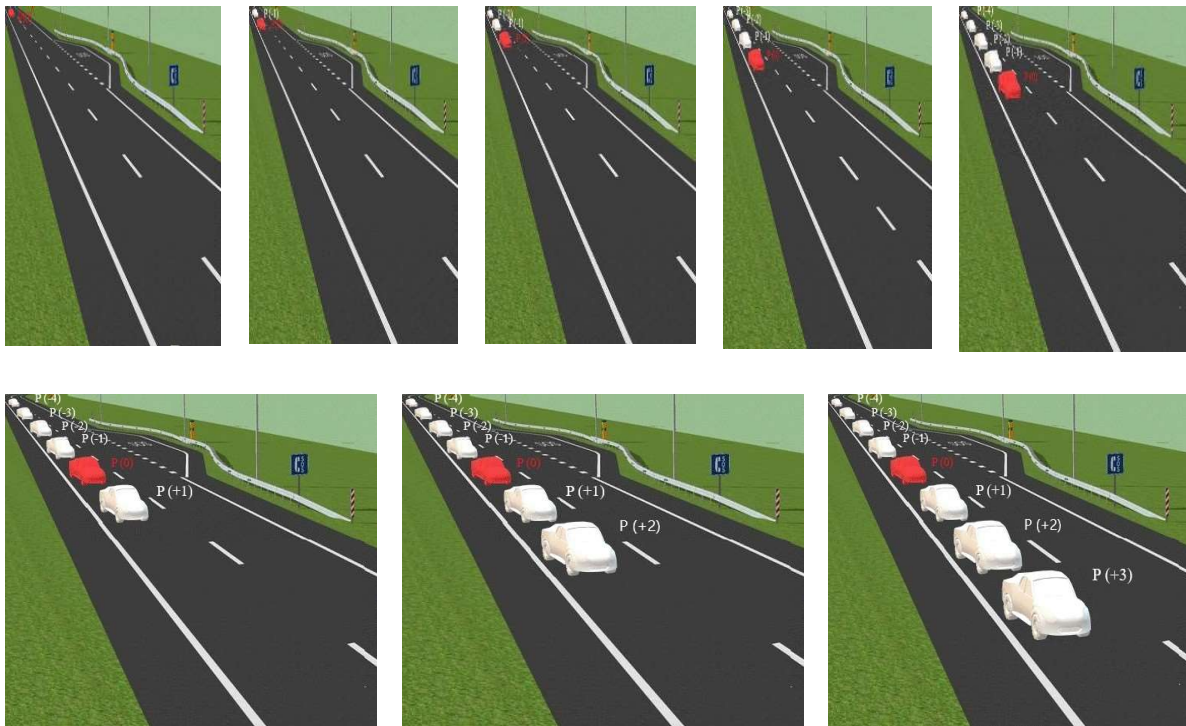


The behavioural perception processes within all traffic situations – The visual perception of an approaching car



Caught In A Line

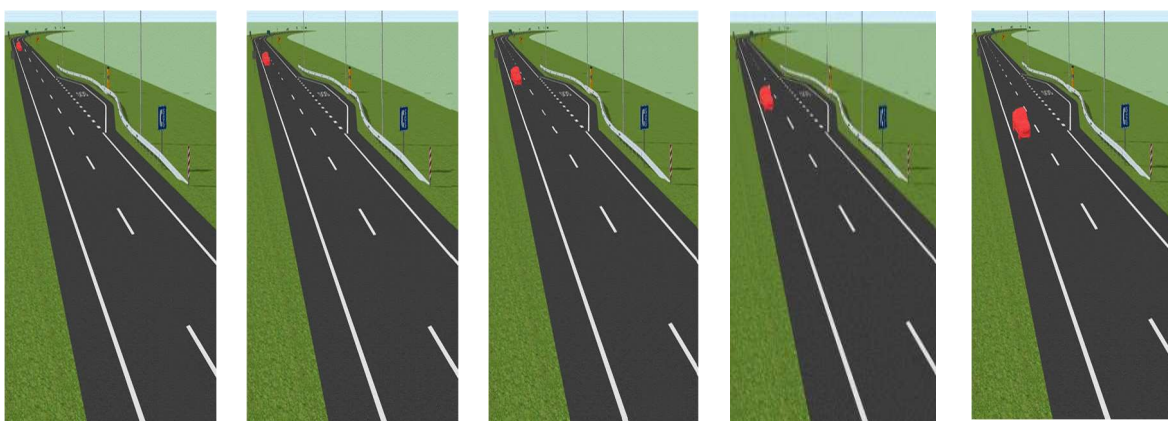
The explanatory model of all motoric movement actions

