

## **Choice of tempo in fencing, by Giancarlo Toran. (Jan. 7, 2009)**

I'd like to offer this article to the reader of Schermaonline. This article on tempo is directly linked to the one on measure, and the other about where and how to look while fencing. I am of course ready to discuss with the readers any aspects of this articles that may generate discussion or controversy. Giancarlo Toran

### **Choice of Tempo in Fencing**

Traditionally, the most important factors determining the success of a fencing action are three: tempo, speed and measure. In reality, these are inseparable; but for the sake of making analysis easier, we usually look at them separately.

By tempo we mean choice of tempo--and on this subject, let's answer three questions:

- 1 - What it is
- 2 - How it is measured
- 3 - How to train for it

Choice of tempo hinges of the existence of a rhythm, which in our case comes from the particular fencing action and sequence of motions. In other words, we are trying to intervene with an motion (i.e. with another fencing action) in a precise point of space and time within the action of the opponent. The margin of error for the success of the action is only a few centimeters and a few thousandths of a second.

Our attempt will only be successful if we recognize the sequence as something we have seen before--i.e. if we recognize it in the right tempo as it begins and if we are in the right measure to act.

To be put into effect, every fencing action requires covering a certain distance, which implies a series of coordinated motions that are somehow distinct and classifiable. Towards this goal, we can examine the motions of the legs and of the sword-arm--which need to be synchronized (and can be in various ways).

An advancing step is composed of two motions: the first is the advancing of the front foot, the second that of the back foot. If we add the lunge, the motions become three.

A double feint (e.g. feint direct, feint by disengagement and disengagement) includes three motions of the weapon: first, feint direct; second, feint by disengagement at the time of the opponent's attempted parry; third, as the opponent attempts the second parry, the disengagement ending with the hit.

Therefore, the three movements of the arm are coordinated with the three of the legs--and in fencing parlance come to bear the name of tempi.

When the motions of the arm are two--as would be the case with a beat and straight thrust--they

can be coordinated in various ways with the motions of the legs: beat while advancing the front foot or the rear foot, understanding of course that the thrust coincides most often with the lunge.

The same criteria can be used to learn how to coordinate all other fencing actions--like parries, ripostes, countertimes, etc., with advancing and retreating steps, hops, fleches or with the feet stationary.

In reality, though, things are not as simple. Every fencer can personalize this type of coordination and the length of each tempo constituting the action, so as to make it harder for the opponent to get used to a specific rhythm, recognize it and synchronize his actions to it. In any case, however, choosing the tempo effectively requires predicting an exact sequence of actions. Let's therefore postulate that the coordination between the arm and the legs is preliminary to the even more important one between your motions and the opponent's.

The arbitrary division of motions into tempi serves a pedagogical purpose, which is the understanding of actions and counters. Therefore, saying that an action is executed in a specific tempo is only a useful approximation and nothing more. For instance, let's look at the disengagement starting from the opponent's engagement. When performed correctly, this is a one-tempo, one-motion action. Still, the disengagement entails an evading motion of the point, circling around the opponent's hand (which is not at all that simple from a muscular standpoint, vis a vis the subtlety of the motion) before the swift extension of the sword arm terminating in the thrust. The tempo of execution of the whole motion is less than the reaction time, which is itself in the order of two tenths of second. If the movement comes unforeseen and it is not telegraphed, the thrust will hit before the opponent can react.

Traditional fencing theory specifies that actions can be executed either according to one's own choice of tempo, or in tempo. The former means that the fencer performing the action makes the decision of when to start it, independently from the opponent's movements. The latter, that the fencer acts as the opponent makes a change. These definitions fit the environment of the salle and the lesson, but fall short for the analysis of the assault. In the lesson, it is useful to try actions against a stationary opponent who waits for the beginning of the action in order to react; for instance, he will be waiting for a straight thrust in order to parry. The attacker executes this action according to his own choice of tempo, while the opponent reacts after seeing it. In the actions we call "in tempo," conversely, the offensive action begins from the opponent's change--for instance, from one invitation to another, or from blade-in-line to an invitation, etc. A lesson or exercises entail reacting to a stimulus, with the difference that in these cases it is the opponent to introduce it.

Choosing a tempo, however, means acting within much narrower margin than those allowed by reaction time. As an example, let's look at the double hit, which is possible only if the strike comes (at the latest) within a fourth of the simple reaction time. Fifty milliseconds against two hundred--or a half of a tenth-second. It seems impossible, but it isn't; actually, it can be executed even quicker. Let's demonstrate this with an example that will also allow us to measure our choice of tempo.

Let's take a common digital chronograph capable of measuring milliseconds. Press the start

button, and watch the numbers rapidly changing. Hundredths of a second are too quick for the human eye, while tenths of a second are barely discernible. However, we can easily follow the seconds, and learn their rhythm. Now, let's imagine (without actually doing it) pressing the stop button on the chronograph every time the seconds change; let's get the rhythm. Then, when we feel ready, let's actually press the stop button to coincide with the changing number. This is a case when we have taken the tempo and intervened at the desired point within a sequence.

