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Scientists at the Danish Headache Center at Rigshospitalet saw a hormone imbalance in 14 young men who took ibuprofen for two weeks similar to that of a 70-year-old. Ibuprofen knocks endocrine system out of balance

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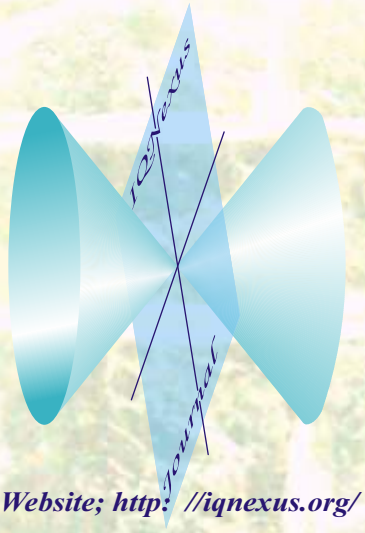
Feature articles

Online Journal of IIS, ePiq & ISI-S Societies, members of WIN



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"Even though scientist are involved in this Journal, I and all involved in the IQ Nexus Journal have tried to keep the content (even though it is a Hi IQ Society periodical) on an ordinary human level as much as possible.

In fact, is it not the case, that - to be a human being is the most intelligent way of life?"

Stanislav Riha

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Non-members' contributions are welcome and every contribution has to be accompanied by an introduction from the contributor.

Cover photo

https://howtotreatheartburn.com/nsaids-heartburn-
http://www.fox5ny.com/health/study-ibuprofen-linked-to-male-infertility

ScienceNordic, February 13, 2018

Taking the painkiller daily for just two weeks resulted in a hormone imbalance among young male participants that more closely resembled that of older men whose testes produce less testosterone, say the scientists behind the study.

"It's worrying because it's important that men's testosterone levels are stable. Otherwise, it can lead to problems with, for example, muscle development, mood, and potency," says David Møbjerg Kristensen, a senior researcher at the Danish Headache Center at Rigshospitalet and co-author of the new study,which is published in the scientific journal PNAS.

More about the story at;
http://sciencenordic.com/ibuprofen-can-damage-men%E2%80%99s-endocrine-system

Website; http: //iqnexus.org/

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Free-Will: Freedom of choice within limits.

Vernon M. Neppe MD, PhD, FRS(SAf), DPCP(ECAO), DSPE[abc]
and Edward R. Close PhD, PE, DF(ECAO), DSPE

Abstract:

Does free-will exist? This debate is not new. It extends, at least back to the times of Homer. However, today we realize that the approach to free-will must be scientific: That requires not just using Popperian falsifiability, because we must also apply LFAF (Lower dimensional feasibility, absent falsification), including what is feasible but not falsified.

There are three major views of free-will:

- *The current prevailing materialist, reductionist philosophy argues that free-will cannot exist: We are simply machines, who have been born with specific genes, have had no choice with our environment, and we interact with random events. We are conditioned to respond in specific ways, and then we ultimately die.*
- *The second view argues that if there is evidence for precognition and presentiment, then that would exclude free-will. The converse applies: If free-will exists, then precognition does not. That means we cannot have both free-will and precognition. However, because there's profound scientific data supporting precognition and presentiment, it's likely we don't have free-will.*
- *In this paper, we argue from a third perspective, for the legitimate existence of both free-will and precognition. We apply principles derived from the Neppe-Close TDVP (Triadic Dimensional Distinction Vortical Paradigm) model. Key pertinent features to free-will derived from TDVP include*

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[b] The material in this article has been peer-reviewed by several readers. We thank them all for the feedback.

    - *everything obeying the laws of nature;*
    - *applying an approach to free-will by individuals;*
    - *multiple different levels of groups ('individual-units'), and an extensive Systems Theory approach implying that everything, even atomic particles, has some limited free-will; and recognition of the roles of meaning, guidance and consciousness, and of 'relative' influence, impacts, and 'relative free-will', cause and effect, and gimmel.*
- *Whatever else, we argue that free-will has limits: It is relative to our immediate experience of 'life-tracks'. We can metaphorically understand free-will by applying the TDVP 'life-track concept', where we can visualize leaves, branches, trees and forests, and in which most of us are impacting and influencing only our immediate branches. However, even subatomic particles would have some degree of non-random free-will, though it may appear random in the 3S-1t domain. '- free-will' might exist but only if we impact and influence from the infinite—that could imply G-d[d]: The implications of that broadest forest of infinity would be enormous, as a deity could theistically impact directly on us all.*
- *Provided we understand the mathematically-proven yet empirically feasible TDVP finding that we're existing in a 9-dimensional (9-D) finite quantized reality, and that this is embedded in a continuous infinite fabric, explaining the feasibility of free-will and precognition together becomes easy. This is because even though we only experience physical reality in three spatial dimensions in a moment in the present (3S-1t), to apply the free-will model, we would need to go beyond 3S-1t. The existence of the key free-will and precognition components are beyond our restricted physical 3S-1t domain.*
- *A convenient, though unproven, but eminently feasible, secondary TDVP proposal is that we can apply the theoretical model dimensional Time. 3-D Time is not absolutely necessary for free-will, but is a convenient conceptualization.*
- *Vernon Neppe's 'Neppe Law of Cause and Effect' (NLCE) appears to be a formidable model whereby choices can be changed and precognitions altered. The NLCE is fully compatible with TDVP. This contrasts with John*

[d] We chose to use the word 'G-d' in this paper. This is not so much a theological as a scientific decision. In 'TDVP', we emphasize the concept of the ineffable *'infinite continuity'*. We highlight the 'forever' concepts in eternal 'Time' (T); the unextended in boundless 'Space' (S); and the never-ending reservoir of unceasing 'Consciousness' (C): TDVP's infinite 'STC' provides a fundamental portrayal of a perpetual, incessant infinite reality 'without a beginning', and 'without an end'. We differentiate all of this by revering the term 'G-d'.