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Introduction

The explanatory model of all motoric movement actions encompasses the clarification of all motoric and perception processes at the functional c.q. the behavioural level. The model has been revealed medio 2016 but isn't understood yet. Due to the fact that the model comprises a complex system that is situated at a remote distance from current scientific mindsets. With a series of very short articles a new effort will be made to elucidate the most important principles of that complex system. This article will reveal the complete explanation of all factual perception processes in relationship to an approaching car. Moving c.q. approaching means of transportation are an essential part within all traffic situations and within science many errors, misconceptions and omissions persevere to exist in relationship to the involved perception processes. Besides this aspect the clarification of an approaching car will be held as an example for any imaginable motoric action because the explanatory model shows, with the strongest ecological argument¹, that any imaginable motoric action finds its origin within the perceiving of three foci which have the same universal objectives². The clarification of the perception processes in relationship to a car which approaches us³ solely encompasses the primary focus within each action which can be characterised as the catch action⁴.

The approaching car



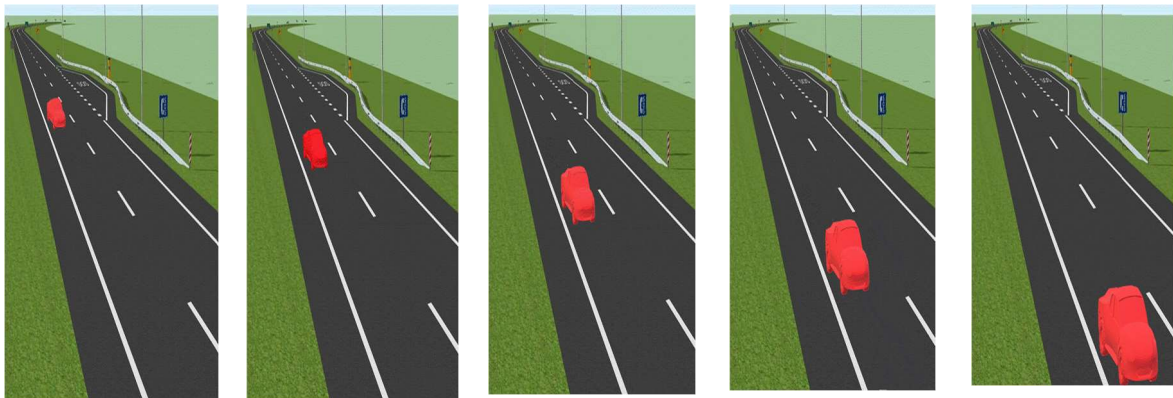
¹ This article shows for example that we are capable to construct a very gross perceptual image of the end of an approaching action trajectory shape very early in the process and that we only have to adjust this image to more and more precise each subsequent timeframe. Which fits perfectly in the most ecological definition in regard to the term *parsimony* (!). We solely will have to actually *not-catch* (!) or *not-hit* (!) at the end of the incoming action trajectory shape when an approaching car is involved. So in the beginning the perceptual image is allowed to be very vague as long as it compellingly provides *global* direction to future actions. So due to solely this aspect we are capable to act very quickly (f.e. crossing of the street) and do we only have to work c.q. have to perceive more precise at the end of an action.

