

**CAUSOMETRY, LECHLECHA CHALLENGE AND COGNITIVE MODIFIABILITY:  
HOW TO BUILD A BRIDGE FROM PSYCHOLOGICAL PAST TO THE FUTURE<sup>1</sup>**

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Shalom, ladies and gentlemen:

My first co-authored article in 1973 was about Lev Vygotsky, his ideas of psychological tools and the mediated nature of the higher mental processes [Tkachenko & Kronik, 1973]. Since that time, in tandem with many other colleagues, I developed a few such tools and we have used and introduced a constructivist definition of human mind/psyche [Golovakha & Kronik, 1989], which is slightly edited today as *a mode of man's orientation in the world and man's regulation of his relations with the world, which is being constantly created and updated owing to high plasticity of man's nervous system*. Indeed, the idea of neuroplasticity is an essential element of this definition.

One of the psychological tools, developed by our group, was the psychological software program LifeLook® [Kronik, Pajitnov, & Levin, 1991/2013]. Within the next 20 minutes, I will give you a glimpse of the results of the utilization of this tool in psychotherapy. It will be only a glimpse of the decades-long study, research and applications. Let's start from the explanation of the very first word in the title of this presentation.

**Causometry** is the method for analyzing the personal image of time as an amalgamation of one's significant life events and various goals and causal relationships between the events, i.e., a multi-layer time composition of the memories of one's past, the experiences of one's present, and the expectations of one's future [Kronik & Akhmerov, 2003/2008]. The primary concept of the underlying theory is that the human experience of time depends on the way significant life events are perceived to be

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connected one to the other [Golovakha & Kronik, 1984/2008]. A causogram is a graphic representation of the events and their interconnections in a form of a digraph (directional graph). You can see an example of a causogram in Figure 1.

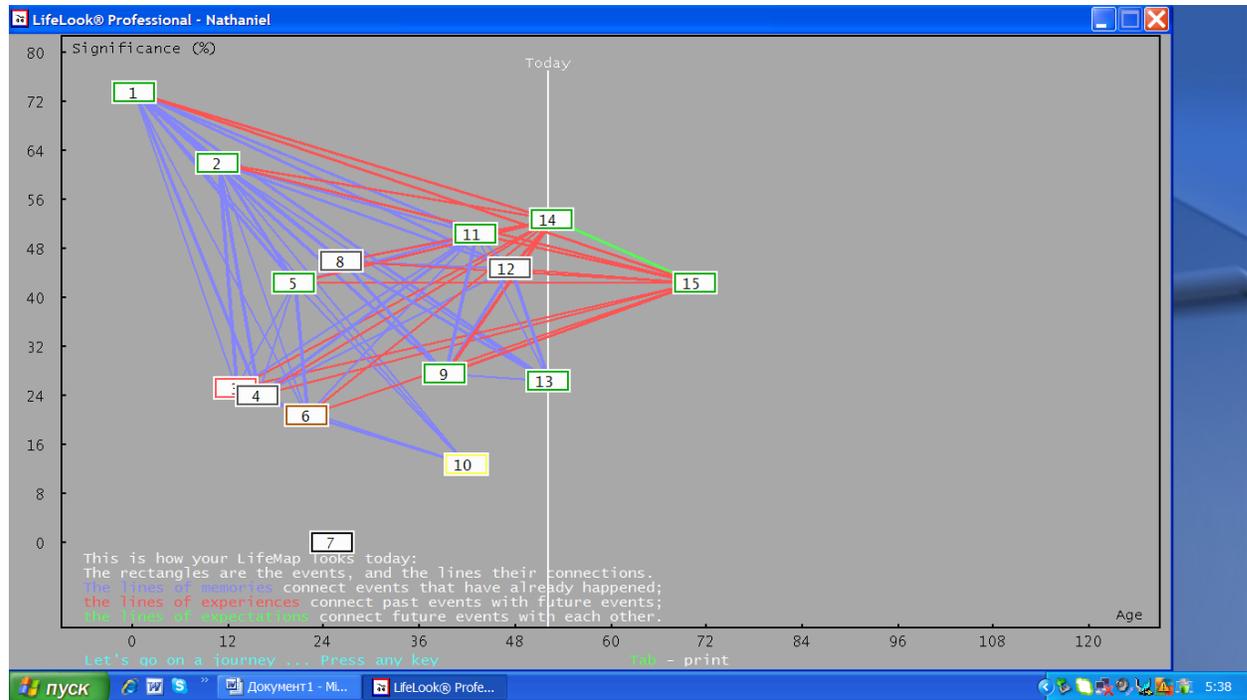


Figure 1. The first version of Nate’s causogram.