The chronograph has stopped, and now we can read the number corresponding to hundredths of a second. Let's write that number down and try the whole thing again several times; we'll notice that we will have stopped the chronograph sometimes before, sometimes after and (if we are particularly good or even lucky) sometimes even right on the second-change, i.e. with the hundredths on double zero--we got the hundredth of a second right!

Measured this way, choice of tempo reveals a fundamental difference from reaction time. With reaction time, in the best-case-scenario (i.e. time of simple reaction: one stimulus, one reaction) the reaction always follows the stimulus after approximately two tenths of a second; with choice of tempo, instead, stimulus and response happen pretty much at the same time. If an error is made in the case of choice of tempo, it will be very small--a matter of a few hundredths of a second. With a chronograph, this will be mostly due to the motion required for pressing the stop button. In fencing, this is compounded by measure: choosing the tempo is not the only factor. You need to be right there, in the correct measure at that particular moment; and this is what's most difficult.

Before we move on to the specific fencing examples, I'd like to talk about some games revolving around choice of tempo; these are quite useful to make the athlete confident with a different way of thinking.

First, we need to create a rhythm, which can be done in many ways. We can use a simple rope, since we've all tried jumping with one; but if we are ourselves making it turn, then the issue becomes one of coordination, not tempo. This is why we need to make sure that the rhythm is generated from a different party.

So, in this first game the instructor will make the rope turn--one turn per second or thereabouts--towards the wall or another obstacle, and will ask the student to pass between the instructor and the obstacle without letting the rope touch him. The student can do so forward or backward, eyes open or shut, only by letting the noise of the rope guide him as it hits the floor or the wall. Then, the rope (or two ropes coordinated with a half-turn delay) can be made to turn between two people while the student must either pass between them or jump the rope(s). The variations are many. But the most useful part towards our goal is the entering. Once the student enters the rhythm, everything becomes much easier. This is why we need to get the student accustomed to recognizing it quickly and entering it. Remaining within the rhythm is a useful and fun exercise that will help refine concentration, but it's a wholly different thing.

In this manner we can witness the difficulties that a young athlete must overcome to execute his task; often, we'll see his head or body oscillate as he tries to synchronize himself with the movements he observes.

We can help him, analyzing the movement for him and letting him know when to start by means of a gentle push; he will understand, experiment and everything will become suddenly easier for him. With many, we'll also be able to observe a mistake in measure: while choosing the tempo correctly, they will start too far away from the revolving rope--perhaps in the attempt to stay safe from it and not be hit--but not considering the extra time required to travel that additional distance. With others yet, we'll observe a clear difficulty to "let themselves go," which corresponds to the ability to turn off the left side of the brain (too analytical and slow for this task) and leave it to the right side to start the motion. But this is a very important topic that we can leave for another article.

Let's now talk about the choice of tempo as it applies to fencing.

The first and most important link is with measure--the dynamic evaluation of the distance between two fencers as I have specified in a previous article.

Every fencing action, when planned in advance, must start from a distance that is pertinent to the action. Before competing through counters to see who has chosen the appropriate one, the two opponents must vie to find the appropriate distance for the action. In most cases, the distance that is useful for one fencer will be useful for the other, and presents itself in very short intervals of time (tenths of second); the problem is to find or obtain that distance when you're ready, best yet when you are ready and the opponent isn't. We can take this one step further and say that you need to be ready in advance, in the tempo when the favorable distance happens; the correct moment needs to be foreseen, or even better, provoked.

Both fencers control the measure, keeping themselves just out of the critical zone (see my article on measure), and trying to enter while breaking up the opponent's control; this can be done by varying the rhythm, by suddenly changing direction, by chasing the opponent to the end of the strip, by provoking or taking advantage of lapses in his attention. This play, which precedes the execution of the fencing action proper, makes it easy to see who has the initiative and who follows it--or worse, becomes a victim of it. The best and more intense matches are always those between opponents who both try to take the lead and own the initiative.

To explore this phase--which can actually last pretty long--we must also analyze the attention processes, their "cost" and the strategies the brain comes up with to save on these "costs." These factors can be very useful towards identifying and taking advantage of the opponent's own strategies. Here too, I can refer you to another article that is of great importance.

In general, every fencing action is composed of two phases, which are different depending on weapon and strategy. The first is a close-circuit, the second an open-circuit. The close-circuit takes place when it is possible to correct the action while performing it, thanks to the feedback coming from the action or from the opponent's reaction. Typical of the control phase, this close-circuit phase is necessarily slower. In fencing parlance, we call it action by sight, meaning (here and from here on) that this action by sight is longer than the other, which always concludes the action.

Open-circuit, instead, happens when the action is executed at maximum speed, without admitting corrections during its execution. Once started, this type of action continues until its end (a pre-programmed end), without being able to modify it.

For example, a feint-direct and disengage as a result to the opponent's invitation of third will elude a parry of fourth, but will be stopped by a counter-parry third--which, in turn, can be eluded by a deceive. Disengagement and deceive proceed in contrary motion. The speed of the parry, compared to the simple reaction time, precludes the possibility of deciding in the middle of the action whether to perform a disengagement or a deceive after seeing how the opponent reacts. What you do in this case is to decide beforehand, bet on your action and perform this open-circuit action.