² This ecological argument will be emphasized by in the same time publishing three essential motoric movement actions. Besides the approaching of a car the same principles are addressed within an incoming ball trajectory shape due to which all ball sports will be covered completely. Which will directly be followed by the explanation of the perception processes in relationship to an approaching hand/foot which unfolds exactly conform the aforementioned actions and which instantly reveals all perception processes in relationship to all combat sports. Combat sports which mostly resemble our origins of being.

³ The remarkable difference with for example catching balls is obviously that participants within traffic will have to construct intersection points between an approaching car and their own action trajectory shape but that this intersection point must be avoided at all cost. Which conversely is generally the case within ball sports. Although dodge ball forms the exception to that rule and bumper cars at a fair form the exception in regard to the *not-catching* principle within traffic situations. However it is most important to understand that the perception processes in relationship to the catching remain the same in all those examples. Solely the throwing of our own body will take care if we either catch or *not-catch* c.q. will deviate.

⁴ Any imaginable motoric action encompasses a touching process as a consequence of perception processes within 1. a catch action of an environmental object and 2. a throw action sprouting from the animal itself. The catching demands one focus and the throwing demands two foci which leads to the universal conclusion that the execution of any motoric action always compels three attentional foci.

Within this article the functional perception processes are revealed when a car is approaching us. It will factually show that the perception of the sole actual position of the car will solely get its context in relationship to perceptual images of all manifest and future latent positions P of the car.

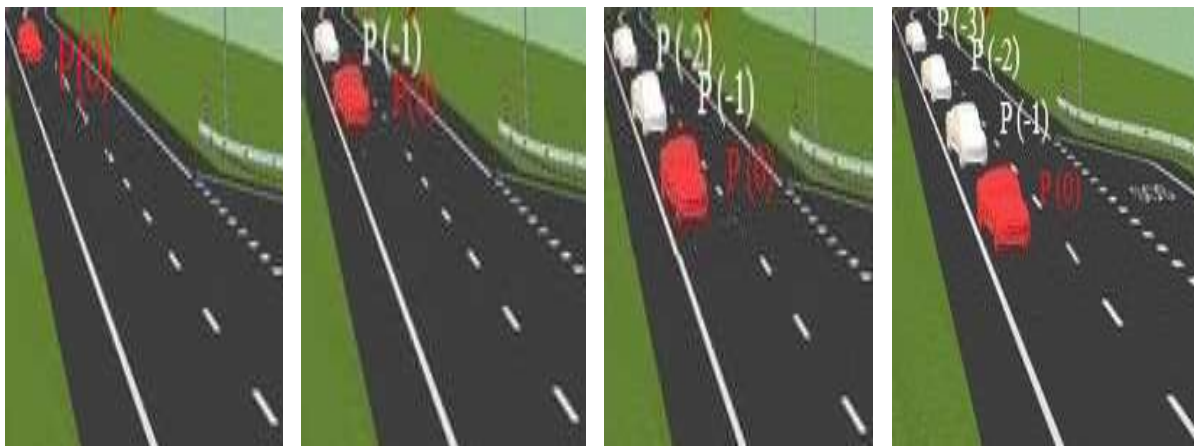


Images: Factually we only see an approaching car at the actual position $P(0)$.

With other words the unprecedented proof is provided that on the one hand a car factually takes the first position P within a perceptual image of the manifest *car* trajectory shape. This compels already a novum but an even far more revolutionary revelation encompasses on the other hand the fact that the car also needs to follow or will follow the perceptual image of the action trajectory shape of the still latent positions sprouting from the manifest part because we are factually capable to construct a perceptual image of that latent part.

Facts and factual consequences

Within the dimensions of our world it is a fact that every manifest or future latent position P of whatever environmental object will sprout c.q. arise out of each other⁵. So that will not be different when a car is involved and the beginning of an approaching car can therefore be displayed as follows.