Dunne's Experiment with Time which has significant logical and empirical problems.

- *Many of these ideas are in the Neppe-Close book Reality Begins with Consciousness: A Paradigm Shift that Works and in follow-up publications.*

Key-words: *3-dimensional time, 3S-1t, 9-dimensions, Absolute free-will, Actualization, Atom, Carballal (Jose Carballal), Cause and effect, Calculus of Distinctions, Close (Edward Close), Consciousness, Content, Conway (John Conway), Dark matter, Dark Energy, Deity, Dimensions, Dimensional Biopsychophysics, Distinctions, Domains, Dossey (Larry Dossey), Dunne (John Dunne), Electrons, Entropy, Experience, Existence, Extent, Evolution, Finite, Free-will, Freedom of choice, Free will theorem, Gimmel, Goswami, Iceberg analogy, Impact, Influence, Infinite, Infinite continuity, Intent, Kabbalah, Meaning, Meaningful coincidence, Neppe (Vernon Neppe), Neppe Law of Cause and Effect, Life-tracks, Materialism, Mathematics, Neutrons, NLCE, Order, Ordropy, Panentheism, Photons, Physical materialism, Physics, Precognition, Presentiment, Protons, Qualit, Quantum, Quarks, Reality Begins with Consciousness, Relative, Relative free-will, Systems approach, TDVP, Serial time, Theism, Time, Tree analogy, Triadic Dimensional Distinction Vortical Paradigm.*

A short perspective: Does Free-will exist? Section 1.[e]

Free-will, also called Free Choice, or Freedom of Choice, refers to the power to be able to act without the constraint of necessity or fate. It is the ability to act at one's own discretion. Free-will is generally regarded as absolute (complete) or relative (partial). Fate refers to the development of events that are beyond a person's control. However, these events are determined and unmodifiable. Fate implies lack of free-will.

Free-will has been a dilemma for philosophers for millennia. This quandary is prominent even then in the writings of the Greeks. It appears, for example, in Homer's *Odyssey* where Zeus declares [1]: *"Oh for shame, how the mortals put the blame on us gods, for they say evils come from us, but it is they, rather, who by their own recklessness win sorrow beyond what is given…."* (1.32-34)

[e] Vernon Neppe and Edward Close: A short perspective: Does free-will exist? IQNJ. 10:1, 9-12. 2018. S1.

On the one hand, today, some would argue that there is no such thing as freedom of will or of any kind of free choice. This fits well within the materialistic, physicalistic framework of, *"there is nothing else but our behaviors which are the result of our genetics, events in utero, our environment during life, our instincts and conditioning, all combined with random events that affect us, and which we are helpless to prevent. Life has absolutely no purpose, and when you die, you die. And we are nothing but machines."* As ludicrous as this sounds for many, to others, this is how existence is. This has today, becoming even more so: "*We are ruled by technology and artificial machines. We have no choice in our actions."* And we recognize lack of meaning, fate and our inactivity to act: *"There is no G-d; there is no meaning; there is no relevance to life; there is no good and evil, because we are all just automatons; and we are nothing more than machines. We are not even animals, because animals are also just have their specific genetics, environmental exposures, instincts, experience their own random events, and respond based on their behavioral conditioning."*

Personally, we find this view appalling, and sad. It takes away meaning from our existence. Slightly better, because it has a possible optimistic tinge is:

"Everything is predestined. We cannot do anything about predestination. Let's live life to the full: Except we cannot, because we have no real choice. So, let's hope we're lucky." But that still does not help: *"There is no free-will, no freedom of choice, and we must wait for our fate, though it might come from somewhere."*

We also find these views contradictory to fact [2]: This is because we are not only dealing with falsifiability of information based on the Popperian scientific method [3-5] which implies just the physical with no trapping. We have also argue that there is such a thing as *scientific feasibility.* [6-10] For us to analyze what is feasible, that might imply some other disciplines that are relevant such as Consciousness and/ or extra dimensions. It could even relate to meaningful evolution, as well, but that is beyond the scope of this discussion.

Carl G. Jung, the great and influential Psychiatrist, Psychoanalyst, Mystic and Polymath, who founded the Jungian school, had his own similar slant, though his comment in a letter sounds somewhat facetious: *"To this day, G-d is the name by which I designate all things which cross my willful path violently and recklessly, all things which upset my subjective views, plans and intentions, and change the course of my life for better or worse."* [11] So, at least Jung, in this

statement, realized there might be a god, but still necessarily implied a fate that might befall him, however, he acted. But his Jungian psychotherapy suggests that he felt that he could induce change, so it's likely this comment was a joke.

