coming closer* to the lock. The hand, and implicitly the key, will deviate just as much as within a motoric action in which we are grasping a tea bag with our hand. Because the *final* insertion of the key at the end of the action trajectory shape needs to happen almost 1:1 we definitely need longer actual vision then we need within a tea bag grasping task in which the tea bag almost fits fifty times within your hand aperture.
I also want to remark in here that we have always titled this Motoric Movement Action incorrectly. Within the grasping we say that we want to grab a coffee cup but that is a major error. Within the major part of this motoric action we actually only want to bring the hand closer to the cup. The explanatory model shows that the hand is the (movement) action object (MA) and not the cup. The fingertips are going to touch the cup and not the other way around.

[140] The transition point, the point within a motoric action where the motoric movement (MM) and the Movement Action (MA) literally transition, is shaped within these specific actions by the tip of the key and the very first part of the thread.

action trajectory shape then you are able to determine that a golf put and a basketball free throw hardly differ in complexity. The basket has a diameter of 45 centimetres and the basketball a diameter of 23-25 centimetres. The hole has a diameter of 10,795 centimetres and the golf ball must be smaller than 4,267 centimetres. So the golf task in regard to this sole component is slightly simpler.

So although the golf put is a little less complex in regard to the deviation boarders of the action trajectory within the Movement Action (MA) as a whole it comprises a far more complicated task than the free throw in basketball. There are huge differences between the free throw and the golf put. Within the Movement Action (MA) as well as within the motoric movement (MM).
Within the Movement Action (MA) the construction of a latent successful action trajectory shape is much more complicated within golf. The ball within the golf put has to roll over but in contact with the green and that is never an equal surface. Golf is executed outdoors (wind, rain, atmospheric pressure etc.) and greens show a wide variety of specific characteristics although greenkeepers try to keep the greens within a general standard. Professional basketball is played indoors and except from some tiny differences in the height of the board or the used materials within the board (transparent, white etc.) a player doesn't have *to read* (!) the air as professional a golf player will have to do with the green.
Static air[141] shows a far more evenly character in relationship to possible deviations of the ball than the slopes and bumps of a green. Ergo the free throw/throws in basketball never experience obstacles/hindrances and can always be executed equal in shape. This implicates that the initial phase of a free throw can always be constructed similarly. In golf a player will need to find the whole successful action trajectory shape every time anew and will have to reduce this to the related initial phase also every time anew. This demands very broad cognitive knowledge of golf ball trajectory shapes, slopes etc.. This sole component already makes that the golf put is far more complex than the free throw.
Besides this a golf put needs to possess an exact *length* (!). It is a compelling part and an extra complicating factor that the ball within the golf put needs to travel a very specific distance. A ball which is hit too hard in a perfect initial phase of a perfect ball trajectory shape will shoot over the hole when the distance to be bridged is too short. Within basketball the speed of the ball has a complex relationship with the shape of the ball trajectory but like in tennis it doesn't have to comply to a specific set distance[142]. Within tennis the ball trajectory shape needs to pass the net and will have to possess a bounce within the court but it doesn't have to stop nowhere[143]. The golf put in regard to this component looks a lot more like billiard sports in which a few centimetres difference in length of the ball trajectory shape decides if a successful chain (series) of ball trajectory shapes is produced or not.

[141] In tennis for example static air hardly exists. Professional tennis is played indoors but most (most important) matches are not played within a closed environment and, as every real tennis player knows, wind is almost always present outdoors. In the beginning of their careers almost every tennis player is going to complaint about the wind and (mentally) fight it. The motoric learning instruction of the explanatory model shows that if it is a structural component within the construction of ball trajectory shapes it must become a structural part within the training. Tailwind or wind against you possesses universal, player-specific and opponent-specific elements. That is why the explanatory model proposes to search for an average value within there and to create a general *reference image* (!) with the help of for example a wind machine which is able to produce a constant air stream with which the general principles of tailwind or wind against you can be trained. After the establishing of one such reference image a limited number of other reference images can be added. Till now the only reference image within players is often the *windless* image. Similar to tennis golf players must be structurally occupied with obtaining reference images. The putting for example needs to be trained on a carefully selected *average* (!) *extremely flat* (!) green and players must work hard to perfectly control 5 to 6 set distances (f.e. ½, 1, 5, 10, 20 meters) which they must be able to produce precisely. On estimation golf players on average will have to master three reference surfaces with the aforementioned number of reference distances.
[142] Within golf the same thing can be said about the first drives.
[143] The dropshot however does conversely need to possess a certain length if it wants to be successful and that is why a player is only allowed to execute such a ball trajectory shape if he gained the tempo within the rally. Otherwise this aggravating demand within the complexity has no realistic chance at all to succeed.


Images: Generalising the right image displays an organism who is only occupied with the Motoric Movement Action *touching* and shows the equal image which can be observed within many adults. Golf is multiple times more complex than any throw in basketball because the mandatory linked script of the two Motoric Movement Actions *touching* and *pushing/pressing* is involved. Only the touching process within golf already demands (just like for example within tennis) so many competence and attention that one is easily able to completely forget the main goal, the shaping of a specific ball trajectory, within the egocentric formulated task. Although golf in comparison to tennis just requires *self-paced* timing it belongs within there to the group of motoric actions with the most complex *tau*-couplings. In golf you have to use a (motoric) movement object (MM) in which the transition point, the exact point between the outside of the ball and the outside of the golf face, comprises a relative very small area, the distance between the golf face and the ball becomes relatively big and is situated at a relative remote distance from the visual organ. It will take years before this child will control this touching process in such a way that he will be able to create a specific ball trajectory shape or to pay attention to the shape of the ball trajectory at all. The kid with the basketball is far beyond that stage. Like aforementioned this child is already occupied with a *line* (!) (segment shape) between the basket and the ball[144]. He already holds the ball into his hands and only needs to execute the sole Motoric Movement Action *pushing* and not any touching process. Generalising this child throws the ball just towards the end of the action trajectory shape because he wants to throw it directly into the basket. If he will become a future elite player then he first constructs a ball trajectory shape between the ball and the basket with a high success rate and accordingly throws the ball into the beginning, the initial phase, of that shape. However like in almost every Motoric Movement Action most humans will conversely fulfil a main part of the egocentric formulated general goal within the free throw and the golf put. Actually to guide the (movement) action object (MA) *closer* (!) to the goal in a *precise global* way[145].

[144] Maybe it sounds like Captain Obvious to you but this child perceives a possible connection because *nothing* (!) is present between the ball and the basket. This is one of the many abstractions which we own within this task. If an obvious shopping window would be situated between the ball and the basket a player wouldn't even try to throw the ball.

[145] I have never witnessed a person who threw the basketball towards the center line during a free throw or who didn't play the golf ball in the direction of the hole. Although it is considered a miss, when the ball doesn't reach its destiny, this is a very important aspect what the explanatory model brings forward. In case of (let go) throwing actions a player will only be able to influence the end of the ball trajectory shape at the beginning of that line segment. The shape of the free throw is familiar with lots of universal similar characteristics and therefor isn't able to form a clear example. Conversely within the golf put it becomes immediately crystal clear that a player will need to possess a huge reservoir of cognitive knowledge concerning successful (*ends of*) ball trajectory shapes and reducing that to the right corresponding initial phase.

The motoric movement (MM) within the golf put is also much more complex than within the free throw. Like aforementioned the free throw just encompasses a sole Motoric Movement Action *pushing* in which a player is able to continuously manipulate the ball during the initial phase for almost half a meter. That is very different within the golf put. Golf definitely belongs to the most complex Motoric Movement Actions if it was only because of the fact that a relative very small transition point between the end and the outside of a relative large (motoric) movement object (MM) and the outside of a relative small golf ball which will touch each other[146] are involved. If you already are capable to construct the right initial phase of a successful latent ball trajectory shape then this fact will cause that the hitting of the ball within the initial phase can easily fail. So in spite of the fact that *self-paced* actions encompass *self-paced tau*-couplings an autonomous *tau*-coupling is present in both components which in golf also need to be mandatory linked and within a free throw that doesn't have to happen[147]. The free throw doesn't possess a combined, obligatory linked, motoric action like within the golf put.

d. <u>TQE versus TAE - Research proposition 1 concerning the free throw in basketball</u>

Like it has exhaustively been assessed in the previous paragraphs the free throw in basketball belongs to the more complex group of *letting go* throwing actions. After an initial phase the (movement) action object, the ball, can't be manipulated anymore. However within the complete spectrum of *letting go* throwing actions it definitely compels a more simple complex action. During the initial phase the ball can be guided continuously, the (movement) action object and the transition point are relatively big, the successful action trajectory has the same universal shape everywhere in the world and the throwing technique can be determined as simple and basal[148]. Within there a more complicating factor could be that the throwing technique is so basal that the throw must be executed with pure muscle power. Within golf the golf club provides a large lever[149]. Conversely in basketball the relative heavy basketball

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Ergo the egocentric formulated task within here has always been misunderstood. Just like within the Motoric Movement Action *grabbing*. We don't want to grab the coffee cup within the actual execution and we are even not capable of doing so. We are only capable of moving the relevant fingertips closer towards the cup. So tactically the egocentric formulated task wants the ball into the basket but actually we are only capable of bringing the ball closer to that goal.

[146] Golf would definitely have been the most complex sport if it possessed any form of game dualism. However it is very obvious that golf even doesn't possess an indirect game dualism. In golf nobody will ever use your ball to create a chain of linked ball trajectory shapes like in for example tennis or billiard sports. In golf you only play against yourself and against the score of your opponents. The game idea in golf is in principle to construct a chain of as less ball trajectories as possible between the tee and the hole with one ball which you only are allowed to touch. At least that is the general goal. In fact it is more correct to say that your score needs to *show the score of your best opponent minus one* (!). That sometimes means that within the tactical movement action (MA) you are able to come to the conclusion that you will sometimes have to play *a shot to nothing* and in other cases the best tactical option is to play a safe two-shot.

[147] One could remark in here that the free throw can be experienced as more complex due to the strength it requires within the used *push*-technique. Although the technique model (BM) of the free throw is more basic and the technique of the golf swing is much more complex the generated force of an extra (motoric) movement object (MM) provides a huge benefit. That for example makes that 8-year old tennis players are capable of already constructing *serious* ball trajectory shapes but are not capable of executing a free throw within basketball successfully.

[148] The free throw just as the golf put in principle doesn't host a direct game dualism. Most often the goal within the free throw is to score directly but it sometimes occurs that the egocentric formulated task has the goal to get the end of the outgoing ball trajectory shape of the free throw within the hands of a team mate. However that is exceptional and usually it can be determined that the complexity of the free throw as compared to other throws in basketball is much more simple because in there a direct game dualism is present created by five opponents.

[149] So the complexity can encompass many factors. The use of a (motoric) movement object (tennis racket, golf club etc.) within the motoric movement (MM) add a complicating factor because we aren't able to rely on present skills in using these kinds of objects. It takes years before we are able to handle certain (motoric) movement

needs to be thrown a considerable distance and I remember that as a child I was hardly able to execute that from the free throw line with a genuine basketball. Now the distance from the free throw line to the basket isn't really that big and so most grown up men and women will experience a reserve in power in relationship to this aspect. Still one will definitely need to take care of/regard this more complicating aspect within the motoric movement (MM) during the execution/explanation of any throw from any random (*remote* (!)) position within the court.
Within science relative a lot of research is focussed on basketball. The free throw can be regarded as a very well to be isolated motoric action but also a lot of research has been dedicated to all kinds of shots within basketball. Hence a lot of scientific data are available concerning all shots. The nice thing about these data is that they completely support the explanatory model. Within the many basketball research articles I even wasn't capable of discovering the tiniest aspect that couldn't be explained by the explanatory model. Still the related researchers weren't able to proceed because they had to miss a guiding theory. They weren't able to draw conclusions or drew the wrong conclusions and therefore weren't able to formulate successful follow-up questions. In retrospect one will be able to conclude that also the scientific research concerning the motoric actions in basketball remained at a huge distance from the explanatory model. The explanatory model will now at least provide such a guidance to current scientific research that an ending sequence of follow-up questions can be formulated which will take care of the fact that the Motoric Movement Action *basketball* will soon be fully explained as well and that the topic can be closed forever.
The explanatory model will already have its persuasive power on paper but it can also be judged by the means of comparing scientific research in which the motoric learning instruction according to the explanatory model (TAE) is opposed to any other motoric learning instruction. However I don't have experience in setting up scientific research. So the next research proposition must be used as the ratio behind a legitimate scientific research proposal.
The proposal has two important components. First the motoric learning instruction related to the explanatory model (TAE) will have to show the same outer characteristics within the execution as elite players will show during the execution of the similar Motoric Movement Action and second the motoric learning instruction related to the explanatory model (TAE) will provide significant better learning outcome as opposed to whatever other instruction.

In short I will summarize what the explanatory model will definitely show within this scientific research. A free throw can only be executed due to an obligatory cooperation between two autonomous complex subsystems. This means that there needs to be attention pointed at the action trajectory shape/ball trajectory shape and that simultaneously there needs to be attention pointed at the motoric movement (MM) or the throwing technique.
The explanatory model shows a universal built-up within the Movement Action (MA) of all motoric actions. We cognitively know that one Motoric Movement Action can only be executed over one action trajectory shape. The often multiple possible action trajectory shapes, in this case ball trajectory shapes, must be reduced to one successful possibility. We succeed in doing so with the help of a tactical department that encompasses two parts. First we possess a (huge) cognitive basis in which all action trajectory shapes of all motoric actions we are able to execute are founded. If we sit at home in a comfortable chair we are still able to create perceptual images of action trajectory shapes within many specific tasks and we even are able to mix them endlessly. This general cognitive knowledge provides us the basis to approach tasks in a more abstract way and will therefore be able to come forward with an innovating action trajectory shape in case of emergencies. Within the explanatory model the second part has been defined as the tactical movement action (MA). This part will only be activated when we actually are going to execute a motoric action at a certain location. Within the tactical movement action (MA) the cognitive basis will be thrown over the actual situation and will have to come forward with just one action trajectory shape which will be executed within the actual movement action (MA) due to a strict reduction process.
Now it is essential to realize that we first construct an action trajectory shape before we will actually execute anything. So the actual movement action (MA) will only start when the tactical department

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objects (MM). On the other hand you are obtaining a leverage effect which can make the execution of a task much easier.

made up its choice for one exact *precise global* action trajectory shape[150]. But although the two, as complex subsystems, are closely connected they only follow each other in a linear way and don't share any substantial commonality. The tactical department determines an action trajectory shape and the actual movement action (MA) just executes that one shape. Ergo the actual execution definitely doesn't have to be occupied with tactical reconsiderations[151]. That brings forward one of the practical essences namely that the actual execution then will be disturbed by tactical reflections and that is why they need to stay separated. But that doesn't contradict with the fact that the tactical department needs to be stand-by in (*hold on*) throwing actions. If suddenly disturbing circumstances arise during the actual execution then they must be ready to provide an alternative action trajectory shape as soon as possible out of the already manifest part.