Fifteen small rectangles indicate fifteen events in the life of my coauthor, Nathaniel Orlowek, a devoted Jewish educator, who is in Israel now for his own challenge. Blue lines indicate Nate’s thoughts about motivational connections between his past events (realized connections), green line indicate connection between his possible future events (potential connection), and red lines connect past events with future events (actual or topical connections). This graph was only the first version of his causogram on January 17, 2011. Figure 2 shows the 11<sup>th</sup> version of his causogram more than two years later (May 13, 2013), after our several non-formal sessions using LifeLook® - a causometry software program. This tool was named by Nate “the causometry machine” and to continue: the causogram is like a GPS in one’s life journey.

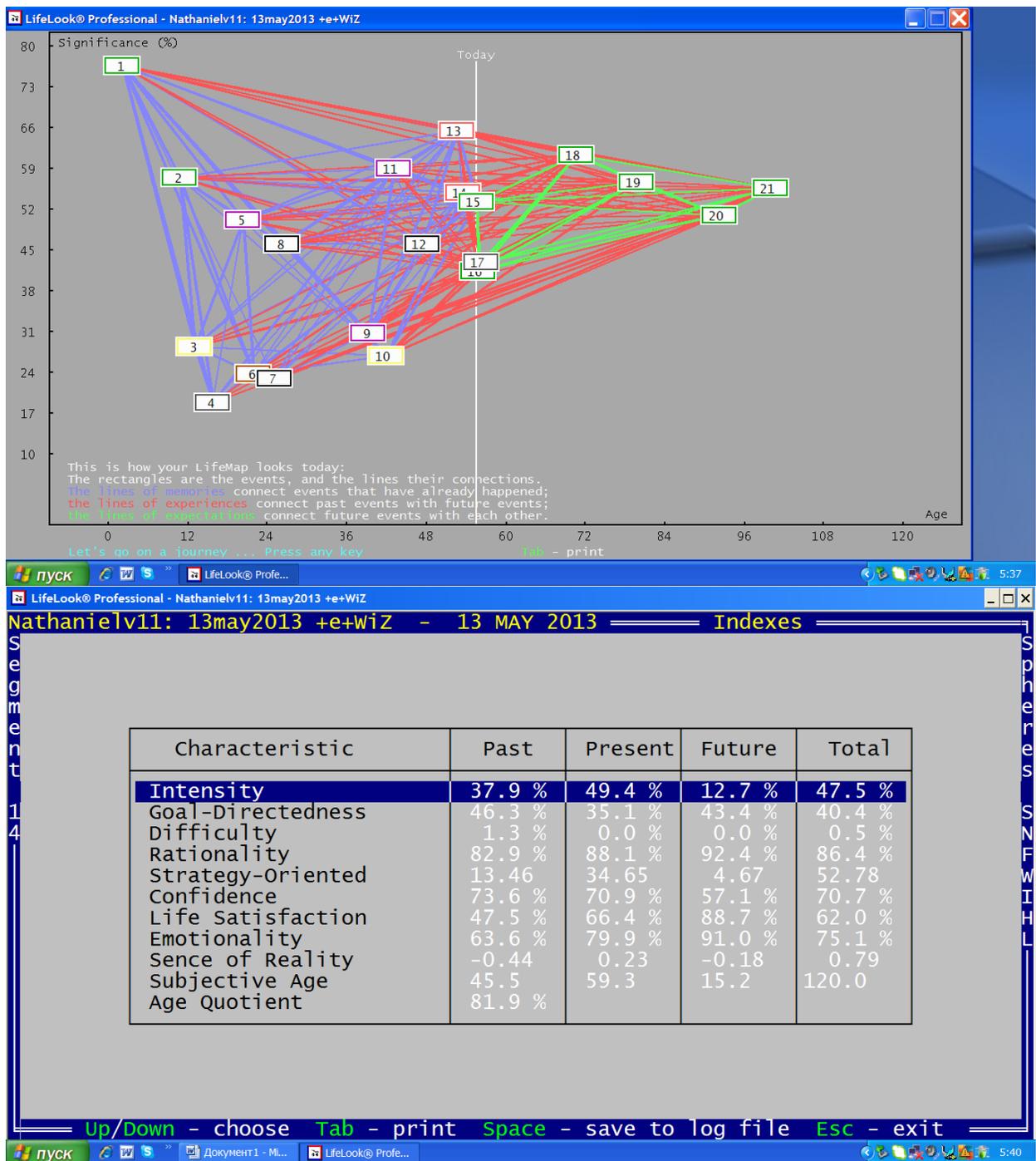


Figure 2. The eleventh version of Nate's causogram and related causometric indices.