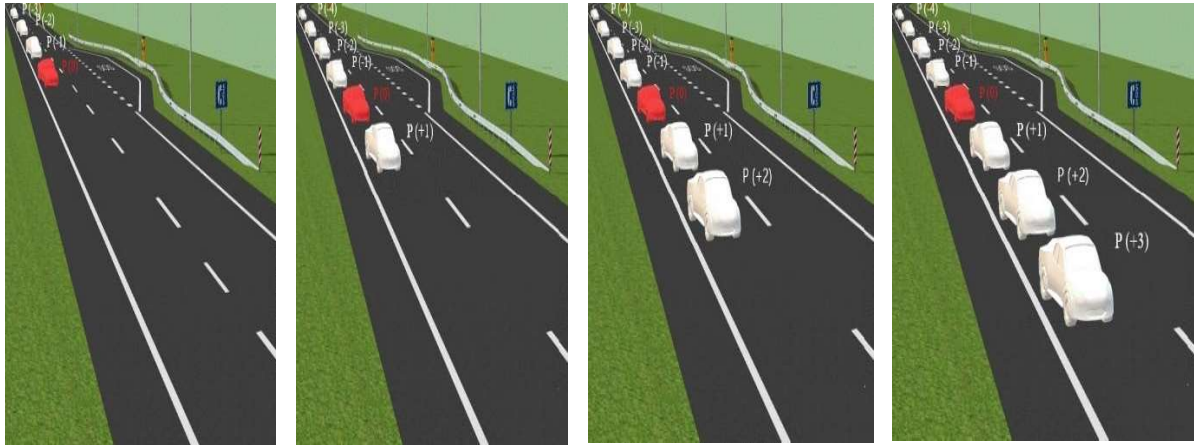


So factually we only see the car at the actual position $P(0)$ but conversely our perception processes did visually perceive the car at the manifest positions $P(-1, -2, -3, \text{etc.})$ and accordingly a perceptual image has factually been constructed of a line segment shape. Due to 1. that perceptual image of the manifest positions P of the car and 2. on basis of cognitive knowledge in relationship to ballistic

⁵ In relationship to you as a whole human being this factual principle is maintained from the day you were born till the day you leave the world. Each and every step you make will always be connected.

behaviour (inertia, deceleration, acceleration etc.) of a car we are factually capable to construct a perceptual image of the latent future positions P of the car.

We are capable to execute this by fictitious lengthening the manifest line segment shape because, as explained earlier, factually all manifest but also all future positions of an environmental object are obligatory connected c.q. will have to arise out of each other. Hence we are even capable to make *precise* statements about the *global* progression when a car⁶ is involved.



However a car can and will deviate randomly at any position $P(x)$ although the car is only capable to occupy very few limited future positions $P(+1)$ ⁷. Due to solely this reason we are capable to even make very secure predictions about the whole progression of all latent positions of this incoming car trajectory shape and that is based on the fact of cognitive knowledge concerning ballistic behaviour of the car. However in spite of the inevitable fact that the car will deviate from the perceptual image of the still latent positions P it is possible to construct a *precise global* perceptual image of the shape of all future latent positions P when a car is involved⁸ as opposed to many other environmental objects. Within which it is important that you will have to start to see that the term *line segment shape* encompasses two autonomous entities. The exact line can factually never be revealed beforehand because it depends on *future* (!) movements of an autonomous environmental object. Conversely we are capable or we can just try to make a precise prediction of the (future) shape (of the line) within which the car can and is going to deviate.