I. Research proposal 1 concerning TQE versus TAE within the free throw in basketball

Within much scientific research one is looking for entrances to an explanatory model by comparing outer observable behaviour of elite players within a certain skill with the similar behaviour of non-elite players within that same skill. The ratio behind this kind of scientific research is that significant differences could possibly lead to theorization. Inter alia eye tracking gear is an important tool within that kind of research. The technique within there has also progressed so far that research can be executed in a very accurate, easy and replicable way. I will not clarify that any further within this paragraph. Within addendum 2 you are able to read all what *eye tracking gear* is missing and in retrospect one can determine that it missed so much that this kind of scientific research could never have led to the explanatory model.
Within scientific research concerning the free throw scientists were only able to establish that elite players visually fixate on the basket in a certain way and although this determination is correct it is just a small part of the whole complex perception process. The basket indeed is the end of the line segment shape and therefor of course an important benchmark but still only a minor component of the whole line segment shape (!) of the ball trajectory. So although *eye tracking gear* is clearly showing the open space (!), *the void*, between the animal and the environment it has never been noticed by any scientist[152]. However the fact that elite players construct perceptual images can never be established by *eye tracking gear* and one can easily see that that never could have happened within this kind of scientific research.
If one misses the explanatory model one misses the whole explanation. With the model you are able to witness with *eye tracking gear* that players first need actual vision to construct a line segment shape between the basket and the ball in the hand. That indeed needs to happen but that is not the end of it. Actual vision needs to help in constructing a perceptual image of a whole action trajectory shape and

[150] That even doesn't contradict with the determination within scientific research (f.e. Hayhoe, Land) that many tasks initially are executed without any direct vision. Many tasks indeed don't require any vision within the first phase of the execution because in those tasks a considerable *safe* (!) distance with *nothing* (!) must be bridged. However within the *tactical* preliminary phase within for example a tea making task at an unknown location we definitely will perceive the dimension of the possible range of action trajectory shapes with which we will actually have to deal later on. Please take it from me that when a working chainsaw is present in your kitchen you will not execute any part of any action unseen.
[151] This conclusion definitely ends the whole open versus closed skill debate as well. If a basketball player constructed a perceptual image of a latent action trajectory shape then this image actually needs to be filled with the actual places of the ball. And you are able to compare that with a free diver who has thousands of possibilities to land in the water from the 10 meter tower but if he handed a specific dive to the jury then he will have to execute that one dive as strict as possible. And in the exact same way a tennis player will have to execute the very specific outgoing ball trajectory shape just after he made the tactical choice to connect the specific incoming ball trajectory shape.
[152] Even Gibson missed the third and conclusive finalizing entity within the animal-environment relationship. The explanatory model finalizes Gibson's *The Affordances Theory* with the appointing of this missing phenomenon.

this needs to be reduced to a perceptual image of an initial phase. And this all is still only a part of the tactical movement action (MA) which always precedes the actual movement action (MA). Within the actual movement action (MA) the ball in principle only should be thrown into the initial phase of the perceptual latent ball trajectory shape and not in any other way. However this looks like a long process on paper elite players execute these movement actions within seconds in which they strictly isolate every phase because it will work very disturbingly if during the actual movement action (MA) you continuously will reconsider the action trajectory shape tactically. So in short *eye tracking gear* indeed has registered/witnessed a small part of the tactical movement action (MA) but till now completely missed the actual movement action (MA) within elite players.

So although this kind of scientific research would never have been able to establish a finalizing theory it can be used to show that the explanatory model of the Motoric Movement Action (TAE) provides the same outer characteristics in behaviour between elite players and non-elite players. Therefor the ratio of the first scientific research proposition encompasses the fact that if elite players implicitly discovered/incorporated parts of the explanatory model of the Motoric Movement Action that explicit instruction to non-elite players will reveal the same outer characteristics in perception behaviour. Of course then it is valid to assume that the longer periods test persons will be able to become familiar with the explanatory model the more they will resemble the characteristics of the elite players. Therefor one needs to postpone the producing of video footage as much as possible towards the last phases of the motoric learning instruction. Within research proposition 2 that refers to the execution of exercise C-2 ("If you get familiar to the routine within exercise c.1 you keep executing free throws but then without the screen."). One needs to produce the video footage in such a way that the perception behaviour of elite players can be compared with the behaviour of test persons in the similar game situation.

The expectation towards the outcome of research proposition 1 is that it will show significant positive commonalities between test persons and elite players. Successes within for example actual increased free throw scores, like will be explained in the following research proposition 2, will definitely take a longer period. However clear commonalities in outer characteristics must be clearly present even after the first session.

II. Research proposition 2 concerning TQE versus TAE within the free throw in basketball

Research proposition 2 encompasses the premise/assumption that TAE instruction is based on the exact processes that *the body* (!) itself demands within a motoric action. That as it where the body only recognizes that kind of instruction as *naturally* (!). Within the group of elite players just a small percentage has discovered the full explanatory model by implicit acquired knowledge and so if a random pro player also wants to reach that top then he at least has to acquire parts of his sport explicitly. This research proposal will show that motoric learning instruction with the explanatory model as the starting point will show to be superior to any other motoric learning instruction.
As a remark you need to consider that within any motoric learning instruction a student will experience the classic 4 ability-phases in which the last two phases compel the transitioning from *conscious skilled* (phase 3) to *unconscious skilled* (phase 4)[153]. This will definitely have a disturbing effect on the actual results but like aforementioned due to the fact that TAE instruction exactly provides the instruction the body requires it is the expectation that this last transitioning will also show to be the smoothest/fastest as compared to any other instruction.

[153] Within motoric learning instruction science assumes 4 ability phases. First a player is unconscious of what he needs to execute, then conscious of his inability, after that he will have to consciously execute the right actions and finally motoric learning instruction needs to become automatized in which the phase of *unconscious skilled* will be reached.

Terms and conditions:

- Standard board, distance and balls.
- Classic throwing technique.

Execution:

- Every participant will get some time to get acquainted with the equipment and surroundings (floor, board, ball etc.).
- Then every participant will execute the free throw (n)x without any instruction (zero measurement).
- Then the whole population is divided into a TQE group, a TAE group and one or more control groups. Instruction needs to be put to paper as much as possible. I leave the TQE and other instructions to the various experts. The TAE group is allowed to first read/study: *The motoric learning instruction TAE - The Motoric Movement Action free throw* (basketball)[154].
- Then the next written text will have to follow. "Now that you are familiar with the task we are going to help you to execute the Motoric Movement Action *free throw* according to TAE. It is a compelling advice. Be aware that there will be a gradual reduction in help. So in the first exercise we explicitly tell you all you have to execute. Later on, when less information is provided, you will still have to execute all the previous instructions on your own.

A. The development of the primary focus. The constructing of the action trajectory shape (the ball trajectory shape) and the initial phase within the movement action (MA).

   a. "First you will need to precisely determine which specific ball trajectory shape you prefer to use within the free throw. Therefor you need to execute a few successful free throws and determine which elevation angle is related to these shots. A lower value of the elevation angle will let the ball touch the front part of the basket sooner. On the other hand you must be able to execute the free throw in an easy way. If you don't mind you are advised to choose a wider angle (for example 70°). However more important is that you choose one precise shape. If you want to execute every free throw with a different ball trajectory shape each moment you step up to the line you will never reach any consistency."
   b. "Once the ball trajectory shape is established you will have to determine the initial phase of this ball trajectory. The initial phase is the part of the ball trajectory shape in which you actually touch/hold the ball. You are able to project the chosen ball trajectory shape on the white wall with the projection device. Then you are able to actually draw the initial phase of that ball trajectory shape on that wall with the chalk. If you are satisfied then step back and study the initial phase of that successful ball trajectory shape as a spectator."
   c. "Then take a position next to the wall with a basketball. Within the classic preparatory position the ball is now close to your eyes. In this position it is almost impossible to avoid the basket with actual vision but during the actual execution of the initial phase of the ball trajectory shape this is what you explicitly must do. With peripheral vision the primary focus must be pointed at the actual place of the basketball in relationship to the initial phase of the ball trajectory shape. You will have to practice this right now. Execute practice movements in which you focus on throwing the (whole) ball in the beginning of its ball trajectory shape. Try to make a relationship with the chalk line on the wall."
   d. "Now you are allowed to actually execute the free throw. Please proceed to the basket/room where the actual research is being executed. It is important that you emphatically review all aforementioned processes because each basket/room slightly differs. So determine the initial phase anew out of the practiced *reference* ball trajectory shape in relationship to this unique basket/room.
      When you made up your mind you are actually going to execute the free throw but before that you execute a practice movement 2 or 3 times. Just before you are going to execute you say

[154] See appendix A.

"*yes*" and then the employee will swiftly place a screen. The screen will let the ball pass but will prevent you from looking at the basket with any vision. Then you will actually execute the free throw by constructing the initial phase. (Repeat this exercise completely (n)x.)"

B. The development of the secondary focus out of your throwing technique towards the transition point

"Before you are going to repeat exercise A integrally you first have to develop a part of the secondary focus towards the transition point within this Motoric Movement Action. We are not yet going to be occupied with the specific throwing technique within the motoric movement (MM) substantively. Within this scientific research there is no time for that process but we definitely are going to focus on the point where the movement action (MA) and the motoric movement (MM) come together c.q. where they transition. Movement trajectories within your body will take care of the fact that the outside of the palm of your hand will touch the outside and backside of the ball within a classic free throw technique. *Between* (!) those two outsides the transition point is situated."

1. "Now make practice throws in which you only focus on how and where the palm of the hand is touching the outside of the ball within *your* technique. This is where the secondary focus must be pointed at."

C. The combination of the primary and secondary focus towards the transition point out of a not-defined motoric movement (MM)

1. "Within this part you are going to really execute free throws in which you have to link the secondary focus to the primary focus like within exercise A. This is a very complex process and during every training you will have to practice this extensively because now you need to simultaneously construct one complex focus image out of two separate different focus points. The primary focus needs to be pointed at *the whole ball* (!) being thrown into the initial phase and the secondary focus must be pointed at the transition point."
2. "If you get familiar to the routine within exercise C-1 you keep executing free throws but then without the screen."

Expectations

This research proposal is pointed at scientific research that can be completed fully within several days. Within this short time period one can hardly improve any technique within the motoric movement (MM) successfully. That demands a relative large time span. Still the expectation within the execution of exercise A within research proposal 2 (the development of the primary focus) is that it will show minor significant positive outcome towards TAE because the motoric movement (MM) is showing a natural tendency to follow the movement action (MA). That is the consequence of the fact that in every motoric action we point the secondary focus towards the primary focus. Hence significant convincing results will be constrained due to the fact that the technique within the motoric movement (MM) as autonomous necessary complex subsystem hasn't been developed within this research. Throwing the ball into the initial phase is just one part within the execution of a ball trajectory shape. However to construct a ball trajectory shape with a specific inflexion point demands precise energy which the motoric movement (MM) needs to provide to the ball but this can never be developed in one afternoon. Within there one definitely needs a large time period. Just like within golf putting.
It is the expectation that exercise B of research proposal 2 (the development of the secondary focus) will have a significant negative effect on TAE results. If one starts to explicitly practice to construct a complex focus image out of two separate foci then results will deteriorate in a first habituation period because the attention which the secondary focus towards the transition point requires will take away attention from the primary focus. Just like the throwing technique the complex focus image cannot be incorporated in a few days as well. It needs long term practice. The required attention for the primary

focus will just start to increase over a longer period and then definitely will provide superior learning outcome.

Chapter 5 - Research proposition TQE versus TAE within the golf put

a. Introduction
b. The position of the golf put within the spectrum of all throwing actions
c. The complexity of the golf put versus the complexity of the free throw (basketball)
d. The research proposition TQE versus TAE within the golf put

a. Introduction

Out of the previous chapters one will only able to conclude that TQE hosted a much too simple and a much too naïve explanation in comparison to the complex process which the explanatory model of the Motoric Movement Action (TAE) now fully and endingly appoints. TQE unmistakably shows the still widespread urge to primarily try to explain things/phenomena in a linear way[155]. Fortunately also within the movement sciences very clear criticism can be heard that TQE isn't able to address the exact origin of the execution of a motoric action and this critique ergo formulates that a (cognitive) starting point is missing[156]. Besides this specific fact science itself more generally pleas for searching for explanations within motoric actions which must be based on the principles within the *complex dynamical systems* approach. However in spite of the conclusion within many corresponding scientific articles that solely such a complex approach will be able to provide a definite/final description TQE research just continues emphatically.
Out of the previous chapters one is also able to conclude that the controversy TQE versus TAE can be reduced to a ruling about *cause* and *effect*. The explanatory model definitely shows that very active perception processes need to be involved within a motoric action. Even within the simplest actions two foci out of the Movement Action (MA) and the motoric movement (MM) will need to arise and together form one complex focus image. Within the Movement Action (MA) a perceptual image of the latent action trajectory line segment shape needs to be filled with actual perception of the manifest action trajectory shape. That is the only way how we will be able to create a perceptual image of the *tau*-value within the Movement Action (MA) and this will definitely end the perception-action dichotomy[157]. Hence it was never the question which of the two phenomena within that dichotomy was most important or which of the two led the action. They were both essential *but only* (!) a part of a much larger overarching universal phenomenon[158]. They are mandatory linked and must always be regarded in unity during the execution of a Motoric Movement Action.

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[155] Although the ITF (International Tennis Federation) itself basically implemented the tactical tennis action (TTA) they are not aware that by doing so they allowed a *complex system* to enter their training courses. However within these courses the explanation of the TTA sustains to possess a huge linear character. The TTA is still only defined as the tennis action, forms one of the essences of the curriculum and is explicitly instructed in a linear way. So within my KNLTB A-education I had to learn this tennis action by heart and so I learned that 1. the Perception was executed (completely) first prior to 2. the Decision, which had to lead to 3. the Execution which finally had to end with 4. a Feedback phase. This linear approach is also known as the *PDEF*-rule and had to show that 1. a tactical decision always precedes a technical execution and that 2. this relationship concerns a mandatory linked phenomenon.
[156] See the quote at p. 5.
[157] Besides the ending of the perception-action dichotomy the explanatory model provides a very convincing clarification concerning the function of the ventral and dorsal stream and so it is very likely that it ends the philosophical discourse concerning the processing processes of the perception as well.
[158] And only this whole overarching phenomenon within the Movement Action (MA) is the leading part within all motoric actions.