Table below the revised causogram shows indices which indicate different features of the causogram or, more psychologically speaking, different cognitive-motivational structural characteristics of one's life vision. The first four indices are the *Motivational Intensity* of psychological past, present, future, and life as a whole. We will discuss them

later. Another index indicates a *Sense of Reality* and means the following: the more connections an event has, the higher its location on the causogram. The weighted sum of connections indicates the *Motivational Status* of the event, i.e., the real significance of this event in one's life. The hierarchy of all events by their motivational status may be more or less close to their hierarchy by subjective, direct, verbal, conscious ranking of importance of these events in one's life, and the correlation of these two hierarchies is the index of *Total Sense of Reality*. More indices could be discussed later. Now, let's go the second word in the title of this presentation.

**Lechlecha**, a classic call in the Torah, could be translated into modern English as *Go to your true self*. Most of today's clients, I think, come to psychotherapists' offices exactly in search of true self. At least, so it seems to have been in my American experience in 2001-2008 with 34 outpatients: 25 men and 9 women, ages 13-83. On average, 34 weekly individual sessions were conducted, including the LifeLook® program as a supplementary tool. Lechlecha or "search for true self" means a search for a unique life path, and the causometry machine LifeLook is a good tool for such a search in the process of *Metabolic Time-Oriented Computer-Assisted Psychotherapy* or M-TOCAP as abbreviated. By *metabolic* I mean so-called *psychic metabolism* – the constant change and renewal of our mind or our psyche or our nishama, depending of the language you prefer [Kronik, 2008].

This approach includes many therapeutic techniques: correcting the life schedule in those who feel that their lives will be cut short, training to replace pessimistic (darkening) thinking with a positive view of the future, awareness of "super" significant events in those individuals with feelings of emptiness about the present, acknowledging good experiences in the past as means toward claiming a fuller future, life-craft lessons, etc. [Kronik, Akhmerov, & Speckhard, 1999]. The above mentioned know-hows are, essentially, the techniques for a **cognitive modification** of one's life vision and it's why I am here with you today. As the result of some small revisions, new versions of causograms evolve with new updated psycho-biographical causometric indices on different stages of psychotherapy (see Table 1).

Table 1

*Cognitive-Motivational Modifications and Changes of Causometric Indices on Different Stages of Metabolic Time-Oriented Computer-Assisted Psychotherapy for 34 Outpatients, Ages 13-83*

Stages	<u>Modifications</u> <i>Indices</i>	Number of revisions of one's causogram
A	<u>Strengthen sense of reality</u> : from smart to wise <i>Sense of reality, 42 → 58**</i>	1
B	<u>Change temporal mode</u> : from past-focused to present-focused <i>Motivational intensity of present, 32 → 42*</i>	3
C	<u>Shift strategic thinking</u> : from short-term to long-term <i>Strategic thinking in present, 3 → 8**</i>	4
D	<u>Renew desire to plan</u> : from retire to restart <i>Goal-directedness in present, 20 → 36**</i>	5
E	<u>Grow rationally</u> : from Homo sapiens to Homo sapiens sapiens <i>Rationality in present, 68 → 78*</i>	7
F	<u>Soften view on past</u> : from rigid to flexible <i>Rigidity in view of past, 89 → 80*</i>	9
G	<u>Appreciate the past</u> : from distresses to lessons <i>Appreciation of past, 67 → 79*</i>	11

*Note.* Level of significance by Student's *t*-test: \*  $p < 0.05$ ; \*\*  $p < 0.01$ .

The stage A could be named *Insight & Strengthening Sense of Reality*. The index of *Sense of Reality* (correlation of motivational status with subjective importance of the events) is much higher in the second version of the causogram. In a few sessions, a person becomes wiser, more accurate in his or her assessment of life priorities, and in differentiation between more significant and less significant events.

The stage B is about the change of temporal mode from past-focused to present-focused. *Motivational Intensity of present* rises significantly, the previously mostly bluish

causogram becomes more reddish (with more actual connection), and the bridge between past and future is much wider now.

In the stage *C* this bridge becomes longer: new long-term perspectives evolve - with new expectations from one's future and new resources from one's past. As a result, the index of *Strategic thinking in present* is almost three times higher now.

The stage *D* is marked by a rise of the index of *Goal-Directedness in present*. So, the life on the bridge between past and future becomes more goal-oriented, less spontaneous.