The perception-action coupling⁹

The next ten images also reveal right away the final explication in relationship to the perception-action dichotomy which still persists within science. You yourself are now capable to very plastically convince yourself that out of the manifest line segment shape a latent part arises perpetually and that the

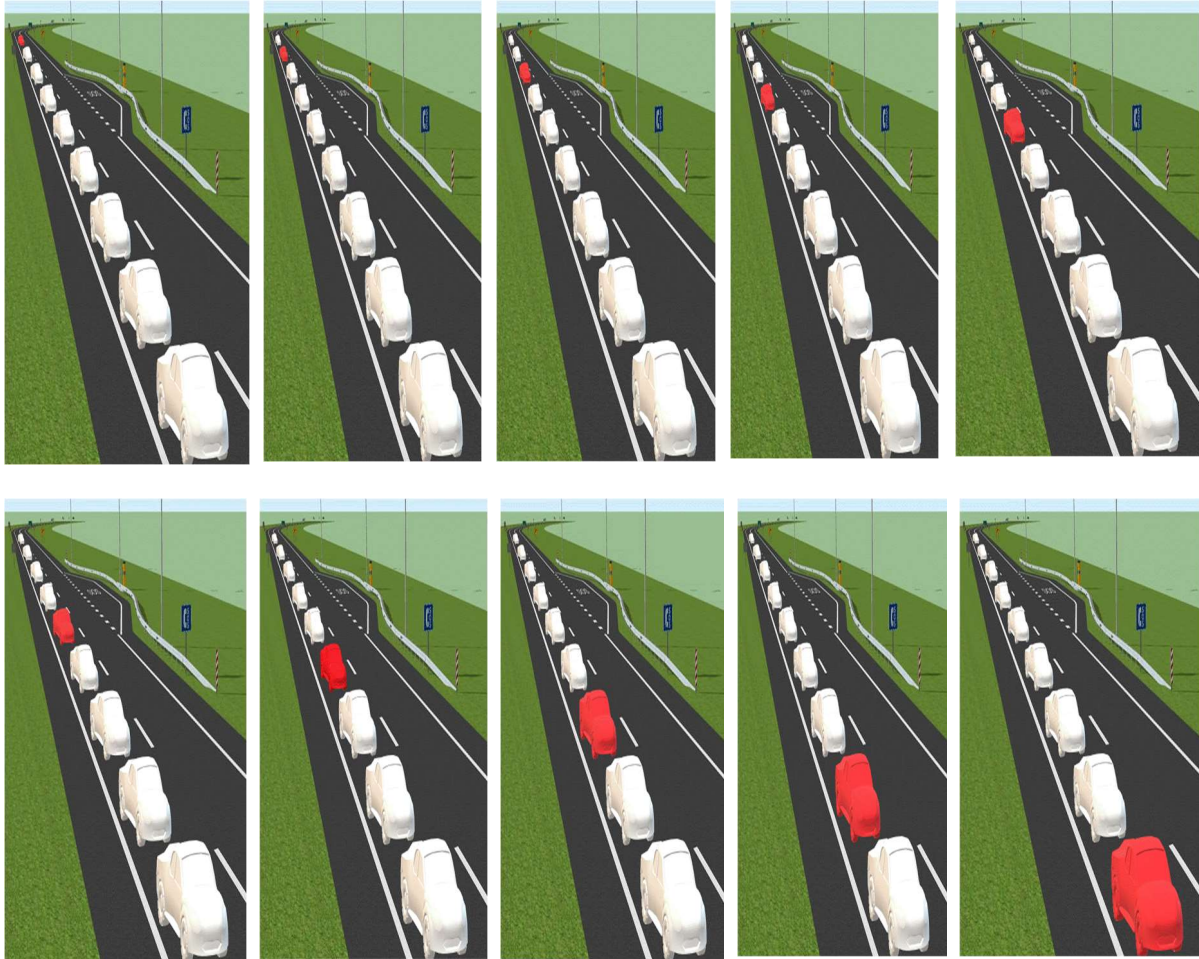
⁶ Conversely when an inflated balloon is set loose without being tied up also all positions P of the balloon will of course be connected but we will never be capable to make *precise global* predictions of the end of balloon trajectory shape during the initial phase. Due to the fact that the fluctuation borders of possible deviations are too broad. <https://www.youtube.com/watch?v=pLfKxIIIzG4&t=121s>

⁷ Besides the position $P(+1)$ also the positions $P^I(+1)$ and $P^{II}(+1)$ will be kept open within our visual perception and accordingly also the positions $P^I(+2)$, $P^{II}(+2)$, $P^{III}(+2)$ etc., positions $P^I(+3)$, $P^{II}(+3)$, $P^{III}(+3)$ etc., positions $P^I(+4)$, $P^{II}(+4)$, $P^{III}(+4)$ etc., etc. etc. will be able to arise.