Due to the description within the explanatory model of many very active perception processes one is now clearly able to determine that the consequence of all these processes is that the head, which hosts the eyes (which in many cases form the basis of the usual required visual perception[159]) will need to be controlled in such a stable way that it allows all the precise actions to happen. Ergo it will have to provide a solid basis for the eyes in order to allow those eyes to make *fixations* (!) possible. Even in relative simple sports actions, like the free throw or the golf put[160], one needs to throw a ball in the right way into the initial phase of the whole ball trajectory shape with the support of two different foci. A *stuttering* visual perception[161], a visual perception that doesn't behold the desired ball trajectory shape out of one strict perspective c.q. one stable standpoint (of the eyes), will be detrimental towards that process[162]. In the previous chapter an extensive explanation shows that it is very likely then that the main cause of errors within gameplay of non-elite players is due to the fact that the *transitioning* (!) of the motoric movement (MM) towards the Movement Action (MA) is unfolding less clearly c.q. more sloppy and that is mentioned as the main cause why TQE also is able to reveal significant positive test results. It is just not possible that TQE provokes an implicit cognitive knowledge process that *automatically* enables players to better construct successful perceptual images of latent action trajectory shapes just by fixating their head but it is more than likely that the ball will experience less random deviations within the transition point. Especially within the golf put in which the Motoric Movement Action *touching* must be linked to the Motoric Movement Action *pressing/pushing* (throwing) many things within the strict *tau*-coupling can go wrong because the transition point encompasses the very tiny area *between* (!) the outside of the ball and the outside of the putter that will make contact in which that transition point is also located at a relative remote distance from the visual perception organ within the (movement) action object (MA) c.q. the golf club.
Within the free throw the ball can be guided continuously during the initial phase and so within there no mandatory linked touch and push action hosting two autonomous *tau*-couplings needs to occur because we already hold the ball c.q. are already *touching* (!) the ball continuously. But also within there fixation of the head will have the consequence that the transitioning of the motoric movement (MM) towards the Movement Action (MA) within the transition point will experience less random

[159] Usually we construct action trajectory shapes within the Movement Action (MA) with the help of visual perception but addendum 2 of *Caught In A Line* extensively shows how we are able to execute Motoric Movement Actions without any visual process. You are able to unlock a door in pitch black darkness with solely proprioceptive perception processes. Even within the Movement Action (MA) one is capable of constructing an action trajectory shape (between the *hole* of the lock and the *tip* (!) of the key) with the help of proprioceptive perception due to the place of one hand near the lock and the other hand which holds the key. In that way the explanatory model shows that proprioceptive perception processes can be linked to at least three explicitly different phenomena within one motoric action. It also shows that visual perception isn't needed at all in a motoric action but that it always requires multiple forms of proprioceptive perception.
[160] They comprise inter alia just one *throwing*-task in which the player is also capable of maintaining its static position. Tennis as one of the most complex sports on the other hand encompasses for example a mandatory direct linking of a catching action to a throwing action in which the player due to the direct game dualism within tennis is often compelled to visually perceive during the movement of his head.
[161] The explanatory model shows that our visual organ in relationship to the phenomenon of movement must be considered as mainly a comparison organ. The visual organ is an implicit active organ which is only capable of sending ongoing sequences of static still images towards the visual perception (or maybe that happens vice versa). Our visual organ creates as actively the same amount of static still images of the apple in the fruit basket as it creates images when a cyclist passes you. Only within the comparison of those images our visual perception perceives movement within the cyclist and not within the apple. But the apple isn't lying still within our visual perception. It creates a *zero*-action trajectory shape or an active (!) *zero*-movement.
[162] In the various descriptions of the free throw and the golf put one is able to determine that within the free throw players are able to remove actual vision on the ball and the initial phase relatively very soon. Because they already hold the ball the Motoric Movement Action *touching* doesn't have to be executed which conversely in golf needs to be obligatory linked to the Motoric Movement Action *pushing/pressing* (throwing). Due to this fact the transition point within the free throw will hardly experience random deviations which will definitely occur within the touching phase of golf. This exact fact demands that actual vision towards the transition point must be maintained much longer within any golf swing. But this is also due to the fact that the transition point, the point *between* (!) the outside of the putter that will touch the ball and the outside of the ball that will be touched by the putter, within a golf put comprises a very small area (Maybe this component is the most complex in golf).

deviations. The explanatory model shows that every motoric action comprises an optimization process in which one can only aspire to limit the always occurring deviations as sound as possible and if one is able to keep these deviations within certain values the action will be completed successfully[163].
So both TQE and TAE come to the conclusion that the *head* (!) needs to quiet down. The argument is definitely not situated in there. Conversely to TAE TQE isn't capable to clearly address the cognitive element which the explanatory model (TAE) so prominently appoints and which must/can be tutored explicitly. In that way the explanatory model provides a full description of what elite players now actually master and what/that they trained for years to develop a huge *cognitive reservoir* (!) of successful action trajectory shapes which they are quickly able to reduce to the corresponding initial phase with which they are able to feed the two essential foci within the action. Only that understanding will finalize the Motoric Movement Action[164].
Because TQE isn't able to understand or isn't able to position this cognitive element many research data are not understood and that accordingly leads to poor conclusions in which many actual occurring phenomena are confusingly linked to very subjective opinions. Fortunately the explanatory model now provides a full and ending clarification and although the explanation actually must be sufficient by itself the superiority of the explanatory model can be researched rather easily. Therefor two scientific research proposals are devised within this addendum. One proposal towards the free throw within basketball and one proposal towards the golf put.
These proposals need to be approached in a modified way. They are proposed with mainly the explanatory model in mind and don't comply to the current demands of scientific research. They probably will have to be adjusted considerably before they are able to become real scientific research proposals. I leave that to the professionals. However it embodies the essence of all functional perception and motoric processes which are practically linked to a motoric action and definitely need to be instructed. In that way the final description of the explanatory model implicitly provides the final 1:1 motoric learning instruction[165].
Each research proposal contains two essential components. First the execution of the research proposal will show that TAE motoric learning instruction will provide superior learning outcome. It is expected that TAE will show very significant positive differences in the comparison with any other motoric learning instruction. The second component shows an obvious different approach. Due to the fact that the definite explanatory model is missing a lot of scientific research is executed by only observing of what elite players are *seemingly* doing. Within this kind of scientific research one is often drawing very incorrect conclusions because it is only based on the outer characteristics the elite players are showing. TQE is just one example within a wide range of such scientific research. So the research proposal contains a part in which the (gaze) behavior of test persons upon TAE motoric learning instruction is compared to the (gaze) behavior of elite players. It is expected that TAE test persons and elite players will show many significant commonalities.

As a concluding remark within this introduction I would like to appoint this. In this addendum the Motoric Movement Action *free throw* and the Motoric Movement Action *golf put* are the main examples because they often are the subject within scientific research. That is why I also will appoint the

[163] Within this YouTube clip (https://www.youtube.com/watch?v=3kYNjoUqohc) Tiger Woods is endlessly executing a golf put during a warm up. You will be able to find all elements which are appointed within the explanatory model. Within this clip Woods is not occupied with scoring the ball, although he uses the end of the manifest ball trajectory shape to provide feedback, but is he completely executing the always unique emerging optimization process over and over again. The complex process of aligning two foci to one point, the transition point, is positioned at the boarder of what human beings are capable of executing in regard to the complexity of this action and that is why we will have to train this transitioning all our lives.
[164] Within the free throw and the golf put TQE is still able to raise some doubt. But take it from me that nobody untrained will ever take a position on the platform of a 10 meter high diving tower and subsequently will execute a demanded professional dive by only visualizing the dive c.q. the action trajectory shape. I am sure you won't! The execution of that *dive* trajectory shape requires very specific knowledge. In which you have to experience this shape like you are the ball itself within the ball trajectory and you need to align this within the motoric movement (MM).
[165] The explanatory model is not only providing the ultimate motoric learning instruction similarly but will also take care that any motoric action will be executed in complete flow.

complexity of those individual actions themselves but also how the two specifically relate. After reading these explanations no questions will be left concerning the functional processes within one motoric action and you will be able to classify all components in regard to the complexity within the whole spectrum of throwing actions. It is appointed in this chapter with the goal to increase the general knowledge within the golf put and due to this final understanding of the complexity it already anticipates to new upcoming related scientific research and/or the perusing/studying of already executed research and the acquired data within there.

b. The position of the golf put within the spectrum of all throwing actions

All motoric actions can be divided in two main groups. A motoric action is either a catch or it is a throwing action[166]. The throwing actions indeed also possess a *tau*-coupling but in comparison to catch actions throwers are completely in charge of the action and the explanatory model defines that as *self-paced* timing.
Only three kinds of (movement) action objects (MA) can be involved within throwing actions. In fact throwing actions can be executed 1. *with the whole body*[167] (walking, biking, rowing, climbing, car driving etc.), 2. a *part of the body* or a (motoric) *movement o*bject[168] (MM) that is continuously held (for example the Motoric Movement Action *grabbing* (hand) or *eating* (spoon)) and 3. with an *external* (movement) *action object* (MA) (a ball, a letter etc.) that will actually be released during the action. The first two categories are examples of throwing actions in which the (movement) action object (MA) will not be released. Hence these (*hold on*) throwing actions can be adjusted continuously and that is why those actions are far more simpler than the (*let go*) throwing actions of category three. The free throw and the golf put are examples of (*let go*) throwing actions and definitely can't be corrected once the initial phase has been executed. With the exception of curling.
In spite of the differences within those categories we always shape a perceptual image of a latent action trajectory within the tactical movement action (MA) first within all motoric actions before we throw the (movement) action object (MA) in the beginning of that shape during the start of the actual movement action (MA). Within the Motoric Movement Action *walking* or the Motoric Movement Action *grabbing* of a coffee cup we throw the action object (respectively the whole body and the relevant fingertips) also in the beginning of the action trajectory after tactically determining a whole latent successful *precise global* action trajectory shape. Just completely equal to how we throw a tennis ball in the beginning of the initial phase of its whole ball trajectory shape. So although the explanatory model finally appoints within there what all throwing actions share the main difference of course remains the fact that within (*hold on*) throwing actions one is able to continuously manipulate the action trajectory shape even when the initial phase is completed. The processing processes of the visual perception, the ventral and dorsal stream, will then enable that the action trajectory shape continuously can and must be adjusted during the actual movement action (MA) based on cognitive knowledge and the tactical movement action (MA)[169]. So within the free throw and the golf put that is not possible and

[166] The Motoric Movement Action *catching* is extensively appointed within appendix B of addendum 2. It is characterized by the fact that an independent entity enforces a compelling *tau*-value which needs to be aligned with the throwing process within the catcher. This explains the term timing which we commonly use. Within throwing actions such independent entity doesn't exist and this could probably render the idea that no timing is needed within those actions. But that is definitely not so. Throwing actions also need timing but can be controlled by the thrower self. The explanatory model defines that as *self-paced* timing.
[167] Within *Caught In A Line* those actions are defined as the Motoric Movement Actions *moving A-B*. They are characterized by the egocentric formulated goal of moving the whole body from A to B in which the perception becomes an integral part of that specific transfer. With other words like we perceive a tennis ball *from the outside* within its tennis ball trajectory we then perceive our movement from the perspective out of the ball *from the inside* of a ball (*walking*) trajectory. Then we are still able to construct a *tau*-value within the leading Movement Action (MA).
[168] If a tennis racket, a pen etc. is permanently held within the execution of an action then it remains a part of the motoric movement as an (motoric) movement object (MM). If I want to throw the racket towards the referee then the racket becomes the (movement) action object within the Movement Action (MA).
[169] The explanatory model unmistakeably shows that every motoric action encompasses an optimization process

that implies that the end of the action trajectory shape within those actions already need to be embodied within the initial phase of the action trajectory shape. The end of an action trajectory has a set relationship with the beginning of that shape.

Images: Generalising the right image displays an organism who is only occupied with the Motoric Movement Action *touching* and shows the equal image which can be observed within many adults. Golf is multiple times more complex than any throw in basketball because the mandatory linked script of the two Motoric Movement Actions *touching* and *pushing/pressing* is involved. Only the touching process within golf already demands (just like for example within tennis) so many competence and attention that one is easily able to completely forget the main goal, the shaping of a specific ball trajectory, within the egocentric formulated task. Although golf in comparison to tennis just requires *self-paced* timing it belongs within there to the group of motoric actions with the most complex *tau*-couplings. In golf you have to use a (motoric) movement object (MM) in which the transition point, the exact point between the outside of the ball and the outside of the golf face, comprises a relative very small area, the distance between the golf face and the ball becomes relatively big and is situated at a relative remote distance from the visual organ. It will take years before this child will control this touching process in such a way that he will be able to create a specific ball trajectory shape or to pay attention to the shape of the ball trajectory at all. The kid with the basketball is far beyond that stage. Like aforementioned this child is already occupied with a *line* (!) (segment shape) between the basket

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in which it is not possible to directly influence the line segment shape of the (movement) action object (MA) itself. Out of the most parsimonious possibility within an ecological approach the explanatory model shows that with this system we are able to very quickly construct a perceptual image of a *precise global* latent line segment shape and correct that image later on. Just when it is needed. In almost all motoric actions we first need to bridge *a void with nothing* in which the only concern within the action is that the (movement) action object (MA) will come closer to the destination formulated within the egocentric will. When we actually execute a letter post action in front of the mailbox our perception processes are only occupied with the fact if the letter comes closer to the slit and not with the posting itself. The action trajectory shape within this action needs to become very precise only in the very last part of the actual movement action (MA) and that again is possible because then only a very small latent void still needs to be crossed and the (movement) action object (MA) will hardly have a chance to deviate from the latent perceptual image.
A very important conclusion sprouting from this fact is that we always have approached motoric actions incorrect. The egocentric formulated task is not that we want to grab a coffee cup but that we first want to bring our fingertips closer to the coffee cup in such a way that we are able to *touch* (!) it and subsequently we want to push/press the relevant fingertips in such a way towards each other that it allows us to hold the cup. Although this looks like a word game it exactly expresses the essence of our perception processes. The egocentric formulated task needs to be regarded egocentrically.

and the ball[170]. He already holds the ball into his hands and only needs to execute the sole Motoric Movement Action *pushing* and not any touching process. Generalising this child throws the ball just towards the end of the *line* (!) segment shape within the action trajectory because he wants to throw it directly into the basket. If he will become a future elite player then he first constructs a ball trajectory shape between the ball and the basket with a high success rate and accordingly throws the ball into the beginning, the initial phase, of that line segment *shape* (!). However like in almost every Motoric Movement Actions most humans will conversely fulfil a main part of the egocentric formulated general goal within the free throw and the golf put. Actually to guide the (movement) action object (MA) *closer* (!) to the goal in a *precise global* way[171].

c. <u>The complexity of the golf put versus the complexity of the free throw (basketball)</u>

The final and ending description of the explanatory model now also enables us to rank all motoric action in regard to their complexity. It is necessary to partly address this within this chapter. Of course the explanation will appoint the differences between the specific motoric actions but much more important will also completely reveal the coherence/connection/commonalities within *all* (!) actions. In that way one will be able to grasp why a specific Motoric Movement Action as a whole must be considered as far more complex than other actions but will be able to host components which in itself can be ranked as relatively more simple[172].
In this addendum I will just address the complexity in a limited way. The complete picture as in regard to the complexity you will only be able to acquire by studying all facets within addendum 2 and the still to be written addendum 3. In this last addendum I will try to appoint the Motoric Movement Action *golf* within the complete spectrum of actions in which one egocentric formulated goal can only be executed successfully by the two specific obligatory linked Motoric Movement Actions *touching* and *pressing/pushing*[173]. Within that addendum the Motoric Movement Action *playing the piano* which