Moreover, when one examines feasibility of events, there are contradictions to this purely materialistic, physical proposition: The Standard Model of Physics has been mathematically refuted, for example, by the Neppe/Close model of TDVP. [12-14]. This is a proven mathematical fact. It is also a fact that our current scientific method cannot handle Evolution, Cosmology, and even Quantum Physics. And that pure falsifiability barely handles much of the practice of Medicine and Psychology; and it does not deal with consciousness, dimensions, and psi. Applying this prevailing scientific model of physics based on Popperian falsifiability, we could call all these areas, *pseudo-sciences*. It is somewhat ironic that somewhere along the line, we make exceptions and do not call Evolution, Cosmology and Quantum Physics 'pseudo-science', even though Quantum Physics in current models involves a '*weirdness*' [15; 16] which cannot be explained [2]. But we do add this prejudicial term—pseudo-science—to *consciousness, psi,* and *dimensionality* [2].

In regard to Feynman's Quantum Weirdness [15; 16], ironically, this term, 'weird', plays a role in this free-will topic: In general, little is written on free-will and fate, and it's only an uncommon topic of conversation. Yet, the archaic Scottish word 'weird' originally referred to one's destiny. Moreover, the *Weird Sisters*, are the creatures who prophesy the destinies of the main characters in Shakespeare's *Macbeth*. The term, 'Weird Sisters', was first used by Scots writers as a sobriquet for the Fates of Greek and Roman mythology.

These many disciplines—Physics, Cosmology, Evolution, Consciousness, Dimensionality, even paradigm shifts— are all important in discussing freedom of choice. Fortunately, the scoffing attitudes may gradually be changing, and we've proposed extending the famous Kuhnian paradigm [17] to eleven stages. [18; 19] This is needed to be able to even conceptualize free-will and precognition, scientifically. Without a paradigm shift, this discussion is, effectively, dead: We simply cannot have materialistic reductionism explaining either or both of Free-Will or Precognition! Therefore, the application of a new Philosophy of Science model beyond Popperian falsifiability, namely LFAF (Lower dimensional feasibility, absent falsification)[3 2] is needed, and LFAF allows for what is feasible but not falsified to be included.

There is an alternative, and marginally better hypothesis. If there is free choice—and here we introduce concepts pertaining to spirituality, and to right and wrong—it could be argued that there could be no such thing as precognition [20] (scientific foreknowledge) because the two factors, precognition and free-will, may be contradictory. We do not believe that this is a contradiction and argue that both are likely true.

However, we argue that this limitation is unnecessary: There is a third hypothesis that is scientifically feasible. Initially here, we show that there is very profound evidence for precognition and presentiment. This evidence is so cogent that it is scientifically, statistically proven for precognition and for presentiment—a specific form of precognition specifically involving knowledge that is not even consciously made and looks at events just seconds before they are actualized. [20] *So, given that the data for precognition and presentiment are statistically scientifically facts, we have to deal with these facts if we are dealing with free-will.* In doing so, we may have to re-think the nature of time. Time may not be the simple linear flow we think it is.

We argue there is no contradiction if we apply finite *existence*, by using the proven fabric of a 9-dimensional [21; 22] finite quantized model [23; 24], instead of our current physicalistic *experiential* model of '*3-1t*'—length, breadth and height (3-spatial dimensions being the 3S in a moment of time (1t). Moreover, it is likely that the 9-dimensional finite model is embedded within a continuous infinite reality making a unified whole. This means effectively that we are not only able to deal with free-will, but that *our free-will be limited inside that finite reality*, because we do not have complete control of all of the infinite. [25-30]

This is what this paper is all about. And there are different stages, because in order to explain this adequately we can first examine 'linear time'—one dimension of past, present and future—from a precognition point of view. But this is likely inadequate. [31-33] It is very likely that we shall have to apply Multidimensional Time. [32; 34]

We will also discuss various models, such as the Neppe Law of Cause and Effect [35] [24]; John Dunne's ideas pertaining to causality and serial time [36]; and also multiverse or universe components [37; 38]. Freedom of choice links up with another very important area: the area of good and evil. [39] [40-45]

Key amplifications about free-will: Section 2. [f]

We now amplify key points of this introduction below.

- Ostensible free-will may simply reflect the subjective experience of determinism, and therefore not free choice at all. There is no freedom of action, and we are just the machines we've referred to. There is no growth or spirituality.
- Alternatively, there is the necessary historical justification for free-will: Rene Descartes applied free-will so we would have an excuse for imprisoning evil-doers: Otherwise we couldn't claim that they had free choice. [46]
- One difficulty in accepting precognition is largely because researchers think it conflicts with 'free-will'. But this is a non-issue, yet to some degree Charley Tart rejects precognition [47] for similar reasons, and so does David Griffin [48] and Michael Murphy [49] and there is apparent conflict with Whiteheadian metaphysics [50; 51]. Larry Dossey handles this issue well in his book the *Power of Premonitions*. [52]

Let's examine what should be some relatively simple explanations, but appear formidable:

- In our opinion, one explanation for the non-issue could be that, therefore, not the '3S-1t' of our *experience*. If this is so, this way, the precognition (relative to us observers) would have already incorporated what has been decided by free-will that was not in 3S-1t. This would presumably require existence outside 3S-1t and a multidimensional model. Whereas this explanation is adequate, it's not fully comprehensible. Later in this paper, we will discuss a model that is included in this explanation, namely multidimensional time.
- A similar way to explain precognitions would be that in valid event precognitions of actual future events, the future event already has been brought about by many freely willed activities. This way precognition would be one consequence in 3S-1t of what already existed as *multiple free-will* contributions. Alternatively, perhaps that future would not have occurred without deciding (making choices of) something by free-will. This explanation is again esoteric, but has not postulated multiple extra

[f] Vernon Neppe and Edward Close: Key amplifications about free-will IQNJ. 10:1, 13-15. 2018. S2.

dimensions or a multiverse. It is a direct cause-effect, but then the question is how.