⁸ The exact future positions of a tennis ball can never be predicted beforehand but that is definitely not required. Our perception processes are capable of doing their job as long as the fluctuation borders of the occurring deviations will remain between certain values. Ergo as long as we are capable to construct a perceptual image of the shape of the action trajectory then we are capable to cope c.q. then we will be able to process the inevitable deviations which will maintain to happen till the end of the action. The processing processes are executed by the cortical streams. N.J. Mol (2020) - [\(PDF\) The cortical streams mediate the grasping of a coffee cup in the exact same way as they mediate the execution of the nerve spiral \(researchgate.net\)](#)

⁹ [\(PDF\) The perception-action coupling is an implicit fact sprouting from the way our perception processes observe each past and future actual \(!\) timeframe \(researchgate.net\)](#)

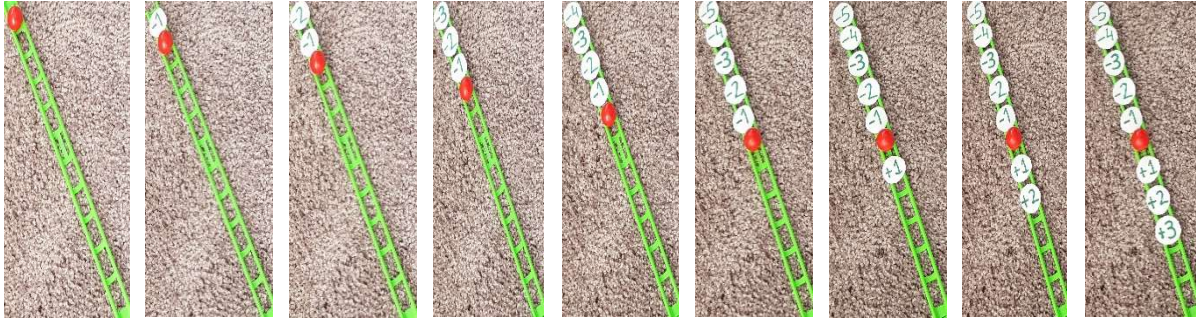
actual position c.q. the perception of the actual position of the car always marks the exact division. In that way the car becomes a part of a set marble run¹⁰ of which the shape will remain similar in a *precise global* way and within which the actual position of the car moves to the next adjacent latent position each ongoing time frame. Or to phrase it differently with each advancing position P of the car an extra perceptual image of a manifest place will be added and remains one latent position less. The perception-action coupling reveals within there crystal clear that a car actually occupies the first position of the manifest action trajectory shape but also that the car will have to follow or will follow the perceptual image of the still latent positions of the action trajectory shape.



Images: The perception-action coupling is plastically shown within those ten images.