[170] Maybe it sounds like Captain Obvious to you but this child perceives a possible connection because *nothing* (!) is present between the ball and the basket. This is one of the many abstractions which we own within this task. If an obvious shopping window would be situated between the ball and the basket a player wouldn't even try to throw the ball.
[171] I have never witnessed a person who threw the basketball towards the center line during a free throw or who didn't play the golf ball in the direction of the hole. Although it is considered a miss, when the ball doesn't reach its destiny, this is a very important aspect what the explanatory model brings forward. In case of (let go) throwing actions a player will only be able to influence the end of the ball trajectory shape at the beginning of that line segment. The shape of the free throw is familiar with lots of universal similar characteristics and therefor isn't able to form a clear example. Conversely within the golf put it becomes immediately crystal clear that a player will need to possess a huge reservoir of cognitive knowledge concerning successful (*ends of*) ball trajectory shapes and reducing that to the right corresponding initial phase.
Ergo the egocentric formulated task within here has always been misunderstood. Just like within the Motoric Movement Action *grabbing*. We don't want to grab the coffee cup within the actual execution and we are even not capable of doing so. We are only capable of moving the relevant fingertips closer towards the cup. So tactically the egocentric formulated task wants the ball into the basket but actually we are only capable of bringing the ball closer to that goal.
[172] The golf put for example is by far more complex than the free throw. However the ball-goal ratio is within basketball just a little bit smaller and that makes that action in regard to this point just a tiny bit more complex. Also is one able to understand that within the Motoric Movement Action *chess* the tactical movement action (*Where* do I place *what*?) is far more complex than the actual movement action (MA) in which the chosen chess piece only needs to be transferred to the chosen spot. In chess no direct game dualism is present (the opponent doesn't bother you *during* (!) the transfer, no chains of action trajectory shapes need to be created directly and a player also doesn't have to perceive the end of action trajectory shape in regard to the position of the opponent. Besides this the technique within chess is stunningly simple and completely resembles the Motoric Movement Action *grabbing/taking* (*transferring* and *putting down*).
[173] For example Craig and Lee still consider the golf put as one undivided motoric action like I used to do. Until I realised that the touching, the approaching of the outside of the putter just until the outside of the ball, must be

hosts these two specific motoric actions within a mandatory linked script as well will be compared with the Motoric Movement Action *billiard sports* in which those specific motoric actions also must be linked in the exact same way[174]. All aforementioned motoric actions, playing the piano and all aforementioned sports, possess their own autonomous *tau*-coupling[175]. The pressing/pushing within these actions will have to provide such a force on the goal object that it will start *to move* (!) because that is what the egocentric formulated will wants. That maybe sounds like "Captain Obvious" to you but conform this mere fact now the Motoric Movement Action *grasping/grabbing* and the Motoric Movement Action *touching* can finally be fully appointed and will the whole spectrum of throwing actions become clear. In short it comes down to the fact that if you want to grasp a coffee cup the exact same two linked motoric actions are at work as within billiard sports, piano playing or golf. The main difference however is that within the Motoric Movement Action *pushing* within these also obligatory linked motoric actions not a movement vector but conversely a zero vector (*0-vector*) (!) needs to occur[176]. Within the grasping/grabbing of an object with the hand it might well be the idea that you move it (pen, letter, chess piece etc.) but the (movement) action object (MA) needs to keep a set (steady/static) position relative to the hand.
The Motoric Movement Action *touching* now also receives a full and ending explanation/framework and it becomes clear that the sole touching of a suitcase (for example lying on a conveyer belt at an airport) at any place of the suitcase requires a much different preparation in the form of a whole different tactical movement action (MA) then as you will need when you conversely want to grasp the hand grip of the suitcase. If we only want to touch something then no second mandatory motoric action pressing/pushing needs to be executed and although that pressing in playing the piano comprises just a minimal movement no second *tau*-coupling is needed and maybe more important the latter pressing process doesn't have to be considered beforehand within the tactical movement action (MA) of the touching. This last remark shows one of the essential novae which the explanatory model is now finally able to provide and where current science desperately fails.
Within the aforementioned depiction of the whole spectrum of *touching-pushing* actions the free throw (basketball) can now finally be explained as well. It constitutes only the sole Motoric Movement Action *pushing/pressing*. In that way it has been put in an ending range of motoric actions in which the ball is continuously held before and during the initial phase. These motoric actions are considerably less complex because no motoric actions need to be linked and nothing can go wrong within the *tau*-coupling of the Motoric Movement Action *touching*.

Both the free throw and the golf put are optimization processes which implicates that across the incorrect assumption that motoric actions encompass set cognitive knowledge and processes that they have to be executed completely anew over and over again[177]. Each time anew the (movement) action object

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considered as a separate motoric action with an autonomous *tau*-coupling. That awareness originated out of the fact that our perception processes then factually are only occupied with the bridging of the third entity within the animal-environment relationship. The never before noted *void* (!) between the animal and the environment.

[174] Another part of that spectrum is shaped by the specific obligatory linked Motoric Movement Actions *catching* and *throwing* which are required within sports like tennis, baseball, badminton, cricket, soccer etc.. In "Watch The Ball Trajectory!" and especially addendum 2 of *Caught In A Line* that part of the spectrum is fully appointed. It for example shows that if a player is pressurized it should transfer the emphasis of the attention towards the catching process instead of the throwing. However in tennis this has never been acknowledged until now and this adaptation can only be seen within players who implicitly discovered that solution themselves.

[175] Within playing the piano one can very well observe that the transfer of the fingers within the touching phase have no set relationship with the pressing of a piano key. They have a relationship because they can't be executed without each other but the energy from the movement of the touching is for example not required within the subsequently *pressing/pushing* of the piano key. You are also able to observe very well within playing the piano that *the timing* of the striking of a piano key belongs to the *tau*-coupling within the touching and that the musicality obviously belongs to the *tau*-coupling within the Motoric Movement Action *pressing/pushing.*

[176] The resulting force of all movement vectors which are involved within the pressing has to remain zero.

[177] With the description of all Motoric Movement Actions the explanatory model shows that an obvious cognitive component can be developed with which one is able to gain more control within the process of constructing the right/demanded ball trajectory shapes. So although a pro player is more capable to construct the exact ball trajectory shape he will have to execute the whole motoric action every time anew. Within that unique actual process all parts will be open to always occurring deviations every time anew as well and that is why certainly

(MA) is able to randomly deviate. Even a perfectly fired ball (basketball ball/golf ball) is able to miss the basket/hole due to for example a gust of wind. That is definitely not the fault of the player[178]. Once the initial phase is completed, in which the motoric movement (MM) guides the ball in the beginning of the ball trajectory shape, the ball becomes a completely autonomous entity. The complexity of the action is partly determined by the fact with what percentage the action object is allowed to deviate within the action trajectory shape to still be successful as in regard to the egocentric formulated task.

Images: The complexity of a motoric action is also determined by the fact as to what extent the action object is allowed to deviate within its action trajectory shape and still be successful in regard to the egocentric formulated task. Addendum 2 extensively appoints two tasks in which the action object is hardly allowed to deviate at the end of the action trajectory shape. Within a key insertion task into a door lock and within a needle threading task the key and the thread[179] almost need to fit 1:1[180]. So a key *tip* isn't hardly allowed to deviate from the end of its action trajectory shape and therefor it has a tapered tip and does the key hole possess a spherical notch to absorb the always occurring deviations within the action trajectory shape. The thread and needle task can't be helped with these kinds of adjustments and therefor special threading aids are developed to successfully manipulate the (flexible) tip of the thread in the eye of the needle. Fortunately the basketball and the golf ball don't need to

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every (*let go*) throwing action hosts an error rate and that makes that the pro player will also miss a shot once in a while.

[178] Within for example tennis a player will have to learn to play realistically. Within a universal success rate of one stroke a percentage of the strokes will definitely fail. This notion will partly help to channel incorrect developed behavioural expectations within players.

[179] Within here you could get the impression that the whole action trajectory shape from the tip of the key towards the lock isn't allowed to possess any deviations. That must be avoided at all costs. Just like within the Motoric Movement Action *nerve spiral* the tip of the key will touch the (*trrrringgg*….-)spiral everywhere and that is not a problem at all. *Till* (!) the lock the only goal within our perception processes is to bridge the void between the tip and the lock out of the perspective of the key. Within there it only matters that the key is *coming closer* to the lock. The hand, and implicitly the key, will deviate just as much as within a motoric action in which we are grasping a tea bag with our hand. Because the *final* insertion of the key at the end of the action trajectory shape needs to happen almost 1:1 we definitely need longer actual vision then we need within a tea bag grasping task in which the tea bag almost fits fifty times within your hand aperture.
I also want to remark in here that we have always titled this Motoric Movement Action incorrectly. Within the grasping we say that we want to grab a coffee cup but that is a major error. Within the major part of this motoric action we actually only want to bring the hand closer to the cup. The explanatory model shows that the hand is the (movement) action object (MA) and not the cup. The fingertips are going to touch the cup and not the other way around.

[180] The transition point, the point within a motoric action where the motoric movement (MM) and the Movement Action (MA) literally transition, is shaped within these specific actions by the tip of the key and the very first part of the thread.

exactly fit 1:1 into the basket/hole. Otherwise these tasks would become well-nigh impossible to execute because different to aforementioned not-sport related tasks we are not able to continuously guide the ball within its action trajectory shape within the free throw and the golf put. If you would only regard to what extent the (movement) action object (MA) is allowed to deviate within a successful action trajectory shape then you are able to determine that a golf put and a basketball free throw hardly differ in complexity. The basket has a diameter of 45 centimetres and the basketball a diameter of 23-25 centimetres. The hole has a diameter of 10,795 centimetres and the golf ball must be smaller than 4,267 centimetres. So the golf task in regard to this sole component is slightly simpler.

So although the golf put is a little less complex in regard to the deviation boarders of the action trajectory within the Movement Action (MA) as a whole it comprises a far more complicated task than the free throw in basketball. There are huge differences between the free throw and the golf put. Within the Movement Action (MA) as well as within the motoric movement (MM).
Within the Movement Action (MA) the construction of a latent successful action trajectory shape is much more complicated within golf. The ball within the golf put has to roll over but in contact with the green and that is never an equal surface. Golf is executed outdoors (wind, rain, atmospheric pressure etc.) and greens show a wide variety of specific characteristics although greenkeepers try to keep the greens within a general standard. Professional basketball is played indoors and except from some tiny differences in the height of the board or the used materials within the board (transparent, white etc.) a player doesn't have *to read* (!) the air as a professional golf player will have to do with the green.
Static air[181] shows a far more evenly character in relationship to possible deviations of the ball than the slopes and bumps of a green. Ergo the free throw/throws in basketball never experience obstacles/hindrances and can always be executed equal in shape. This implicates that the initial phase of a free throw can always be constructed similarly. In golf a player will need to find the whole successful action trajectory shape every time anew and will have to reduce this to the related initial phase also every time anew. This demands very broad cognitive knowledge of golf ball trajectory shapes, slopes etc.. This sole component already makes that the golf put is far more complex than the free throw.
Besides this a golf put needs to possess an exact *length* (!). It is a compelling part and an extra complicating factor that the ball within the golf put needs to travel a very specific distance. A ball which is hit too hard in a perfect initial phase of a perfect ball trajectory shape will shoot over the hole when the distance to be bridged is too short. Within basketball the speed of the ball has a complex relationship with the shape of the ball trajectory but like in tennis it doesn't have to comply to a specific set distance[182]. Within tennis the ball trajectory shape needs to pass the net and will have to possess a bounce within the court but it doesn't have to stop nowhere[183]. The golf put in regard to this component looks

[181] In tennis for example static air hardly exists. Professional tennis is played indoors but most (most important) matches are not played within a closed environment and, as every real tennis player knows, wind is almost always present outdoors. In the beginning of their careers almost every tennis player is going to complaint about the wind and (mentally) fight it. The motoric learning instruction of the explanatory model shows that if it is a structural component within the construction of ball trajectory shapes it must become a structural part within the training. Tailwind or wind against you possesses universal, player-specific and opponent-specific elements. That is why the explanatory model proposes to search for an average value within there and to create a general *reference image* (!) with the help of for example a wind machine which is able to produce a constant air stream with which the general principles of tailwind or wind against you can be trained. After the establishing of one such reference image a limited number of other reference images can be added. Till now the only reference image within players is often the *windless* image. Similar to tennis golf players must be structurally occupied with obtaining reference images. The putting for example needs to be trained on a carefully selected *average* (!) *extremely flat* (!) green and players must work hard to perfectly control 5 to 6 set distances (f.e. ½, 1, 5, 10, 20 meters) which they must be able to produce precisely. On estimation golf players on average will have to master three reference surfaces with the aforementioned number of reference distances.
[182] Within golf the same thing can be said about the first drives.
[183] The dropshot however does conversely need to possess a certain length if it wants to be successful and that is why a player is only allowed to execute such a ball trajectory shape if he gained the tempo within the rally. Otherwise this aggravating demand within the complexity has no realistic chance at all to succeed.

a lot more like billiard sports in which a few centimeters difference in length of the ball trajectory shape decides if a successful chain (series) of ball trajectory shapes is produced or not.
The motoric movement (MM) within the golf put is also much more complex than within the free throw. Like aforementioned the free throw just encompasses a sole Motoric Movement Action *pushing* in which a player is able to continuously manipulate the ball during the initial phase for almost half a meter. That is very different within the golf put. Golf definitely belongs to the most complex Motoric Movement Actions if it was only because of the fact that a relative very small transition point between the end and the outside of a relative large (motoric) movement object (MM) and the outside of a relative small golf ball which will touch each other[184] are involved. If you already are capable to construct the right initial phase of a successful latent ball trajectory shape then this fact will cause that the hitting of the ball within the initial phase can easily fail. So in spite of the fact that *self-paced* actions encompass *self-paced tau*-couplings an autonomous *tau*-coupling is present in both components which in golf also needs to be mandatory linked and within a free throw that doesn't have to happen[185]. The free throw doesn't possess a combined, obligatory linked, motoric action like within the golf put.

d. <u>The research proposition TQE versus TAE within the golf put</u>

Like it has been assessed exhaustively in this addendum the golf put belongs to the more complex group of *letting go* throwing actions. After an initial phase the (movement) action object, the golf ball, can't be manipulated anymore. The golf put even encompasses one of the most complex tasks within the spectrum of solely *letting go* throwing actions[186]. Within the Movement Action (MA) the constructing of a perceptual image of a whole latent action trajectory shape/ball trajectory shape and the reducing to the correct initial phase of that shape is a matter of many years of experience[187]. Besides that the transition point encompasses a relative tiny surface between the outside of the *golf face* and the outside of the ball that will collide[188], must the technique be executed with a (motoric) movement

[184] Golf would definitely have been the most complex sport if it possessed any form of game dualism. However it is very obvious that golf even doesn't possess an indirect game dualism. In golf nobody will ever use your ball to create a chain of linked ball trajectory shapes like in for example tennis or billiard sports. In golf you only play against yourself and against the score of your opponents. The game idea in golf is in principle to construct a chain of as less ball trajectories as possible between the tee and the hole with one ball which you only are allowed to touch. At least that is the general goal. In fact it is more correct to say that your score needs to *show the score of your best opponent minus one* (!). That sometimes means that within the tactical movement action (MA) you are able to come to the conclusion that you will sometimes have to play *a shot to nothing* and in other cases the best tactical option is to play a safe two-shot.
[185] One could remark in here that the free throw can be experienced as more complex due to the strength it requires within the used *push*-technique. Although the technique model (BM) of the free throw is more basic and the technique of the golf swing is much more complex the generated force of an extra (motoric) movement object (MM) provides a huge benefit. That for example makes that 8-year old tennis players are capable of already constructing *serious* ball trajectory shapes but are not capable of executing a free throw within basketball successfully.
[186] Sports like tennis, baseball, badminton etc. as compared to golf are different because within these sports a *letting go* throwing action obligatory needs to be linked to c.q. has to follow a catching action. So however the throwing action within golf in itself can be considered as one of the most complex throwing actions, the fact that it doesn´t have to be connected to a Motoric Movement Action *catching* makes it a rather simple task as compared to other sports. The ball-hole ratio is approximately 1:2 and that is why a successful ball is hardly allowed to deviate
[187] Within the previous paragraphs it has been shown clearly that golf hardly tolerates deviations and needs to be considered as very difficult.
[188] Just like the previous footnote the sole touching of a golf ball needs to be considered as very complex as well. The transition point compels a very tiny surface and needs to be touched very accurately. That makes that the transition point out of the perspective of the (motoric) movement object (MM), the *golf face* of the golf club, within the end of the action trajectory shape is hardly allowed to deviate from the perceptual image of the whole latent action trajectory shape of all consecutive *golf face* positions.