- Essentially, one explanation would be when an impression is precognized in any state like a dream, meditation, or waking consciousness, it may be reflecting what is happening at that moment in another (possibly 'thought equivalent') dimensional domain. Here, a true impression is being picked up of an event that was actually occurring at that moment, but not in our limited time perceptual experience. Circumstances change when the current cause produces an altered effect. Effectively, a new event occurs in that 'thought domain' instead, and by 'knowing' this, the subject could make a free choice which ends up corresponding when the reality is actualized in our physical 3S-1t. Therefore, a precognition picked up by a 'psychic' may appear wrong when it doesn't happen; but it was not wrong, it just did not physically actualize because reality was altered.
- On the other hand, there may be overwhelming facets, with so much current cause for that thought of predestination that a precognition will come about physically and cannot be easily changed: Let us say that millions in our physical 3S-1t experience independently think X, which would produce Z into the future. Now a few individuals think Y, and unless those few persons influence the millions, that may not change the event X from actualizing in 3S-1t as Z. In fact, X may even be, for example, geophysically based, like an earthquake. It could be argued that our exerting our cognitive decision of free-will would be difficult to 'trump' the earthquake.
- These ideas are similar to the potential reality described by Louisa Rhine. She examined those investigated cases in which the person had the opportunity to try to change the event that was precognized. She concluded that the *potential not actual event* is precognized, which suggests the future exists not deterministically but rather as a range of possible outcomes of varying probability. [53; 54] The degree that human intervention may affect events would vary in probability (as with the earthquake example). Our cause and effect postulate above in a thinking dimension/ realm, and the multi-universe idea, all might have the same fundamental idea of free choice somehow impacting precognition.
- These ideas are also consistent with the thinking of several physicists on the subject of free-will and indeterminism. What did Albert Einstein think? He proposed that we reside in an already determined block

universe in which we simply uncover the future as we creep along the time-line at, for example, one-second-per-second. [55; 56]

- But surely there can be an easier explanation not requiring the above complex ideas in 3S-1t, or alternatively rejecting precognition if one has free-will?

The Neppe-Close Classification of Free-will: Section 3.[g]

Free-will may be one of the most important questions in our existence. Without the freedom to choose for good or bad, or for success or failure, or for any other legitimate reason, what would be our purpose in life? How could we change?

The 'short answer' explaining how free-will works can be via a model that we call 'TDVP'. This TDVP is very detailed [57-59] and covered in some detail in *Reality Begins with Consciousness* (RBC5). [24]

For perspective, we briefly describe the fundamental philosophical frameworks of this model called the Neppe-Close Triadic Dimensional Distinction Vortical Paradigm (TDVP). We have extensively published on this scientific model in many publications. [12 60] All these principles are well supported empirically and mathematically. [24; 61; 62] In short, TDVP is a new metaparadigm—an extended theory of everything interfacing many specialties—that works scientifically. And from the science, we can explain the secondary philosophical underpinnings.

TDVP is an empirically proven model which is now mathematically demonstrated. TDVP recognizes that:

- there is a triad of Space, Time and Extent of Consciousness (STC) that are all tethered together. We call these STC substrates of *'extent'*, because they are measurable as 'dimensions';
- there are 9 finite quantized dimensions in a continuous infinite unified reality: We have proven this 9-dimensional finding by applying mathematical-physics;

[g] Vernon Neppe and Edward Close: The Neppe-Close Classification of Free-will IQNJ. 10:1, 15-23. 2018. S3.

- the extent of STC requires a specific 'container' of Mass-Energy and Content of Consciousness (MEC): MEC effectively involves the receptacle and its *contents*, and can be measured through STC;
- there is *influence and impact* of any component of this Mass-Energy and Content of Consciousness;
- the need for vortices, with rotation and spinning applying angular momentum;
- TDVP necessarily includes a massless, energyless, third 'substance' or process, called 'gimmel'. We have proposed that gimmel is, in part or whole, 'Consciousness'. Without gimmel our world would be unstable and not able to exist: Gimmel is essential to physical existence.
- Consciousness has several components: There are neurological and psychological aspects. But we've proposed that there is a consciousness outside the brain, too, which can be quantized in the finite, or informational from the infinite, and experienced specifically as 'meaning'.
- TDVP conforms at all levels, finite and infinite, to the laws of nature;
- what *exists* in our finite reality (such as 9 dimensions—9-D) is different from what we *experience* in our physical, ostensibly complete material reality of 3S-1t. 3S-1t is just the visible portion of the iceberg of our experience reflecting only a small, albeit important, portions of our existence in the finite (9-D) contained in ('embedded' in) an infinite realm (all making up a unified reality).
- TDVP creates a groundbreaking paradigm shift not only in understanding physics, mathematics and the sciences, but provides significant affirmative implications for the infinite reality and survival after physical death. These conclusions are important, as recognized by Larry Dossey. [63] Effectively, TDVP implies immortality and it is a model than can be applied to our transcendental growth, and to the uplifting of our world. [24] Though scientific, it interfaces with spirituality. [64]

TDVP also allows explains several fundamental but critical, though speculative, ideas pertinent to free-will, namely:

- Three dimensions of time.
- Multiple dimensions of consciousness.
- Cause and effect.
- Cognition-affect-volition, as three fundamental psychological concepts of mental status functioning.