Action by sight--close-circuit--are still common in foil. For instance, you can slowly but steadily advance with a half-bent arm and the point out of the line of offense, waiting for the wrong arrest from the opponent--or his seeking your blade--which are necessarily wide and visible motions. You can therefore react accordingly, ending your attack (i.e. performing the open-circuit phase) with a straight thrust or a disengagement. I'll preemptively counter the objection that, according to written rules, the right of way belongs to the opponent. True--but common practice, for many years, would award you the point. In saber, which is subject to the same rule, the application is different and more rigorous. But even in epee, which is free from this type of rule, this strategy is usable to get a double hit.

Anyway, back to the topic. The one attacking controls (phase by sight) and waits to find the necessary conditions to conclude the action (open-circuit phase). The one defending, or counterattacking, controls by waiting for that precise moment in which he can, as quickly as possible, recognize whether it's possible to initiate the closing action. Both have the problem of synchronizing their motions with the opponent's--in the case of the attacker, to elude a parry, to strike when the target is open or to perform an accurate action in countertime; in the case of the defender, to parry or to perform an action in time. The tempo to initiate and conclude this synchronization process is extremely short. In this phase, even the slightest advantage is vital. This advantage can be caused by a correct provocation.

The provocation consists in performing an action (a feint, invitation or action on the blade) that is the one expected and wanted by the opponent in the instant when the distance diminishes until the critical point--the distance, that is, from which it is no longer possible to see first and then react (control). You can only choose whether to unleash the action in open-circuit or to retreat, which is what generally happens when the provocation is not what you had expected.

Let's now demonstrate practically the temporal advantage given by the provocation.

Two fencers are facing each-other at the limit of the narrow measure (i.e. where you can reach the opponent's chest by extending the arm, no lunge), both in the invitation of third; now, here's the exercise. In the first case, fencer A, on his own choice of tempo, will decide when to strike B in the chest. B will try to parry. If A performs his action correctly, B won't be able to defend. In the second case, A will have to try to strike B when B gives him a signal--for instance by widening his invitation, by feinting an attack or even by lowering his point to the ground. If B

performs his motions quickly, he will be able to parry even though his weapon will have traveled a much longer distance.

Here's another exercise, which takes advantage of the modern saber-scoring machine, in which the tempo of the double hit (inhibition of the second hit's signal) is a little less than the tempo of simple reaction. Let's put two saberists one against the other, in the same measure as for the other exercise and also in an invitation of third. In his own choice of tempo, A will strike B in the chest as quickly as possible. B will react by striking A as soon as he realizes that A is attacking; but his hit will not be recorded by the machine. He is late, because he will have had to wait for the opponent's action before reacting. If, instead, B strikes A immediately after the invitation, he will make both buzzers go off--or he will parry in useful time.

And now, to the provocation--the last step to best use this advantage. We've already seen that in the control phase, you need to try to find both necessary conditions of measure and weapon-position. Let's skip the otherwise very important phase of the opponent's planning his action--which he will do during the control phase, and which depends in part on the past phases of the assault. Let's therefore suppose that the action to be executed has already been planned.

The play of measure consists in controlling and trying to nullify the opponent's control; and it causes frequent situations in which measure is closer, and very near the critical point. Most often, this happens without the two opposing fencers being ready to take advantage of it--when the opportunity presents itself and is recognized, it's already too late. The two tenths of a second are already gone. It's therefore impossible to react to this situation; we need to be ready beforehand, react in tempo as the tempo occurs--and this happens much more easily if you provoke the situation instead of just waiting for it. Here too, I'll refer you to my other article on measure.

To be successful and to be more than a mere fruit of chance, fencing actions call for a choice of tempo besides requiring the correct measure. We'll see in another article what are the technical aspects of this concept: actions in time, countertimes. Efficiently training the choice of tempo is only possible while applying it to specific actions.

Just like with measure, we are already genetically predisposed to "feel" tempo, and therefore to choose it. Most often, refining this feel means becoming conscious of all the factors precluding it--and eliminating them. One of the ways to do this is to analyze these factors, which lets our mind analyze them and try them one by one. Later, however, we need to let go of this burden.

Let me try a little far-fetched comparison. At one time or another, you will have seen a sommelier in action: a person who takes a sip of wine and describes it with a richness of terms previously unknown to you. He can do that because he has worked on it for a long time, and under the tutelage of an expert--learning various factors, how to recognize them and naming each one of them. He will have learned the nomenclature, and learned how to recognize harmony and disharmony.

We can't do that because we lack analysis--and the links with specific sensory experiences, i.e. the names of things.

Even the sommelier, however, once he has learned must forget about technique and concentrate on feeling--a feeling that will have become richer and that can be better expressed thanks to the work that has gone in. Fencing too, like every art form, is this way: a lot of work, a lot of study, which must sink deep so that they can be expressed in a natural and harmonious way.