object (MM) (the golf club) which is relatively long and the visual organ is situated at a relatively remote distance from the transition point[189].
Before I will continue with the actual research proposal I first want to clarify the difference within the complexity of the golf put as opposed to the drives within golf itself. The execution of every stroke in golf is characterized by the fact that two basal Motoric Movement Actions need to be obligatory linked. The second Motoric Movement Action *pushing/pressing* must arise directly out of the first Motoric Movement Action *touching*. Both linked actions host their own separate *tau*-coupling and so that is a commonality within all strokes in golf. However within the drives in nowadays professional golf it is of the highest priority that the ball trajectory shape needs to comprise a maximal distance. But although I will show within addendum 3 that the action trajectory shape within the touching doesn't need to encompass a direct relationship towards the action trajectory shape within the pushing/pressing concerning this maximal distance it is necessary to transfer as much potential energy within the contact point c.q. transition point towards the action trajectory shape of the Motoric Movement Action *pushing* as possible. That is why in nowadays golf technique a maximal amplitude of the golf club is still demanded because otherwise this *length*-goal will not be achieved. That is why within the drives a direct relationship will be found between 1. the distance between the ball and the golf face when the main phase of the swing starts and 2. the energy which can be transferred towards the Motoric Movement Action *pushing/pressing*[190].
You are able to remark in there that the complexity of the Motoric Movement Action *touching* within the drives is extremely difficult and that it increases with every place P further away from the contact point because also a high velocity of that (motoric) movement object (MM) needs to be developed. That is why in golf drives players choose a golf club with a larger flat hitting surface (driver) which enlarges the transition point. The complexity in there shows two sides. Once the golf club face indeed deviates from the successful action trajectory shape then it will be very hard to correct it due to inertia etc.. On the other hand if it is launched in the right action trajectory shape it will for the same reason hardly go wrong. That is why golfers need to develop a solid *touching*-technique.
Within the golf put this very complex relationship is not the issue. So as compared to this component the golf put is far more simple than a drive. However the golf put is far more complex when you compare it within the constructing of a precise ending of the outgoing ball trajectory shape. Within there the golf put can be compared much better to what is often required within billiard sports. With a minimal amplitude of the golf swing a pro player is able to work the golf ball into the hole from every position of a green. No player will need to lift the golf club higher than his hips within this task.
As in regard to this last aspect I unfortunately have to remark in here that within much scientific research, inter alia Craig and Lee, one is trying to develop set motoric learning methods to imbed the execution of the golf put[191]. By reinforcing a set amplitude of the putter or a set rhythm in the swing they want to establish consistency in the length of an outgoing ball trajectory shape. However in here the explanatory model bluntly shows that that is well-nigh impossible because consistency is rooted in the outcome of the product of two autonomous complex subsystems. Or with other words it shows that they don't have a clue that a golf put hosts two linked Motoric Movement Actions. It might be that a

[189] The free throw just as the golf put in principle doesn't host a direct game dualism. Most often the goal within the free throw is to score directly but it sometimes occurs that the egocentric formulated task has the goal to get the end of the outgoing ball trajectory shape of the free throw within the hands of a team mate. However that is exceptional and usually it can be determined that the complexity of the free throw as compared to other throws in basketball is much more simple because in there a direct game dualism is present created by five opponents.
[190] In comparison to the determination of this relationship will addendum 3 extensively elaborate on concert pianists who also show graceful big action trajectory shapes within the touching of the piano keys but in which the amplitude of the fingertips towards the piano keys normally doesn't mean that those keys are pressed harder c.q. with more energy. The similar phenomenon can be noticed within billiard sports. However within there one is able to notice that an extreme short action trajectory shape (!) of the billiard cue is able to produce a large amount of energy towards the Motoric Movement Action pressing/pushing (f.e. https://www.youtube.com/watch?v=QjstEFvCEQA).)
[191] https://www.researchgate.net/publication/12487080_Guiding_the_swing_in_golf_putting

few players are served by focusing on the exact amplitude or a rhythm within the hitting technique (MM) but that often leads to a situation where all the attention is pointed to that sole aspect and that has the mere consequence that the primary focus, the creating of a ball trajectory shape, is completely ignored c.q. not even implicitly is admitted. Also within here the truth will appear to be that one needs to instruct players parts of the Motoric Movement Action explicitly like within the upcoming motoric learning instruction. Players need to learn to construct perceptual images of latent ball trajectory shapes between the ball and the hole from any random position on any random green and to reduce this to the right initial phase. Subsequently players mainly need to learn to hit the ball in the beginning of the outgoing ball trajectory shape via the transition point *out of the technique of the player* (!). Within there the explanatory model shows that if the primary focus leads the action in a dominant way that accordingly the motoric movement (MM), which requires the secondary focus, shows tendencies of automatic following the leading focus. That is namely the system that is engrained into our body and that inter alia enables us to execute all daily actions in complete flow.
Still a player isn't able to evade the fact that he has to practice the golf put for years. Like aforementioned the actual ball trajectory shape isn't allowed to deviate much from the most successful latent perceptual image. Conversely to Craig and Lee the explanatory model shows that within there one needs to practice very player-*specific*[192] and that never a for every player equal standard universal model can be developed. When a player primarily focusses at the Movement Action (MA) then he still has to learn to transfer his motoric movement (MM) towards the ball in a set way within the secondary focus. I will not extensively elaborate on this in here but within there coaches will definitely have to consider if a player prefers to approach the execution of the motoric movement (MM) more as a feeling or more mechanically. Coaches need to extensively examine this and that will have to provide the answer to the question how specifically a player will fulfil the aforementioned linked touching and pushing/pressing process. That answer will have to serve the development of reference images in which the length of the ball trajectory shape is the center point. These reference ball trajectory shapes will have to provide a set framework to the actual match situation c.q. will have to embed the match situation in a set *feeling* (!). A pro golfer must definitely be able to produce multiple set reference ball trajectory shapes at multiple reference surfaces. That takes years of deliberate practice to develop and to maintain it. As well within research proposal as within the upcoming motoric learning instruction you will be able to gain more insights within this matter.
Some scientific research is focussed on the golf put but much more on the actions within basketball. The research that is dedicated to golf mainly comprises, the *scoring* within golf, the golf put. Hence a considerable amount of scientific data is available concerning that golf put and especially the visual perception behavior within there. The nice thing about these data is that they completely support the explanatory model. Within the many research articles I even wasn't capable of discovering the tiniest aspect that couldn't be explained by the explanatory model. Still the related researchers weren't able to proceed because they had to miss a guiding theory. They weren't able to draw conclusions or drew the wrong conclusions and therefore weren't able to formulate successful follow-up questions. In retro-

[192] Within all my years of research the distinct impression occurred to me that within the world of science one is looking for an absolute, linear and crystal clear explanation of actions within sports. The ambition within there is to come up with one absolute motoric learning method and many scientific articles make an attempt to appoint this. Conversely the explanatory model bluntly shows that indeed the Movement Action (MA) in principle can be approached within an ending learning method because the game only involves all places of the ball c.q. is only played by the ball in spite of the fact that within there it remarks that coaches need to be aware of and will have to implement new tendencies within the sole game whenever they arise. However the explanatory model also clearly shows with the acknowledging of the motoric movement (MM) that the playing/executing of the game needs to be approached out of the uniqueness of the player. Of course this scientific attempt must be appreciated but they also will have to start realising that training (elite) players again and again encompasses a unique optimization process. *The game* can be appointed endingly. *The playing of the game* can never be finalized. Each new era players will invent new techniques. Like once the straddle technique in the high jump became the Fosbury flop.

spect one will be able to conclude that also the scientific research concerning the motoric actions in the golf put remained at a huge distance from the explanatory model. The explanatory model will now at least provide such a guidance to current scientific research that an ending sequence of follow-up questions can be formulated which will take care of the fact that the Motoric Movement Action *golf put* will soon be fully explained as well and that the topic can be closed forever.
The explanatory model will already have its persuasive power on paper but it can also be judged by the means of comparing scientific research in which the motoric learning instruction according to the explanatory model (TAE) is opposed to any other motoric learning instruction. However I don't have experience in setting up scientific research. So the next research proposition must be used as the ratio behind a legitimate scientific research proposal.
The proposal has two important components. First the motoric learning instruction related to the explanatory model (TAE) will have to show the same outer characteristics within the execution as elite players will show during the execution of the similar Motoric Movement Action and second the motoric learning instruction related to the explanatory model (TAE) will provide significant better learning outcome as opposed to whatever other instruction.

In short I will summarize what the explanatory model will definitely show within this scientific research. A golf put can only be executed due to an obligatory cooperation between two autonomous complex subsystems. This means that there needs to be attention pointed at the action trajectory shape/ball trajectory shape and that simultaneously there needs to be attention pointed at the motoric movement (MM) or the throwing technique.
The explanatory model shows a universal built-up within the Movement Action (MA) of all motoric actions. We cognitively know that one Motoric Movement Action can only be executed over one action trajectory shape. The often multiple possible action trajectory shapes, in this case ball trajectory shapes, must be reduced to one successful possibility. We succeed in doing so with the help of a tactical department that encompasses two parts. First we possess a (huge) cognitive basis in which all action trajectory shapes of all motoric actions we are able to execute are founded. If we sit at home in a comfortable chair we are still able to create perceptual images of action trajectory shapes within many specific tasks and we even are able to mix them endlessly. This general cognitive knowledge provides the basis to approach tasks in a more abstract way and will therefore be able to come forward with an innovating action trajectory shape in case of emergencies. Within the explanatory model the second part has been defined as the tactical movement action (MA). This part will only be activated when we actually are going to execute a motoric action at a certain location. Within the tactical movement action (MA) the cognitive basis will be thrown over the actual situation and will have to come forward with just one action trajectory shape which will be executed within the actual movement action (MA) due to a strict reduction process.
Now it is essential to realize that we first construct an action trajectory shape before we will actually execute anything. So the actual movement action (MA) will only start when the tactical department made up its choice for one exact *precise global* action trajectory shape[193]. But although the two, as complex subsystems, are closely connected they only follow each other in a linear way and don't share any substantial commonality. The tactical department determines an action trajectory shape and the actual movement action (MA) just executes that one shape. Ergo the actual execution definitely doesn't have to be occupied with tactical reconsiderations[194]. That brings forward one of the practical

[193] That even doesn't contradict with the determination within scientific research (f.e. Hayhoe, Land) that many tasks initially are executed without any direct vision. Many tasks indeed don't require any vision within the first phase of the execution because in those tasks a considerable *safe* (!) distance with *nothing* (!) must be bridged. However within the *tactical* preliminary phase within for example a tea making task at an unknown location we definitely will perceive the dimension of the possible range of action trajectory shapes with which we will actually have to deal later on. Please take it from me that when a working chainsaw is present in your kitchen you will not execute any part of any action unseen.
[194] This conclusion definitely ends the whole open versus closed skill debate as well. If a basketball player constructed a perceptual image of a latent action trajectory shape then this image actually needs to be filled with the actual places of the ball. And you are able to compare that with a free diver who has thousands of possibilities to land in the water from the 10 meter tower but if he handed a specific dive to the jury then he will have to execute

essences namely that the actual execution then will be disturbed by tactical reflections and that is why they need to stay separated. But that doesn't contradict with the fact that the tactical department needs to be stand-by in (*hold on*) throwing actions. If suddenly disturbing circumstances arise during the actual execution then it must be ready to provide an alternative action trajectory shape as soon as possible out of the already manifest part of that shape.

I. Research proposal 1 concerning TQE versus TAE within the golf put

Within much scientific research one is looking for entrances to an explanatory model by comparing outer observable behaviour of elite players within a certain skill to the similar behaviour of non-elite players within that same skill. The ratio behind this kind of scientific research is that significant differences could possibly lead to theorization. Inter alia eye tracking gear is an important tool within that kind of research. The technique within there has also progressed so far that research can be executed in a very accurate, easy and replicable way. I will not clarify that any further within this paragraph. Within addendum 2 you are able to read all what *eye tracking gear* is missing and in retrospect one can determine that it missed so much that this kind of scientific research could never have led to the explanatory model.
Within scientific research concerning the golf put scientists were only able to establish that elite players visually fixate on the golf ball or sometimes on the hole[195] in a particular way and although this determination is correct it is just a small part of the whole complex perception process. The ball and the hole are definitely the beginning and the end of the line segment shape and therefor of course important benchmarks but still only a minor component of the whole line segment shape (!) of the ball trajectory. So although *eye tracking gear* is clearly showing the open space (!), *the void*, between the animal and the environment it has never been noticed by any scientist[196]. However the fact that elite players construct perceptual images can never be established by *eye tracking gear* and one can easily see that that never could have happened within this kind of scientific research.
If one misses the explanatory model one misses the whole explanation. With the model you are able to witness with *eye tracking gear* that players first need actual vision to construct a line segment shape between the hole and the ball. That indeed needs to happen but that is not the end of it. Actual vision needs to help in constructing a perceptual image of a whole action trajectory shape and this needs to be reduced to a perceptual image of an initial phase. And this all is still only a part of the tactical movement action (MA) which always precedes the actual movement action (MA). Within the actual movement action (MA) the ball in principle only should be thrown into the initial phase of the perceptual latent ball trajectory shape and not in any other way. However this looks like a long process on paper elite players execute these movement actions within seconds in which they strictly isolate every phase because it will work very disturbingly if during the actual movement action (MA) you continuously will reconsider the action trajectory shape tactically. So in short *eye tracking gear* indeed has registered/witnessed a small part of the tactical movement action (MA) but till now completely missed the actual movement action (MA) within elite players.
So although this kind of scientific research would never have been able to establish a finalizing theory it can be used to show that the explanatory model of the Motoric Movement Action (TAE) provides the same outer characteristics in behaviour between elite players and non-elite players. Therefor the

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that one dive as strict as possible. And in the exact same way a tennis player will have to execute the very specific outgoing ball trajectory shape just after he made the tactical choice to connect the specific incoming ball trajectory shape.

[195] Especially the current putting of golf professional Jordan Spieth provoked a stir within the world of movement sciences. Conversely the explanatory model handles this kind of behaviour with ease and doesn't notice anything new under the sun. It appears that he keeps his direct vision on the hole but he isn't. See for a detailed explanation for example the Motoric Movement Action *cat and mouse game*.

[196] Even Gibson missed the third and conclusive finalizing entity within the animal-environment relationship. The explanatory model finalizes Gibson's *The Affordances Theory* with the appointing of this missing phenomenon.

ratio of the first scientific research proposition encompasses the fact that if elite players implicitly discovered/incorporated parts of the explanatory model of the Motoric Movement Action that explicit instruction to non-elite players will reveal the same outer characteristics in perception behaviour. Of course then it is valid to assume that the longer periods test persons will be able to become familiar with the explanatory model the more they will resemble the characteristics of the elite players. Therefor one needs to postpone the producing of video footage as much as possible towards the last phases of the motoric learning instruction. Within research proposition 2 that refers to the execution of exercise C-4 "If you get familiar with exercise C-3 …..of the initial phase."). One needs to produce the video footage in such a way that the perception behaviour of elite players can be compared with the behaviour of test persons in the similar game situation.