- Ego-boundaries—the distinction of separation of self from not self;
- and Free-will and freedom of choice which can actualize (be fulfilled).

We (Vernon Neppe and Edward Close) regard free-will as critically relevant and devote a chapter in *RBC5* [24] to Free-will. This is discussed later in this article, after prioritizing the basics of the Free-will model expressed by TDVP first.

The following, in our opinion, are the key features pertaining to free-will.

1. *RELATIVE FREE-WILL:* In our TDVP model ('triadic dimensional distinction vortical paradigm') [23; 65] there certainly is freedom of choice and of action. But this is *'relative free-will'* – it is relative to our own experience and to our own contacts at the various system levels. Effectively we can impact and be influenced. [28; 33 66] But that is limited to our own metaphoric 'tentacles". Sometimes the extent of our influence may be enormous; sometimes it's tiny. [67] The potentially great impact applies particularly today, where media and television can impact on millions. But that is all relative. Impact can be considerable or minor. The recipient can be influenced to varying degrees but still can respond by the relative and limited free-will, perhaps less if there has been significant impact.
   We know this postulated idea is likely correct given the findings on psychokinesis in psi studies which reflect 6-sigma (1 billion to one against) data. [24, 68] In one of our papers, we even propose a mechanism for such psi based on models distant from the quantum but using such principles. [68]

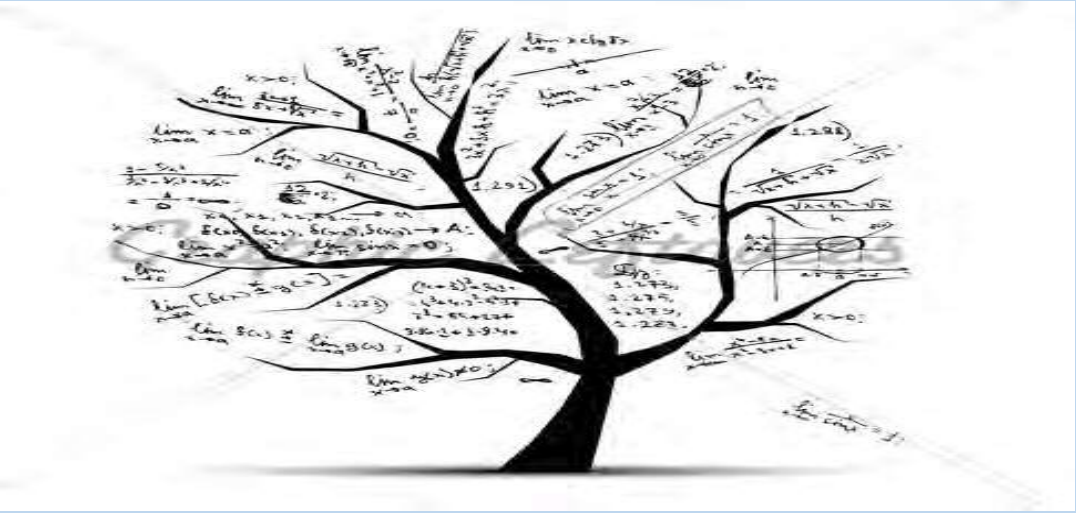
2. *ABSOLUTE FREE-WILL:* The only absolute may be at the level of 'infinity of infinity' where everything in space, time, and consciousness is unending, continuous and extends forever. That could theologically imply a Divinity with a potential to influence all if we think theistically and not deistically. Consequently, our free-will is not absolute. It is relative because we do not know everything, and we cannot impact on everything. It obeys the laws of nature. It may only be absolute at the level of the 'infinity of infinities'. At that level, we would be able to talk about 'absolute free-will'. This fits into the TDVP distinction we've made of *impact*: Impacts can be a theological impact; it can be an impact in terms of our choice at our more limited kind of levels. It can be an impact, not only in terms of consciousness, but with mass or energy e.g. earthquakes.

3. *RELATIVE INFLUENCE:* Nevertheless, relative to the domain of our experience, we can make these limited relative choices. We think they're absolute but they're not. They're also influenced, inter alia, by our experiences, our learning, our impulses and our character.

4. *LIFE-TRACKS:* In TDVP, we use the analogy of 'life-tracks'. [69] We can go in particular directions, and we can deviate at any kind of direction. Let's imagine we're like branches on a tree. (Figure 1).

We choose which branch of our Life-Track road to travel in. In other words, when anyone talks about precognition or foreknowledge, the result is not a foregone conclusion: Changes can occur at any time by just changing the course. That is free-will. But it is a *limited free-will* because the free-will impacts our society, our families, our friends, and our groups, and our cultures, and our ethnic groups, potentially. So, all these different 'individual units' at that social systems level [70 45], impact reciprocally, and interchange branches, roots and trees, and sometimes even cause the whole forest to rumble. Free-will can be at any one of those levels. John Donne's *'no man is an island intire (sic) of itself'* [71] appears to be more than poetic—it's correct!

Figure 1: Life-Tracks of the leaves, branches and trees in the forest.



5. *TIME:* Now comes, how do we put together this whole free-will component? We've talked about relative free-will at the philosophical,

speculative level. The model that we use in TDVP is a model of multi-dimensional time. That's why we were talking about mathematics so much in TDVP. Multi-dimensional time is one of those speculations, but it fits into the jigsaw puzzle [6; 10; 72], and it is very feasible mathematically and, I would argue, even likely.