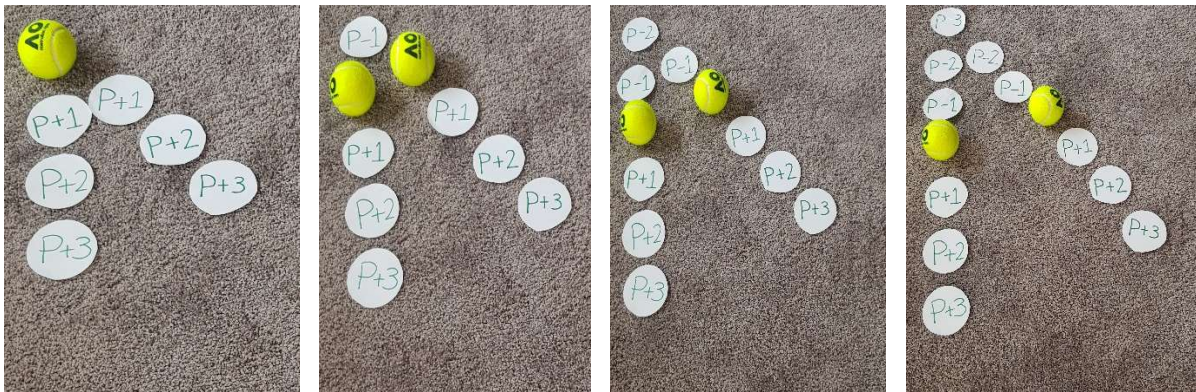
So beforehand we will never be capable to predict the exact line segment shape of the approaching car. However if we were only capable to perceive a position of a car if it actually occupies that space then we would never be able to plan future actions and would it neigh be impossible to (prematurely) anticipate to any traffic situation. That is obviously not the case. In spite of the fact that each approaching car will definitely create a unique trajectory shape and therefor each time anew will have to be perceived factually within an optimization process we are capable to *preliminary* (!) distill very essential aspects from the shape of the incoming line segment shape. Additionally two of those very important factual features belonging to the shape will be further assessed. They are of crucial importance when we participate within traffic.

¹⁰ The marble-marble run relationship is assessed in many articles. F.e.: [\(PDF\) Not 1, not 2, but 3 attentional foci need to be simultaneously present within the execution of any successful motoric action – The behavioural c.q. functional perception processes within the grasping of a coffee cup. \(researchgate.net\)](#) and [\(PDF\) The perception-action coupling theory - The Functioning Of The Dorsal And Ventral Stream Within The Marble-Marble Run Relationship \(researchgate.net\)](#).



The direction of the car

The direction of the action trajectory shape already becomes obvious just after a few initial positions P (the initial phase) of any environmental object. The direction is a crucial feature within the shape of the line and is unveiled when just a few positions P become manifest.



The images of the ball clearly show that Roger Federer is already capable to construct a *precise global* perceptual image in regard to the direction of the incoming ball trajectory shape just after three manifest positions P of a tennis ball c.q. in a very early phase¹¹. and accordingly this provides the final explication which perception processes are involved within that task.

The road within all previous images already seems to provide a final answer in regard to the direction of the car. It seemingly indicates that the direction is not relevant in here. That is a big misunderstanding. The specified road with two lanes constitutes a part of our cognitive knowledge which encompasses that a car driver will most often follow this mandatory path. Conversely the direction is solely perceived during the initial phase of the car and that is very important in the current traffic situation to for example discover if the car is approaching you or is moving away from you on the wrong side of the road.