The expectation towards the outcome of research proposition 1 is that it will show significant positive commonalities between test persons and elite players. Successes within for example actual increased free throw scores, like will be explained in the following research proposition 2, will definitely take a longer period. However clear commonalities in outer characteristics must be clearly present even after the first session.

II. Research proposition 2 concerning TQE versus TAE within the golf put

Research proposition 2 encompasses the premise/assumption that TAE instruction is based on the exact processes that *the body* (!) itself demands within a motoric action. That as it where the body only recognizes that kind of instruction as *naturally* (!). Within the group of elite players just a small percentage has discovered the full explanatory model by implicit acquired knowledge and so if a random pro player also wants to reach that top then he at least has to acquire parts of his sport explicitly. This research proposal will show that motoric learning instruction with the explanatory model as the starting point will show to be superior to any other motoric learning instruction.
As a remark you need to consider that within any motoric learning instruction a student will experience the classic 4 ability-phases in which the last two phases compel the transitioning from *conscious skilled* (phase 3) to *unconscious skilled* (phase 4)[197]. This will definitely have a disturbing effect on the actual results but like aforementioned due to the fact that TAE instruction exactly provides the instruction the body requires it is the expectation that this last transitioning will also show to be the smoothest/fastest as compared to any other instruction.

Task: An aiming task with a stick/golf club (putter) in which a ball must be hit towards a goal from a point A on the floor to a point B on the floor (conform the putting in golf).

Conditions:
- Original golf balls have a tendency to bounce easily. A ball should be used which is not too big but must capable to incorporate the intention of the golf stick in a stable way.
- The golf stick must be shaped rather basically. This research is mainly about the movement action (MA). A too advanced (motoric) movement object will have a too disturbing effect on the movement pattern. The stick must provoke a uniform technique in such a way that differences in technical ability among participants are reduced to a minimum.
- The distance tee to the hole/pole must be reasonably large (>8-10 meter) in such a way that when one focusses on the ball one is not able to see the goal with peripheral vision. TQE instruction shifts from gazing at the goal to gazing at the ball. We need to prevent that both can be executed simultaneously. By the way TAE never changes the perspective.

[197] Within motoric learning instruction science assumes 4 ability phases. First a player is unconscious of what he needs to execute, then conscious of his inability, after that he will have to consciously execute the right actions and finally motoric learning instruction needs to become automatized in which the phase of *unconscious skilled* will be reached.

- The goal must be small or flat in such a way that the y-value (see below) is hardly influenced by actual hits of the target by the ball.
- The floor must be flat and is not allowed to be even in colour. TAE demands that markers on the floor must be visible in the vicinity of the ball. Like at every green markers are necessary to actually visualize the initial phase of the latent outgoing ball trajectory shape.

Execution:
- Every participant will get time to adjust to the stick and floor.
- Then every participant will execute the task (n)x without any instruction (zero measurement). The results (in centimetres) must be scored in at least two distances. If we define the straight line between the tee and the goal as the aiming line then the deviation in the width provides an x-value. The other value (the y-value) comprises how the ball deviates in length from the exact distance tee-goal. In the first part of the research the emphasis is put on the movement action (MA). This will show significant differences concerning the x-value.
- Then the whole population is divided into a TQE group, a TAE group and one or more control groups. Instruction needs to be put to paper as much as possible. I leave the TQE and other instructions to the various experts. The TAE group is allowed to first read/study the: *The motoric learning instruction TAE - The Motoric Movement Action golf put*[198].
- Then the next written text will have to follow. "Now that you are familiar with the task we are going to help you to execute the Motoric Movement Action *golf put* according to TAE. It is a compelling advice. Be aware that there will be a gradual reduction in help. So in the first exercise we explicitly tell you all you have to execute. Later on, when less information is provided, you will still have to execute all the previous instructions on your own.

A. The development of the primary focus. The constructing of the action trajectory shape (the ball trajectory shape) and the initial phase within the movement action (MA).

1. "Take the rope and connect it between the tee and the target with the help of the employee. You will stay at the tee and you are allowed to use the chalk to draw a line on the floor (± 0,5-1 meter) parallel to the rope. The line must be placed between the tee and the target and the end must touch the tee."
2. "Now put away the chalk and the rope and take a crouching/kneeling (or lower) position behind the ball and try to see the line segment shape from the tee to the goal out of the perspective of the ball. Then reduce this line to the chalk line on the floor. Try to make a relationship between the whole line and the chalk line."
3. "Take the putter and take a position side wards of the ball like within traditional putting. You are almost going to actually execute a putting action. First check the line segment tee-target once more and then reduce it to the beginning of that line segment. Now the chalk line is helping you. That is the most perfect beginning of this ball trajectory. The only thing you are able to influence is the beginning of that ball trajectory (the *initial phase*) and you are only allowed to hit the ball into that beginning. So you are allowed to look at the goal just before executing but when you start to actually execute the action you are only allowed to be occupied with the initial phase. We will help you with this aspect too. When you are on the brink of executing the action you say "yes" and then the employee will swiftly place a screen between the ball and the target. The screen will allow the ball to pass but will prevent you from looking at the target in any way. Then you will hit the ball into the beginning of its ball trajectory shape. (Repeat this exercise completely (n)x.)"

B. The development of the secondary focus out of your throwing technique towards the transition point

"Before you are going to repeat exercise A integrally you first have to develop a part of the secondary focus towards the transition point within this Motoric Movement Action which later on needs to precede exercise A. We are not yet going to be occupied with the specific throwing technique within the motoric movement (MM) substantively. Within this scientific research there is no time for that

[198] See appendix B.

process but we definitely are going to focus on the point where the movement action (MA) and the motoric movement (MM) come together c.q. where they transition. Movement trajectories within your body will take care of the fact that the outside of your stick will touch the outside and backside of the ball within a classic golf put technique. *Between* (!) those two outsides the transition point is situated."

1. "Now make practice puts in which you only focus on how and where the outside of the golf club face is touching the outside of the golf ball within *your* technique. Then you only practice the secondary focus."

C. <u>The combination of the primary and secondary focus towards the transition point out of a not-defined motoric movement (MM)</u>

1. "Within this part you are going to really execute golf puts in which you have to link the secondary focus to the primary focus like within exercise A. This is a very complex process and during every training you will have to practice this extensively because now you need to simultaneously construct one complex focus image out of two separate different focus points. The primary focus needs to be pointed at *the whole ball* (!) being thrown into the initial phase and the secondary focus must be pointed at the transition point."

Reduction phase

2. "If you get familiar to the routine within exercise C-1 you keep executing golf puts but first without the rope. Now try to create an initial phase only with the chalk out of the perspective of the ball with other means. For example try to obtain a lowered position, put your stick in front of the ball, etc.".
3. "If you get familiar with exercise C-2 then you will also have to get rid of the chalk. Now try to construct an initial phase with all legal possibilities. Because you can't use the chalk you have to construct an initial phase on the floor with the help of markers. Markers are specific points you will find on the floor. Now be aware that when you come up out of a possible crouching position you keep those markers in your mind."
4. "If you get familiar with exercise C-3 then in this last phase the screen will not be placed anymore either. If you just keep on executing like aforementioned you will definitely not be distracted by the hole during the execution of the initial phase."

<u>Expectations</u>

This research proposal is pointed at scientific research that can be fully completed within several days. Within this short time period one can hardly improve any technique within the motoric movement (MM) successfully. That demands a relative large time span. Still the expectation within the execution of exercise A within research proposal 2 (the development of the primary focus) is that it will show minor significant positive outcome towards TAE because the motoric movement (MM) is showing a natural tendency to follow the movement action (MA). That is the consequence of the fact that in every motoric action we point the secondary focus towards the primary focus. Hence significant convincing results will be constrained due to the fact that the technique within the motoric movement (MM) as autonomous necessary complex subsystem hasn't been developed within this research. Throwing the ball into the initial phase is just one part within the execution of a ball trajectory shape. However to construct a ball trajectory shape with an exact length demands precise energy which the motoric movement (MM) needs to provide to the ball but this can never be developed in one afternoon. Within there one definitely needs a large time period. Just like within the free throw in basketball.
It is the expectation that exercise B of research proposal 2 (the development of the secondary focus) will have a significant negative effect on TAE results. If one starts to practice to explicitly construct a complex focus image out of two separate foci then results will deteriorate in a first habituation period

because the attention which the secondary focus towards the transition point requires will take away attention from the primary focus. Just like the throwing technique the complex focus image cannot be incorporated in a few days as well. It needs long term practice. The required attention for the primary focus will just start to increase over a longer period and then definitely will provide superior learning outcome.

Appendix A: The motoric learning instruction TAE - The Motoric Movement Action *free throw* (basketball)

Motto: Do not directly throw the ball into the basket but throw the ball in the beginning of a ball trajectory shape of which the end will automatically reach the basket.

1. Introduction

The Active Eye (TAE) belongs to the explanatory model which explains all functional perception and motoric processes within every Motoric Movement Action which as it were the action *itself* demands. The explanatory model automatically provides the ultimate motoric learning process. With TAE a definite and ending practicing guide is formulated. The formulation is the realistic approach which most elite players had to follow too c.q. discovered in an implicit way. It encompasses many hours (years) of hard work. There is no easy shortcut for nobody. So the following TAE instruction *free throw* (basketball) is a definite and complete explanation. This Motoric Movement Action can't be appointed out of any other perspective because there are no perspectives left. This manual will guarantee *flow* or *playing in the zone* in the long term.
First I will provide you some theoretical background. Don't let it distract you. Everything will be explained clearly during the actual instruction.

2. The theory of The Active Eye

The explanatory model of the Motoric Movement Action outlines a process with very active and complex perception and motoric processes. That is why it is called The Active Eye (TAE) as opposed to the within science leading theory of The Quiet Eye (TQE)[199]. TAE explains that every Motoric Movement Action encompasses a complex process and only can be executed by the strict cooperation of two *autonomous* (!) complex (sub-)systems: 1. The movement action (MA) and 2. The motoric movement (MM). In a formula: MMA = MM x (MA). Both subsystems require specific perception processes which must be executed simultaneously. Hence the attention/focus of the movement action

[199] Within addendum 1 of *Caught In A Line* the whole dichotomy between TAE and TQE is explained.

(MA) and the attention/focus of the motoric movement (MM) must be combined to one complex focus image during the execution of one action.

So within the formula of the Motoric Movement Action you are able to distinguish three essential components:

a. *The movement action (MA)* - The perception processes within the movement action (MA) must be observed out of the perspective of the ball. In essence only the (movement) action trajectory of the ball will fulfil the egocentric formulated task of this Motoric Movement Action. The action trajectory shape of a ball is called the ball trajectory shape. The crucial fact in the Movement Action (MA) is that you need to construct a perceptual image of a whole latent ball trajectory shape which you have to reduce to the beginning of that shape[200]. TAE defines that as the initial phase. In (*letting go*[201]) throwing tasks you are only able to influence the first beginning of a ball trajectory (with the exception of curling). You will have to put everything in that beginning in order that the end of the ball trajectory will emerge *automatically*. The primary focus must be pointed at this part because the ball actually fulfils the essence of the task within the movement action (MA).

b. *The motoric movement (MM)* - The perception processes within the motoric movement (MM) must be observed/perceived out of the perspective of the body of the player. With (motoric) movement trajectories of your body you execute the movement action (MA). The throwing technique encompasses several, *very awkward* (!), movement trajectories within your body which have no relationship whatsoever to the action trajectory within the movement action (MA). Within your body c.q. your *free throw* technique the focus must be reduced to (preferably) one biomechanical main action which is characteristic for your throwing. The motoric movement (MM) follows the movement action (MA) and therefore the secondary focus must be pointed at this part.

c. *The transition point* - There is always one point in every Motoric Movement Action where the motoric movement (MM) and the movement action (MA) come together or where they literally transition. Within TAE that is called the transition point. The transition point within the classic free throw technique is the contact point *between* (!) 1. the outside of the palm of the hand and 2. the outside and backside of the ball. TAE emphasizes this point extensively because within this exact point the biomechanical main action of the motoric movement (MM) has to focus on throwing the whole ball in its initial phase during the movement action (MA). During practice you will really need to learn/incorporate to distinguish those separate foci/attention points.

3. <u>The motoric learning instruction of the movement action (MA) of the free throw in basketball</u>

Within the movement action (MA) you will have to learn to observe all actions/processes out of the perspective of the ball. The aiming is the central issue in here. The final part of the ball trajectory shape must have its end in the basket. The specific length of the ball trajectory shape will be discussed within the upcoming explanation of the motoric movement (MM). At this moment it is not important if the length is exactly right. Now it is important that the ball deviates as little as much in the width of the ideal trajectory. I will now appoint all processes which you will always have to repeat from now on. In that way a set routine will grow and your body will implicitly learn to experience this part out of the perspective of the ball. A motoric learning progression will now be outlined to you.

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[200] In Motoric Movement Actions the action trajectory shape rarely becomes visible. However in the Motoric Movement Actions *writing*, *pouring* and *nerve spiral* the action trajectory shape becomes visible.

[201] All motoric actions can be divided in catching or throwing actions. All catching actions require timing as we define it classically but also the throwing actions require timing as well. Within he explanatory model that is defined as *self-paced* timing. All actions which we produce ourselves can all be regarded as throwing actions. They all can be classified within just three groups. 1. (*Hold on*) Throwing actions with the whole body (walking, biking etc.), (*hold on*) motoric actions with a part of the body (for example grabbing or grasping) or (motoric) movement object (for example spoon or needle) and 3. (*letting go*) throwing actions (for example free throw or golf put) in which you actually let the (movement) action object (MA) go.

a. First you need to define which ball trajectory shape you prefer to use. Therefor you need to execute a few successful free throws and determine which elevation angle is involved. A lower value of the elevation angle will sooner let the ball touch the front part of the basket. On the other hand you must be able to execute the free throw in an easy way. If you don't care it is advised to choose a wider angle (for example 70°). But you definitely need to choose one exact ball trajectory shape. If you want to execute a free throw with a different ball trajectory shape each moment you step up to the free throw line you will never reach any consistency.

b. Once the ball trajectory shape is determined you will have to determine the initial phase of this shape. You could (let) make a video clip of yourself and you can study the successful throws which felt good. In that process it would be perfect to create a projection of the whole ball trajectory shape on a wall so that you are able to stand beside it. Another possibility is to draw the initial phase to a large piece of paper and to put it on your living room wall at the actual height. You will have to really stand beside it continuously and visualize that you are really going to execute the free throw. Finally you must be able to visualize the initial phase by heart out of your peripheral vision. The ball is too close to the eyes to perceive it with direct vision. It is important that you are able to reduce the whole ball trajectory to its initial shape and that you are going to experience the initial phase out of the perspective of the ball as a basic fact. More and more try to observe the ball as the starting point of which a line segment shape origins. Within your perception processes a set relation needs to be developed between the ball in the hand and the initial phase of the ball trajectory.