We can think of the arrow of time in terms of past, present and future – but that is one linear dimension. Philosophers often get caught up with such linearity, and yet it is *relative linearity because that's what we experience*.
We can graphically portray our dreams and the dreams of others: This shows on a graph that this is planar – this is two-dimensional: Each time experience is a little different, and this varies in our clock-time estimates, but our clocks are limited to linear time!
Three-dimensional time, we think, is linked to free-will – the choices we make, with the freedom to choose and to move on in different directions. Everything is in threes, and we need not talk only about our 'experience' of linear lines of time. We've seen how easy it is to graph two dimensions of time.
But portraying three is harder: But, if we have three dimensions of time, free choice can be rather obvious. We just turn off and go on a different life-track.
As indicated, all of consciousness at this level is linked up with time, and at the infinite level, things are different because everything is eternal. Therefore, we are talking about relative finite time and relative finite expression of time.
Neppe has even developed a model called the Neppe Law of Cause and Effect (NLCE) [35]: Effectively, an event might be predestined at a specific moment, but that event can change all the time.

6. *CONSCIOUSNESS:* Of course, the key to free-will is choice. And that involves some kind of consciousness, however, rudimentary or advanced. The beauty about this is that in TDVP, Time at the higher dimensional levels is embedded at even higher dimensions with Consciousness. These domains are not separate, and just as we have horizontal systems theory levels [73], we also have vertically different domains. [74] So, when we talk of our free-will in our experience, that experience is very different compared with our covert existence in the broader higher dimensional world.

7. *WHO HAS FREE-WILL?* Certainly, humans and all living beings have free-will. But because of our model with 'gimmel', this third substance is always in union with everything, including subatomic particles, even quarks,

protons, electrons, neutrons, and certainly photons, we hypothesize that there might be different impacts of that gimmel in the cause-effect relationships of every particle.

8. *MEANING AND INFORMATION:* At the finite level, we differentiate 'meaning' from the nondescript 'information'. We use 'meaning' in this context for "specific directed information that passes through the filters of our brain and includes our human (or perhaps other animate) conceptualization and understanding". So, this is an active process that might involve freedom of choice. This is compared with the broader, non-specific, 'information' that is outside the brain and likely the infinite repository of data. It is through this meaningful conceptualization that we can impact our free-will by voluntary thoughts or actions.

9. *MEANING AT THE ATOMIC LEVEL:* There is a further radical, very controversial debate here, moving to the inanimate: But it is logical because there could be a gradation qualitatively in meaning even to the inanimate. Meaning could, indeed, even be special for every subatomic particle. These particles don't have brain-like structures, they don't function like animals, or even like any animate being. But at the quantum level, we propose that this continuity must logically continue, and there is a certain mathematically 'profound distinctiveness' or even 'uniqueness'. For example, we have shown that the unitary amounts of gimmel for the mathematically demonstrated triads of 'nucleons' (protons plus neutrons) with two up-quarks and one-down quark in protons, and two down-quarks and one up-quark in neutrons, all contain a specific but uniquely different amounts of gimmel units. [24]

   These gimmel figures are mathematically necessary and not in any way contrived. They range from 1 to 6: Remarkably, each quark variant is in union with a different gimmel score: Quarks, then, are fundamentally distinguishable at least in type (Table 1). Could it be that the somewhat ordered, but still stochastic, representation on a (2-D) screen in the double-slit and related experiments of electrons and photons [75; 76] when translated into a 9-D rotating matrix may result in something meaningful? Would this in some way be related to a 'consciousness' in the gimmel. And if so how would we prove that there was some meaning—some kind of targeted 'intelligence'—not pure randomness in these subatomic particles? Could

this suggest something different, possibly with each particle possessing some kind of meaningful quality? It is interesting that the more loosely bound, electrons that rotate around the nucleus, have far more gimmel units, than there are in these quarks linked with the protons and neutrons. This currently represents part of the broader scientific feasibility jigsaw puzzle in which we don't understand all the pieces. It is something we can theorize and speculate about. [77-80] We can also extend [81; 82] free-will beyond this usual atomic fabric and include particles like photons.

Table 1: Tabulation of elementary particles including their gimmel and TRUE scores. (e.g. H^2) [77]

Elementary Particle	Particle	Mass/Energy	ג Gimmel	Total TRUE Units	Combined Particles
e electron	electron	1	105	106	**Electron** =106
u1 up-quark	proton	4	**2**	6	
u2 up-quark	proton	4	**4**	8	
d1 down-quark	proton	9	**1**	10	**Proton** = 24
u3 up-quark	neutron	4	**5**	9	
d2 down-quark	neutron	9	**3**	12	
d3 down-quark	neutron	9	**6**	15	**Neutron** =38

10. *MEANINGFUL COINCIDENCE:* We introduce, too, a concept that has been implied before, the Meaningful Coincidence. However, we extend this to the ultimate extreme here. Because there are leaves, branches, trees, forests, and beyond, there is an extension of meaningful continuity and information into the infinite. This implies that all events are linked, and even supposedly random and also mundane events may have meaning, which we minimally at least can impact and influence. Two outside concepts may assist here:
    - At the theological level, one kind of 'meaningful coincidence' would imply a higher supreme being possibly impacting our reality (theism)—not just being present, but without intervention (deism). The term for this meaningful event in Kabbalah is called 'Hashgahah P'ratit' (translated, it means 'Divine Providence'). Literally, nothing happens except that it's

meant to happen that way. Everything that happens is a 'meaningful coincidence' and according to a divine plan. The qualitative impact is profound from the infinite. But, in Kabbalah, we can, nevertheless, also choose which way to respond to an event, so we have freedom of choice ('B'chira Chofshit' —literally Free-will). The two are non-contradictory because our choice is effectively 'local' on the branches of the tree, as opposed to the theistic impacts of the whole cosmos—more than the vast forests.