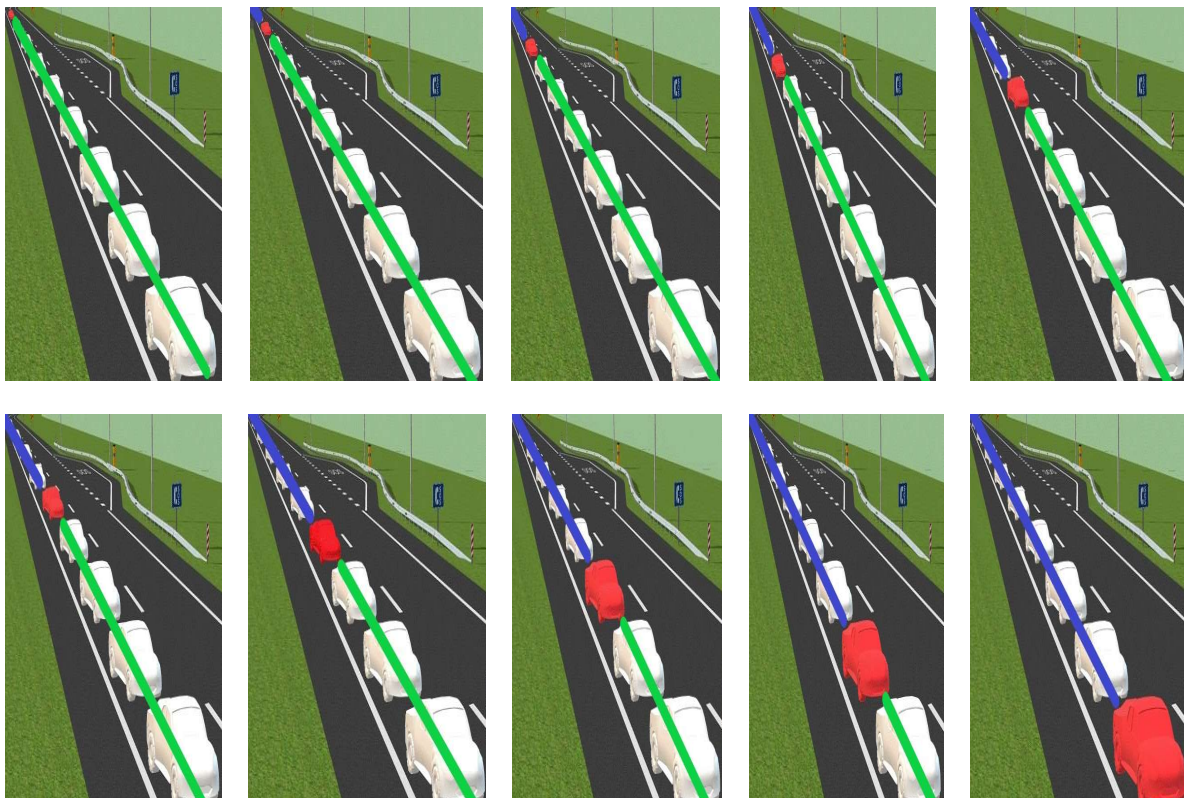
¹¹ Solely on ground of this information Roger Federer decides whether he sprints to the backhand- or the forehand side because only then an actual intersection point of the incoming ball trajectory shape and the line segment shape of the racket head can be realised.

Images: Although lanes most often provide the maximal fluctuation borders of the direction of an action trajectory shape a traffic participant isn't capable to rely on this information 100% of the time.

The *tau*-value c.q. the speed of the car

The speed or the *tau*-value becomes also apparent very soon after just a few initial positions P (the initial phase) of the car and if we add this fact to existing cognitive knowledge in relationship to relevant ballistic behaviour then we are also capable to make a *precise global* estimation of the moment when the car will arrive at the end of its action trajectory shape. If you perceive how fast a car fills the first part of an action trajectory you have developed a sound grip on how the car will fill the remaining latent part. The perceiving of the car actually reaching the end of the incoming action trajectory shape is enormously important if we for example want to cross the road at the end of that line segment shape. So in spite of the fact that a lot can be distilled from the initial phase we therefor need to perceive the progression of the car till the final end of the incoming action trajectory shape. A Ferrari is for example capable to accelerate exceptionally. The perception of the movement within the initial phase is only capable to provide huge guidance but will never be sufficient in itself.

We perceive the *tau*-value of an approaching car in two distinct ways. The first type encompasses the perception of how the manifest car trajectory shape fills the *whole* (!) action trajectory shape. The next images clearly show this phenomenon in which the blue line fills the green trajectory. This mainly compels the perception of the manifest part and emphasizes the addition of an extra manifest position of the car each consecutive timeframe.



Conversely the second type is occupied with the perception of the latent positions P. Within here we mainly perceive how the latent part of the car trajectory shape *disappears* (!). Within the next images the green line disappears each added timeframe. D.N. Lee called this the disappearing of the *gap*¹² and it is very obvious that this gap and the according *tau*-value finally dissolves c.q. becomes zero.

¹² For an extensive assessment of the gap within the long jump see: [The tau-value within the long jump is the same as the tau-value within the grasping of a coffee cup - YouTube.](#)