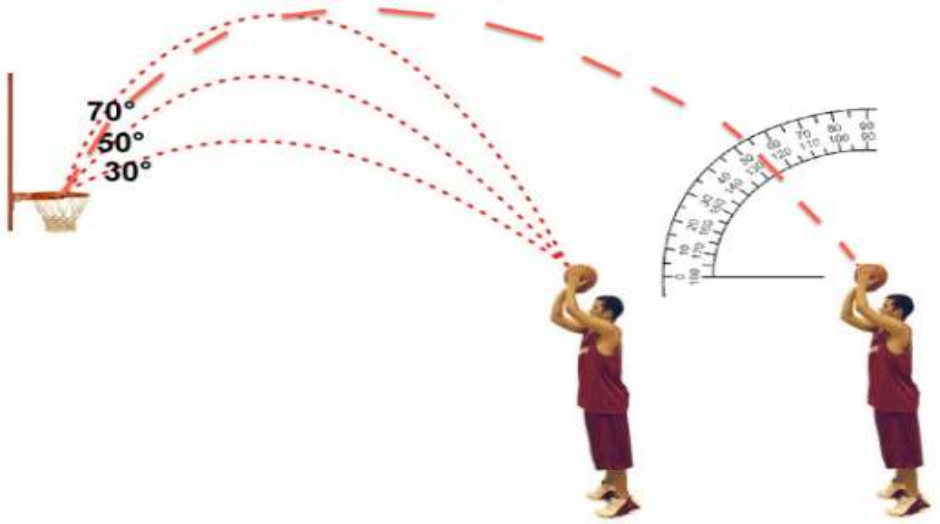

Image: Examples of elevation angles. At lower values the front part of the basket will sooner form an obstacle.

c. If you are actually going to execute free throws you need to translate the obtained general image of the initial phase of the *latent* ball trajectory shape to your current standing position. The primary focus must be pointed at throwing the *whole* (!) ball in the initial phase of the ball trajectory shape to this specific basket. You don't have to focus yet on the technique but in your preparation of the free throw as part of the movement action (MA) it is desirable that you already try to observe the action in regard to the transition point. This secondary focus must be pointed at the exact spot where the outside of the palm of the hand touches the outside and backside of the ball. Mere mortals are not capable to perceive two simultaneous needed foci completely separate from each other. Therefor you need to combine the two foci to one *complex* focus image. You will have to practice this extensively.
With this focus image you take your free throw position. Before actually executing you are allowed to check all components a few times and you can check the initial phase once more. However if you are actually going to execute the free throw you are pertinently not allowed anymore to

look at the basket. Just before executing you need to pull up an imaginary screen which only secures sight on the ball and the initial phase of the ball trajectory. During the execution you only throw the ball in the beginning of the perceptual image of the latent ball trajectory shape. The ball trajectory arises out of the actual spot of the ball. At the place where you are standing and nowhere else.
To *pull up an imaginary screen* in the free throw is a difficult task because the eyes are close to the ball and in a position where the basket hardly can escape your vision. However with practice it is possible to visually block the basket. By actively guiding your attention to the two involved foci you will in the end easily be able to suppress the urge to perceive the basket with direct vision.
So the weird thing within this phase encompasses the fact that you first will have to *tactically* (!) check certain components within the action with direct vision one moment and then a brief moment later direct vision on the same components could be detrimental during the *actual execution* (!) of the throwing task[202].

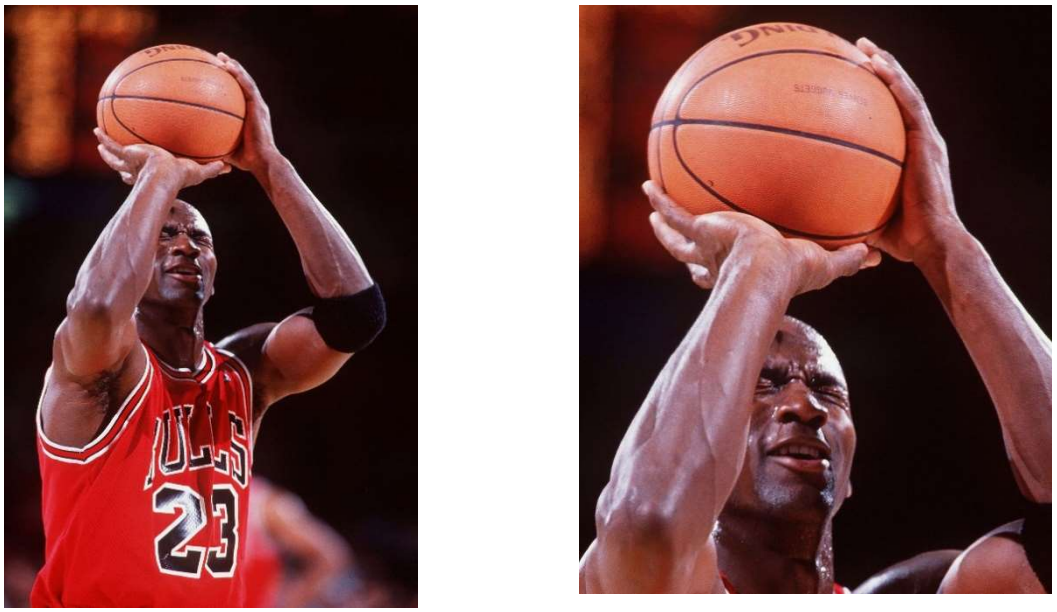

Image: Michael Jordan is checking the ball trajectory shape once more just before he throws. But when he is going to actually execute the shot he pulls up an imaginary screen. The ball trajectory is solely created by executing the initial phase close to his head. His perception processes must be occupied with the execution of that initial phase in such a way that the basket is no longer perceived with any vision. That is why it is possible for MJ to close his eyes during the actual execution of the free throw[203]. It is completely in line with TAE. However it is wiser for mere mortals to actually perceive the initial phase with peripheral vision because the initial phase of the free throw involves a reasonable distance. We are also used to execute actions with our eyes open. Executing a free throw with the eyes closed must indeed be practiced separately a relative long time period.

[202] The explanatory model also ends the open versus closed skill dichotomy. It expresses that within every Motoric Movement Action a Movement Action (MA) occurs that hosts three universal elements. The cognitive basis, the tactical movement action (MA) and the actual movement action (MA). Out of a general cognitive base the tactical movement action (MA) needs to come forward with only one action trajectory shape within a specific motoric action. Once the tactical movement action (MA) has been fully completed the actual movement action (MA) just will start to execute that one action trajectory shape.
[203] Throwing with the eyes closed can be compared with the services of Nadal and Federer who sometimes hit services blindly too. See: “Watch The Ball Trajectory!”; p. 74.

So it seems that elite players actively look at the basket during the execution of the shot because the eyes are close to the ball and it is hard to avoid the basket with the eyes from that position. And the misleading thing is that a moment ago, just before the execution, they had to actually check the latent ball trajectory tactically with direct vision. But elite players who discovered the complete TAE model will not do that anymore during the actual execution phase. Keep in mind that the explanatory model TAE for the first time appoints all necessary processes and that nobody was able to acquire the model explicitly. So it is very likely that you are able to witness many hybrid execution forms within current free throws of pro players although successful elite free throwers must have adopted a big part of TAE implicitly. That they hardly have any idea of what they are actually doing is what MJ is showing in a YouTube clip. He is able to execute the free throw successfully with his eyes closed[204]. In the clip you are able to perceive that all visible processes are completely in line with TAE but his explanation in this clip[205] shows no TAE knowledge whatsoever. TAE is also completely in line with this backward free throw of Lebron James[206]. If you pause the You Tube clip at the moment LJ just threw the ball you can witness the same *inner stare* during the actual execution of motoric actions within other sports.


Images: Who says that if athletes seem to gaze that they are actually not perceiving anything? Could it be that the diver visualizes her actual *in-jump* into her whole dive trajectory? Could it be that Federer hits the incoming ball into a perceptual image of a latent outgoing ball trajectory shape? According to TAE Lebron James now constructs a perceptual image of the initial phase of almost the same latent free throw ball trajectory shape which he now only has to execute backwards. So the Movement Action (MA) in here is almost exactly equal to the *normal* ball trajectory shape but the motoric movement (MM) needs to focus *the other way around* towards the initial phase.

4. The motoric learning instruction of the motoric movement (MM) of the free throw in basketball

Within the motoric movement (MM) you will have to learn to observe all actions/processes out of the perspective of *your* technique and out of *your* body. With or without a coach you are capable to improve your throwing technique but if you are actually going to execute free throws you need to fully accept your current technique. That is why it is best to work on technique in off season periods. This technique development process requires a strict framework because it needs to be fully stopped at a definite point. You will have to send home a coach who will provide small technical adjustments all the time. He needs to save that for the next *technique period*. When a technique period is closed a coach is only allowed to assess the game situation out of *your* current technique and out of *your* current perception processes. Within the motoric movement (MM) the exact shape of the ball trajectory is the central issue and not the direction of that shape.

[204] https://www.youtube.com/watch?v=vwL5zhZJ0lA from 1'15''
[205] https://www.youtube.com/watch?v=JdTQi4L6khw
[206] LJ Drains Backward Free Throw Like It's Nothing; https://www.youtube.com/watch?v=qPE4sWF8-C4

In general a basketball player needs to develop a base with a lot of abstract knowledge (cognitive basis) which must serve as a blueprint during actual match play. I will come back to that subject when I appoint flow. Within the motoric movement (MM) an elite player must be able to translate all distances from the court to the basket to a certain reference feeling and a certain reference ball trajectory shape because it is impossible to practice all occurring shots within an actual match. However if you only compete in free throw contests you can choose to just train the free throw ball trajectory shape. In this manual I only address persons who only want to execute the free throw.

a. First of all you need to appoint how *your* technique is working. Mainly you yourself will have to realize which part of the stroke determines the main action (for example the hand, the under arm, the upper arm etc.). If it provides a safe and repeatable throw and you feel good with it then you will have to address the motoric movement (MM) out of this *biomechanical main action* towards the transition point. In here it is also important to notice if you throw the ball just by feeling or if you use a more mechanical method. Some players within this last category for example just focus on the amplitude of the elbow.
   Any significant leg action must be avoided in the free throw. If you move your legs your eyes will move too. Your visual perception will then be disturbed and secondly you will have to time the initial phase if you come up. You already have a lot of tasks so don't make it more complex if it is not necessary.
b. You don't have to practice multiple reference ball trajectories because the free throw requires the same ball trajectory shape at almost all places in the world. However for some players practicing reference ball trajectories will better embed their throwing feeling. In any case the motoric movement (MM) will have to provide a set perception value. Within narrow borders it will have to evoke one clear feeling which will provide the exact amount of energy to the ball. Only then it will actually follow the desired ball trajectory shape.
   With the aforementioned the explanatory model brings forward that consistency in the execution of motoric actions is situated in the *dumb* and *boring* repetition of anchored feelings. Conversely consistency is definitely not situated in inventing a new solution every time.

5. The motoric learning instruction of the whole Motoric Movement Action *free throw* (basketball)

If you are going to practice the whole Motoric Movement Action then of course you need to apply all aforementioned processes as one whole action. The primary focus must be pointed at the throwing of the whole ball in the ball trajectory shape. During that task the secondary focus must be pointed at the transition point out of the biomechanical main action of the motoric movement (MM). In order to develop a routine you will have to train this extensively because there is a game situation involved with a lot of parallel perception processes. While practicing you need to discover your weak spots in the routine and pay attention to them. But even with a well-developed routine you will still have to perceive and execute a lot of things simultaneously during real match play. So within a match it is always a possibility to consider to execute a few (± 3) practice throws. During the practice throws you review in short all the involved perception processes and motoric actions. You have to do that just prior to the actual execution of the shot. Once you determined the initial phase tactically you are not allowed to reconsider that during the actual execution.

6. Flow

If you want to execute the free throw in flow then you must have practiced the variable circumstances extensively. Then you will need to have a lot of experience with all kinds of floors, all kinds of boards (colours, transparent etc.), the fluctuations in distances which will differ slightly from location to location, lighting etc.. That means that you must be able to visualize the right successful ball trajectory shape from every free throw line and have the experience to reduce that trajectory to the right initial phase. Besides this you need to have incorporated the motoric movement (MM) in such a way that your body has a clear understanding of the fluctuation borders of a successful free throw. You need to

have completely automatized the execution of the whole Motoric Movement Action with its primary focus, secondary focus and transition point.

7. Conclusion

TAE fully describes the many perception processes and most likely provides the answer of what we always have felt in the Motoric Movement Action *free throw*. (*Letting go*) throwing actions are relatively complex tasks because you are only able to create an initial phase and you can't adjust them later on. So there is always a success rate. You only need and are only able to optimise this rate. Flow is also fully appointed. It is a different way than most mental methods do. Some even promise flow within one day. TAE promises flow after lots of hours of purposeful hard work and deep down in our hearts we knew that already. But still we are hoping that someday a magic pill appears with which we are able to create a shortcut to success.

8. Extra

If you want more substantial information about for example the Motoric Movement Action *throwing*, focus, flow etc. then you could study "Watch The Ball Trajectory!". Within this tennis book all functional processes within the Motoric Movement Action *tennis* are completely explained. You could also study *Caught In A Line*. This is a more general book towards all motoric actions. Besides the book two addenda belonging to *Caught In A Line* are now available. Addendum 1 elaborates extensively on the TQE versus TAE dichotomy. Addendum 2 appoints the explanatory model of the Motoric Movement Action towards all recognized phenomena within the movement sciences. You are able to download the books for free at: https://watchtheballtrajectory.jouwweb.nl/.

Good luck.

Appendix B – The motoric learning instruction TAE - The Motoric Movement Action *golf putting*

Motto: Do not hit the ball directly into the hole but hit the ball in the beginning of the ball trajectory shape of which the end will automatically reach the hole.

1. Introduction

The Active Eye (TAE) belongs to the explanatory model which explains all functional perception and motoric processes within every Motoric Movement Action which as it were the action *itself* demands. The explanatory model automatically provides the ultimate motoric learning process. With TAE a definite and ending practicing guide is formulated. The formulation is the realistic approach which most elite players had to follow too c.q. discovered in an implicit way. It encompasses many hours (years) of hard work. There is no easy shortcut for nobody. So the following TAE instruction *free throw* (basketball) is a definite and complete explanation. This Motoric Movement Action can't be appointed out of any other perspective because there are no perspectives left. This manual will guarantee *flow* or *playing in the zone* in the long term.
First I will provide you some theoretical background. Don't let it distract you. Everything will be explained clearly during the actual instruction.

2. The theory of The Active Eye

The explanatory model of the Motoric Movement Action outlines a process with very active and complex perception and motoric processes. That is why it is called The Active Eye (TAE) as opposed to the within science leading theory of The Quiet Eye (TQE)[207]. TAE explains that every Motoric Movement Action encompasses a complex process and only can be executed by the strict cooperation of two *autonomous* (!) complex (sub-)systems: 1. The movement action (MA) and 2. The motoric movement (MM). In a formula: MMA = MM x (MA). Both subsystems require specific perception processes which must be executed simultaneously. Hence the attention/focus of the movement action (MA) and the attention/focus of the motoric movement (MM) must be combined to one complex focus image during the execution of one action.

[207] Within addendum 1 of *Caught In A Line* the whole dichotomy between TAE and TQE is explained.