- The equivalent in subatomic particles plus also our material 3S-1t human reality is the *'Free-will Theorem'* of John Conway and Simon Kochen. In effect, *if any event is the result of free-will in the sense that our choices are not a function of the past, then subject to certain assumptions, so must all subsequent events also be the result of free-will including elementary particles*. [83; 84] An example would be the free choice of human experimenter in a quantum setup. [85-91] This corresponds with the independent view we expressed in TDVP in 2011: Effectively, there is no separation of any particles, be they quantal or even cosmic.

In addition to the TDVP compatibility of the Kabbalic B'chira Chofshit and Free-will Theorem models, we recognize in TDVP that consciousness is a key component to our choices. [91] This consciousness may be psychological or neurological as in the brain, but it may also be quantal, and from the infinite or finite experiences outside the brain. [91] The consciousness might be expressed, partly or in whole, as gimmel. Moreover, we propose that the infinite continuity contains gimmel, or may even be its source emanation. Gimmel from the infinite is in union with the finite reality. We propose that gimmel is possibly linked in some way with photons of light that might emanate from the infinite.

11. *INDIVIDUAL-UNITS AND SYSTEMS THEORY*: The 'individual-unit' in TDVP refers to a broader Systems Approach. There are many different systems suffixes [45]. For example, an 8-tier systems approach would be 'ethicospirituobiopsychofamiliosocioethnicocultural'. The would be useful in more broadly conceptualizing free-will across humankind. A legitimate approach would be to examine each component individually and separately—the psychological or social or biological, for example, and it would be logical to describe free-will relative to any of these levels. [41] But we can extend this systems approach: In fact, we have described a 300-letter

word suggesting all of these, animate and even inanimate may be active in some level of free choice.[41] TDVP recognizes a complete unification of everything. Hence, we proposed the 'monster' 300-letter noun (with -ness or -ity depending on the context, or in other forms –al as an adjective and only 298 letters, or ally as an adverb) that easily reflects the logical theme of 38 related components in our book, *Reality Begins With Consciousness: A paradigm shift that works*, [24] and in a later article on Good and Evil. [41; 45] Here it is, even though we don't expect anyone to remember it!

'Mathematicoinfinitofinitovorticospatiotemporoconscioquantomicomacroplanetoastronomocosmicophysicochemicoelectricometeorologicoinanimatoanimatogeneticoenvironmentobiophysiologicopsychopharmacofamiliosocioethicopoliticomilitarogeographicoeconomophilosophicospirituomysticoethnicoevolutionoculturalness.

12. *EVERYTHING OBEYS THE LAWS OF NATURE*. Despite the mystical and very broad implications of TDVP, everything obeys the laws of nature.

Many of these points were made in Neppe's spirited 'Inner Cosmos' Facebook discussion of August 2016 with a remarkable thinker, Fernando Luis Cacciola Carballal. We discovered our ideas were similar and we cite him here, with great respect. [92]

These are two small portions of Fernando's lengthy and excellent public post: "One key requirement of free-will is that it needs 'origination': that is, there has to be a well-defined agent having the freedom to choose and to execute. When I want to raise my hands and I 'do it', the hands actually raising are made of elements that are in constant flux. While most of the hand is permanent, a lot of it is changing even as the hand goes up. So, what exactly is having the freedom to choose and to execute? The brain? But the brain is also itself a system in constant flux, so, what part of it? Some of the neurons? But a cell is also a dynamic system that changes permanently. Most parts of a cell (such as a neuron) are permanent (for instance the chain of nucleotides in DNA) but many parts are in and out the cell all the time." [92] ……

"We can draw an analogy from a board game like chess, we are free to choose every move (freedom of choice) and we also have control over our pieces (they don't move by themselves, we need to move them ourselves exerting our 'freedom of action'), but we cannot decide on the rules of the game, and each move has an impact that influences our next move *because* the current state of

the game changed, and we do not decide how that game state change takes place. Something similar occurs with free-will agents: each action is freely chosen, no action takes place unless decided, but the action has an impact which 'sort of reconfigures' the elements from which choices are taken for the next action. And that 'reconfiguration' (for lack of a better word and concept), is based on the real fundamental laws of generalized nature (physical and not)".[92]

We can extend this analogy to active interventions that change our emotions and thinking. We can choose to smile, or we choose to be happy and not miserable, or to work hard, or to show discipline in behavior. Free-will can make our lives better or worse. That freedom of choice is beyond our conditioned behaviors.