The stage *E* is noticeable by the increase of the index of *Rationality in present*. Personal life plans are more grounded and the bridge of the present is more reliable. Now, the much wiser, more present-focused and more goal-oriented person is ready also for a new look into the past.

The stage *F* is marked by the decrease of *Rigidity in view of past* and the last, stage *G* - by the increase of the index of *Appreciation of past*. As a result, the psychological past is transformed from the perceived or real distress into the valuable lesson.

So, based on my clinical experience and research, **steps to build a bridge from psychological past to the future** require some cognitive-motivational modifications for the move from being smart to wise, from past-focused to present-focused, from short-term to long-term thinking, from Homo sapiens to Homo sapiens sapiens, from rigid to flexible, and from distresses to lessons.

It's time to discuss the hypothesis about connections of psychological time with left/right brain hemispheres. Research by other scientists [Bragina & Dobrokhotova, 1981; Moskvina & Moskvina, 2008] revealed that different hemispheres are responsible for processing information mostly about the already known past or mostly about the unknown future, although the data is not the same for the right-handers and left-handers. And which part of the brain is responsible for processing information about psychological present, about the "red", actual connections between past and future? The *corpus callosum*, I guess, is responsible for such a task of bridging psychological past and future together. Figure 3 illustrates the hypothesis.

Let me finish presentation by the story of my unfinished task. In 1990, an EEG research was initiated by me for a study of psychological time [Gavrilov & Kronik, 1991; Gavrilov, 1992]. This research started in Moscow, at the Institute of Psychology of the

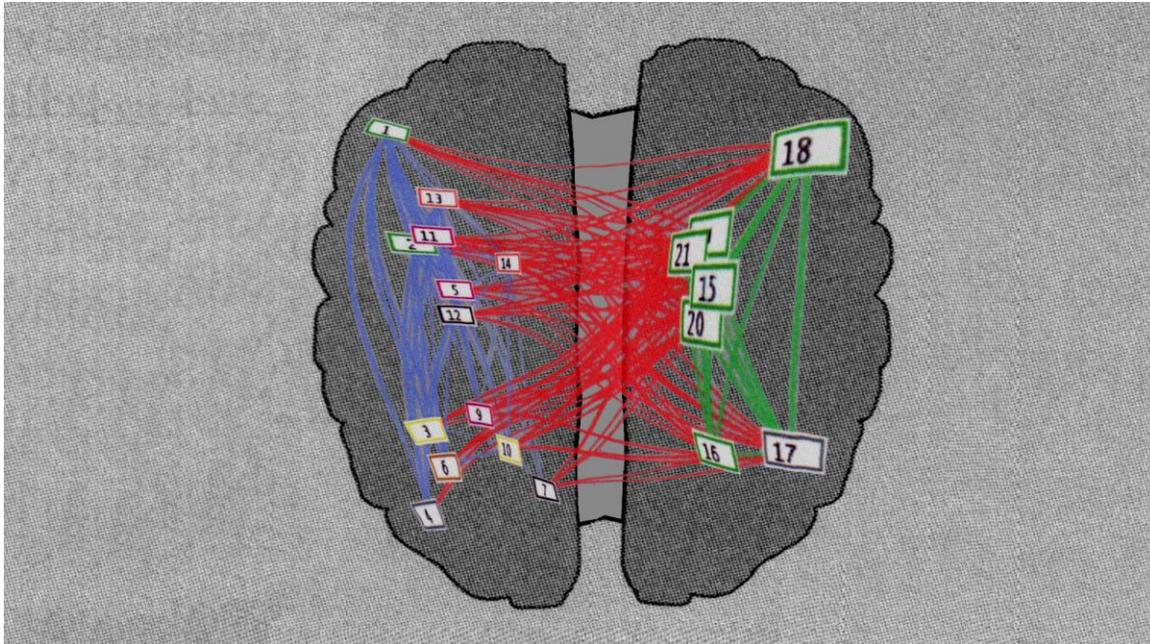


Figure 3. A hypothetical *causometric brain* with cognitive-motivational connections between life events in psychological past (blue lines), present (red), and future (green).

Russian Academy of Sciences, but for some reasons was interrupted. Only a few years ago, I learned that also in 1990, Milan Kundera, a well-known Czech writer, wrote in his novel, *Immortality*: “I long for an experiment that would examine, by means of electrodes attached to the human head, exactly how much of one’s life a person devotes to the present, how much to the memories, and how much to the future. This would let us know who a man really is in relation to his time. What human time really is.” [Kundera, 1991, pp. 332-333]. So far, many dreams still the dreams and I hope that our conference will renew many of our bridges from the past to the future.

Thank you for your attention. Todah rabah.

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