So within the formula of the Motoric Movement Action you are able to distinguish three essential components:

d. *The movement action (MA)* - The perception processes within the movement action (MA) must be observed out of the perspective of the ball. In essence only the (movement) action trajectory of the ball will fulfil the egocentric formulated task of this Motoric Movement Action. The action trajectory shape of a ball is called the ball trajectory shape. The crucial fact in the Movement Action (MA) is that you need to construct a perceptual image of a whole latent ball trajectory shape which you have to reduce to the beginning of that shape[208]. TAE defines that as the initial phase. In (*letting go*[209]) throwing tasks you are only able to influence the first beginning of a ball trajectory (with the exception of curling). You will have to put everything in that beginning in order that the end of the ball trajectory will emerge *automatically*. The primary focus must be pointed at this part because the ball actually fulfils the essence of the task within the movement action (MA).

e. *The motoric movement (MM)* - The perception processes within the motoric movement (MM) must be observed/perceived out of the perspective of the body of the player. With (motoric) movement trajectories of your body you execute the movement action (MA). The throwing technique encompasses several, *very awkward* (!), movement trajectories within your body which have no relationship whatsoever to the action trajectory within the movement action (MA). Within your body c.q. your *golf put* technique the focus must be reduced to (preferably) one biomechanical main action which is characteristic for your putting. The motoric movement (MM) follows the movement action (MA) and therefore the secondary focus must be pointed at this part.

f. *The transition point* - There is always one point in every Motoric Movement Action where the motoric movement (MM) and the movement action (MA) come together or where they literally transition. Within TAE that is called the transition point. The transition point within golf putting is the exact point *between* (!) 1. the outside of the putter-face which touches the ball and 2. the outside and backside of the ball which will be touched by the putter. TAE emphasizes this point extensively because within this exact point the biomechanical main action of the motoric movement (MM) has to focus on hitting the whole ball in its initial phase during the movement action (MA). During practice you will really need to learn/incorporate to distinguish those separate foci/attention points.

3. The motoric learning instruction of the movement action (MA) within the golf put

Within this part I will first appoint a basic exercise which will form the basis for every golf put during actual match play. This is a very simple exercise which even can be executed by absolute beginners. The task within the exercise encompasses the execution of a straight line. You will immediately recognize the specific shape of this ball trajectory. Too us it is the most familiar form of a shape which we try to approach in most daily tasks as much as possible. The straight line shape is very easy to execute because for example it doesn't require specific knowledge in regard to occurring inflexion points. For the basic exercise you require a very flat surface (*living room*), a piece of chalk, a rope, a ball and a putter.

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[208] In Motoric Movement Actions the action trajectory shape rarely becomes visible. However in the Motoric Movement Actions *writing*, *pouring* and *nerve spiral* the action trajectory shape becomes visible.

[209] All motoric actions can be divided in catching or throwing actions. All catching actions require timing as we define it classically but also the throwing actions require timing as well. Within he explanatory model that is defined as *self-paced* timing. All actions which we produce ourselves can all be regarded as throwing actions. They all can be classified within just three groups. 1. (*Hold on*) throwing actions with the whole body (walking, biking etc.), (*hold on*) motoric actions with a part of the body (for example grabbing or grasping) or (motoric) movement object (for example spoon or needle) and 3. (*letting go*) throwing actions (for example free throw or golf put) in which you actually let the (movement) action object (MA) go.

Within the movement action (MA) you will have to learn to observe/perceive all actions/processes out of the perspective of the ball. The aiming is the central issue in here. The final part of the ball trajectory shape must have its end in the hole/target. The specific length (y-axis) of the ball trajectory shape will be discussed within the upcoming explanation of the motoric movement (MM). At this moment it is not important if the length is exactly right. Now it is important that the ball deviates as little as much in the width (x-axis) of the ideal ball trajectory shape. I will now appoint all processes which you will always have to repeat from now on and will have to practice even if you become a pro player. In that way a set routine will grow and your body will implicitly learn to experience this part out of the perspective of the ball. A motoric learning progression will now be outlined to you with the use of *illegal* resources.

a. Appoint a target at a considerable distance (>8-10 meter). Connect the rope between the tee and this goal (*leg of a table*) while you remain at the tee. With the chalk you mark an initial phase (± 0,5 -1 meter) between the tee and the target parallel and close to the rope. The beginning of that chalk line segment shape must touch the tee/ball.
b. Now put away chalk and rope and take a crouching/kneeling (or lower) position behind the ball and try to bring back the latent image of the whole ball trajectory to the chalk line, the initial phase, out of the perspective of the ball. More and more try to observe the ball as the starting point of which a line segment shape origins. Within your perception processes a set relation needs to be developed between the ball at the tee and the initial phase of the ball trajectory shape.

Images: During the movement action (MA) you will definitely have to experience the perspective out of the ball in a physical way.

c. If you are actually going to execute golf puts you need to translate the obtained perceptual image of the initial phase of the *latent* ball trajectory shape to your current standing position. The primary focus must be pointed at hitting the *whole* (!) ball in the initial phase of the ball trajectory shape. You don't have to focus on the technique yet but in your preparation of the putting as part of the movement action (MA) it is desirable that you already focus on the transition point. The secondary focus must be pointed at the exact spot where the outside of the putter-*face* will touch the outside and backside of the ball. Mere mortals are not capable to perceive two simultaneous needed foci completely separate from each other. Therefor you need to combine the two foci to one *complex* focus image. You will have to practice this extensively.
With this focus image you will have to occupy your *standing* hitting position. Right before actually executing the golf put you are, even a few times, allowed to again visualize all processes as well as you are able to again check the initial phase. However if you are actually going to execute the golf put you are pertinently not allowed anymore to look at the goal[210]. Just before executing you need to pull up an imaginary screen which only secures sight on the ball and the initial phase of the ball trajectory. During the execution you only will have to be occupied with hitting the ball into the beginning of the perceptual image of the whole *successful* latent ball trajectory shape. The

[210] The explanatory model describes three parts wihin the movement action (MA). The last two parts are respectively the tactical movement action (MA) and the actual movement action (MA). The novum within there is that first the TMA needs to be finalized completely before the AMA can be executed. Looking at the goal and determining the latent ball trajectory shape belongs to the TMA and the execution of the initial phase belongs to the ATA and as autonomous complex subsystems they shouldn't have any overlaps.

ball trajectory arises out of the actual spot of the ball at the place where you are standing and nowhere else!
To *pull up an imaginary screen* is a difficult task within short golf puts in which the hole isn't hardly able to escape your (peripheral) vision. However with practice it is possible to visually block the hole. By actively guiding your attention to the two involved foci you will in the end easily be able to suppress the urge to perceive the hole with any kind of vision.
So the weird thing within this phase encompasses the fact that you first will have to *tactically* (!) check certain components within the action with direct vision one moment and then a brief moment later any vision on the same components could be detrimental during the *actual execution* (!) of the hitting task[211].

These are all the perception processes which need to be executed during the movement action (MA). Of course chalk and rope are forbidden during match play. If you are able to execute this exercise well then it is wise to first get rid of the rope. Now try to establish an initial phase out of the perspective of the ball without the rope. Think again about crouching/kneeling (or taking a lower position) or by positioning your putter in front of the ball. If you maintain to use the chalk to draw an initial phase you are able to check it with the rope. If significant deviations occur between the drawn initial phase and the initial phase of the rope then you will really have to practice this part. If you master all the aforementioned exercises then you are able to also get rid of the chalk. Then you will have to execute all the appointed processes but then you have to create an initial phase with the help of *markers* on the floor/surface.

4. <u>The motoric learning instruction of the motoric movement (MM) within the golf put</u>

Within the motoric movement (MM) you will have to learn to observe all actions/processes out of the perspective of *your* technique and out of *your* body. With or without a coach you are capable to improve your putting technique but if you are actually going to execute golf puts you need to fully accept your current technique. That is why it is best to work on technique in off season periods. This technique development process requires a strict framework because it needs to be fully stopped at a definite point. You will have to send home a coach who will provide small technical adjustments all the time. He needs to save that for the next *technique period*. When a technique period is closed a coach is only allowed to assess the game situation out of *your* current technique and out of *your* current perception processes. Within the motoric movement (MM) the exact shape of the ball trajectory is the central issue and not the direction of that shape or with other words the motoric movement (MM) in regard to the length of the ball trajectory shape is the central issue within that shape. A ball trajectory shape which exactly ends straight over the hole is allowed to contain a little more energy but for safety play reasons you are not allowed to exaggerate this.
In general a golfer needs to develop a base with a lot of abstract knowledge (cognitive basis) which must serve as a blueprint during actual match play. I will come back to that subject when I appoint flow. Within the motoric movement (MM) an elite player must be able to translate all *green* distances under all kind of conditions from any random tee to any random hole to a certain reference feeling and a certain reference ball trajectory shape because it is impossible to practice all occurring shots within actual match play.

You will have to pay attention to two aspects within the motoric movement (MM):
a. First of all you need to appoint how *your* putting technique is functioning. Mainly you yourself will have to appoint which part of the stroke determines the main action (f.e. the shoulder, hands

[211] The explanatory model also ends the open versus closed skill dichotomy. It expresses that within every Motoric Movement Action a Movement Action (MA) occurs that hosts three universal elements. The cognitive basis, the tactical movement action (MA) and the actual movement action (MA). Out of a general cognitive base the tactical movement action (MA) needs to come forward with only one action trajectory shape within a specific motoric action. Once the tactical movement action (MA) has been fully completed the actual movement action (MA) just will start to execute that one action trajectory shape.

etc.). If it provides a safe and repeatable stroke and you feel fine with it then you will have to address the motoric movement (MM) out of this *biomechanical main action* towards the transition point. In here it is also important to notice if you hit the ball just by feeling or if you use a more mechanical method. Some players within this last category for example just focus on the amplitude of the putter.

b. When the biomechanical main action is appointed you need to link it to a set feeling. Therefor you need to develop reference images which will have to embed this feeling within narrow borders. If you are going to practice this part then you have to do that at a set location with a flat surface under equal (weather) conditions (indoors) in which you will have to demarcate clear distances. You, but especially your body, need to learn to incorporate which feeling (*perceptual* feeling) belongs to a set distance. In the beginning you need the work in a gross way with only a few set distances. You need to pick just three or four distances which really differ in length. For example 1, 5, 10 and 20 meters. The refining process will happen later on. First allow the body to clearly classify the differences in feeling in a gross motoric way. Only if you reach real good consistency within the execution of these distances you are allowed to add a few other reference distances. Work in a dosed way. Enable your body to *clearly* store the differences[212].

5. The motoric learning instruction of the whole Motoric Movement Action *golf put*

If you are going to practice the whole Motoric Movement Action *golf put* then of course you need to apply all (!) the aforementioned processes as one whole action. The primary focus must be pointed at the hitting of the *whole* ball in the ball trajectory shape. During that task the secondary focus must be pointed at the *transition point* out of the biomechanical main action of the motoric movement (MM). You will have to practice this extensively in order to develop a set routine because the golf put requires a lot of parallel perception processes at the same moment. While practicing you need to discover your weak spots within the routine and pay attention to them.
Although you are able to extensively practice all the processes that doesn't take away the fact that in real match play you will still have to execute a lot of processes simultaneously. Even a well-practiced routine is no guarantee for success. So within a match it is always a possibility to consider to execute a few (± 3) practice golf puts at just a small distance from the actual position of the ball. You need to execute this just before the actual execution and this is exactly what you are able to witness within the routine of pro golfers. During these practice strokes you are able to briefly review all the perception processes involved.

6. The execution of the whole Motoric Movement Action *golf put* at any random green

The difference between the basic exercise and real match play is situated in the fact that the green never encompasses a flat surface and besides that the grass, weather conditions etc. are always different. The technique within the golf put is not the limiting factor. Even an absolute beginner will be able to hit a golf ball over 25 meters. This forms a big contrast with the first drives which requires a well-developed hitting technique.
The main limiting factor at every possible green is the shaping of the correct latent action trajectory. You will have to relate the *speed* of the green, which within the motoric movement (MM) has a definite relationship with the length of the ball trajectory shape, to your abstract practiced cognitive reference basis. If the green is a factor slower or faster than that cognitive basis you will have to adjust your stored feeling with the same factor.
In the same way you will have to learn *to read* all the slopes of the green. The reading of a green has a direct relationship with the movement action (MA), the direction of the ball trajectory shape.

[212] Training the complex focus image within the movement action (MA) will take a reasonable amount of time. The development of reference ball trajectories within the motoric movement (MM) will even double or triple that time. An elite player will always have to practice during his training periods.


Image: Learning to read the green is the most limiting factor in golf putting. For *flow* you need to be able to construct a whole successful latent ball trajectory shape from any random position on the green and to be able to reduce that whole shape to the right initial phase.

You will really have to practice to perceive the correct ball trajectory between the tee and the hole more and more. A coach would be a great help within that process. The more abstract knowledge you store about successful ball trajectories the more you will be able to relate to this knowledge. The whole ball trajectory must be reduced to the correct corresponding initial phase. Within that task you need to gain experience in finding markers on the green which exactly display that initial phase.

7. Flow within the golf put

If you want to execute the golf put in flow then you must have practiced the variable circumstances extensively. You need to be able to read the majority of the occurring greens almost perfectly. That means that you need to be able to construct the correct successful ball trajectory shape from any random position at any random green. You must be able to fully execute the movement action (MA) out of the perspective of the ball and you need to have a lot of experience to reduce the ball trajectory to the right successful initial phase.
Besides that you need to have embedded the motoric movement (MM) in such a way that you are easily capable to relate the actual speed of the green to stored reference images. Within there you must be able to easily translate the speed of the green with a factor to stored reference actions. You must have automatized the whole execution of the Motoric Movement Action with the primary focus, the secondary focus and the transition point.

8. Conclusion

TAE fully describes the many perception processes and most likely provides the answer of what we already felt within the Motoric Movement Action *golf putting*. *Letting go* throwing tasks are difficult tasks because you are only able to create an initial phase which you can't adjust later on. So there is always a success rate and you only need and are capable of optimizing this rate.
Flow is also fully explained as well. It is explained in a different way than most mental methods do. Some of these methods even promise flow within one day. TAE promises flow after lots of hours of purposeful hard work and deep down in our hearts we knew that already. But still we are hoping that someday a magic pill appears with which we are able to create a shortcut to success.

9. Extra

- It is very educational to compare the previous information with this YouTube clip: https://www.youtube.com/watch?v=2J_0OE0btbw; *Pre-Shot Putting Routine - Let The Nike Pro's Tell You What To Do*. Discover the similarities and the differences.

- Another educational clip shows TW executing the complex focus image; https://www.youtube.com/watch?v=3kYNjoUqohc; *Tiger Woods - Definitive Putting Warmup Routine - Analysis by Notah Begay*;
- If you want more substantial information about for example the Motoric Movement Action *throwing*, focus, flow etc. then you could study "Watch The Ball Trajectory!". Within this tennis book all functional processes within the Motoric Movement Action *tennis* are completely explained. You could also study *Caught In A Line*. This is a more general book towards all motoric actions. Besides the book two addenda belonging to *Caught In A Line* are now available. Addendum 1 elaborates extensively on the TQE versus TAE dichotomy. Addendum 2 appoints the explanatory model of the Motoric Movement Action towards all recognized phenomena within the movement sciences. You are able to download all the documents for free at: https://watchtheballtrajectory.jouwweb.nl/.

Good luck.