The relevance of Free-will of the Neppe-Close TDVP model as reflected in Reality Begins with Consciousness: Section 4 [24 h]

We have written extensively on this free-will topic. What follows, are extracts from the Neppe-Close book '*Reality Begins with Consciousness'* [24]: Much of this leads to multidimensional time [31; 32] and an awareness of dimensions of Consciousness. [65; 77; 81; 82; 93]. But essentially, we motivate too, not only free-will in an empty context but specifically using the data on precognition and presentiment, too. *This section 4 and the one that follows, Section 5, is complex and technical: Some may want to skip it.*

IMAGINATION:

- Let us imagine that one was able to demonstrate retrotime, or precognition, or presentiment even seconds before an event, this would also not easily be explainable in terms of the current physicalist definition of time. However, could it be explainable in terms of extra time perception, which might be describable in terms of extra dimensions? [24p45]
- Let us imagine showing that there were different levels of cause and effect, then could this require explanations that include some kind of extra time dimension or dimensions, or additionally or alternatively different ideas of "consciousness"? [24p47] …We cannot explain reality on the basis

[h] Vernon Neppe and Edward Close: The relevance of Free-will of the Neppe-Close models as reflected in Reality Begins with Consciousness IQNJ. 10:1, 23-31. 2018. S4.

of simply 3S-1t.

- By necessity, we have to introduce further higher dimensions of at least, 'Time' and of 'Consciousness'. Without those further dimensions 'consciousness' would just be an epiphenomenon or an emergent property or a derivative of matter; and time would not include both free-will and precognition."

Multidimensional order exists in our Reality, and Life is part of that order.

LIFE TRACKS:
We conceptualize Life-tracks in TDVP as a speculative finite model of individual-unit existence in the infinite. This is created by the conscious drawing of finite TDVP's Life Tracks. This allows for limited overall free-will, with significant and major changes in 3S-1t. The forest in Figure 1 reflects the physical 3S-1t Life-tracks.

Psi's potential influence on life, effectively allows us to extend our 'metaconsciousness' (higher outside finite and infinite extra-cerebral awareness) and impact significant changes on all levels of our culture. Whereas some would think psi components like precognition contradicts free-will, it may actually be useful, allowing not only for choice but actualization of events or changes in objects or knowledge, all dictated by our freedom of choice. But that assumes the presence of psi, and the evidence empirically and statistically for that is overwhelming. [24]

The awareness of objects in 3S-1t (like the visible portion of an iceberg) is a *relative state* event experienced by the observer. This establishes a higher dimensional 'time-line' through 9-dimensional (9-D) reality, reflecting part of the submerged iceberg 'life-track' of the individual (Figure 2). We can apply a Mysticism Metaphor to these higher dimensions of consciousness. [24p373]

Our higher consciousness becomes increasingly important as one goes higher and higher dimensionally at a substrate level. Applying a commonly conceived of mystical metaphor, one refers to 'vibrations', which become finer and finer as the 'consciousness development' becomes higher and higher. Extending this metaphoric concept, in order to have vibrations, there has to be a frequency and there has to be a spatial and time component. (As an aside, we've recognized that there needs to be a Consciousness aspect, too, and we therefore use the

term, VEF, standing for *'Vibrational Equivalence Frequency'*.)

Finer and finer vibrations imply, therefore, less relevance at a Space-Time level as one goes higher and higher in terms of a mystical spirituality. This would imply here the presence of Consciousness substrates in the higher levels of dimensionality (and embedded within those C-substrates would be all the lower dimensional one including the S and T substrates). Starting at 3S-1t, the gradation might be 3S-1t-1C (because in our physical existence there still might be some intuitive awareness) up to N-Consciousness dimensions in the finite. There is some, but not definitive, mathematical and logical evidence that this Consciousness would be volumetric and therefore 3C, just as one has 3S, and possibly 3T. Everything in our physical nature is 3-dimensional —all items in our real world are shaped as volumes; all other dimensions are simply representations: a 2D 'plane' can represent reality in a sketch; and we can draw a 1D line; yet, all of our experience can only be represented in a dynamic moving cubic reality. A question is can we extend this physical experiential tube of moving reality, to the latent, hidden ongoing time and consciousness that exists, but cannot be represented in a diagram we in 3S-1t can understand? This means that our free-choice is volumetric. The only question is whether that volume extends beyond our 3-dimensional space. We argue it does because there are 9 proven dimensions. These are dynamic but their exact dimensional representations, such as if the 9-D are comprised of 3S-3T-3C dimensions, are speculative. Most times, an observer would be experiencing only some of those dimensions. The most common, of course is our physical 3S-1t reality experience. At that domain level, we seem to have less impact directed on free-will at those higher levels—it's easier dealing inside the box that is 3S-1t, than outside the box. Consequently, there would be few while still in 3S-1t, who would be able to reach the levels of a mystical infinite state. We could speculate that the reverse would apply as well, with greater impacts at 'nearer' dimensional domain levels.

Applying this logic, one could argue that though Consciousness at those higher levels still impacts on the lower dimensions, it would be far less on the more distant 'lower' dimensions (like our physical material domain—3S-1t). Eventually, we could conceive of the extent of the space and time substrates approximating zero at the highest kind of levels of finite dimensions. Yet, although that Consciousness would assert only a relatively minimal impact, it would be across a very broad range of consciousness (like the whole world).

In this way, the Consciousness interface impacts metaphorically in an analogous way to the impacts of gravitation and the expanding universe. The dimensions have tiny force impacts, but act on a very broad level. This is contrasted with the equivalent of strong subatomic forces, which would impact very strongly, but only over a tiny dimensional atomic neutron area in 3S-1t.

As a consequence, metaphorically, the degree of free-will from higher dimensions is broad and slight involving a good part of the forest but superficially as if experienced from the air, as opposed to our free-will which is meaningful, but possibly more upon our leaves of the branches—upon ourselves and immediate contacts.

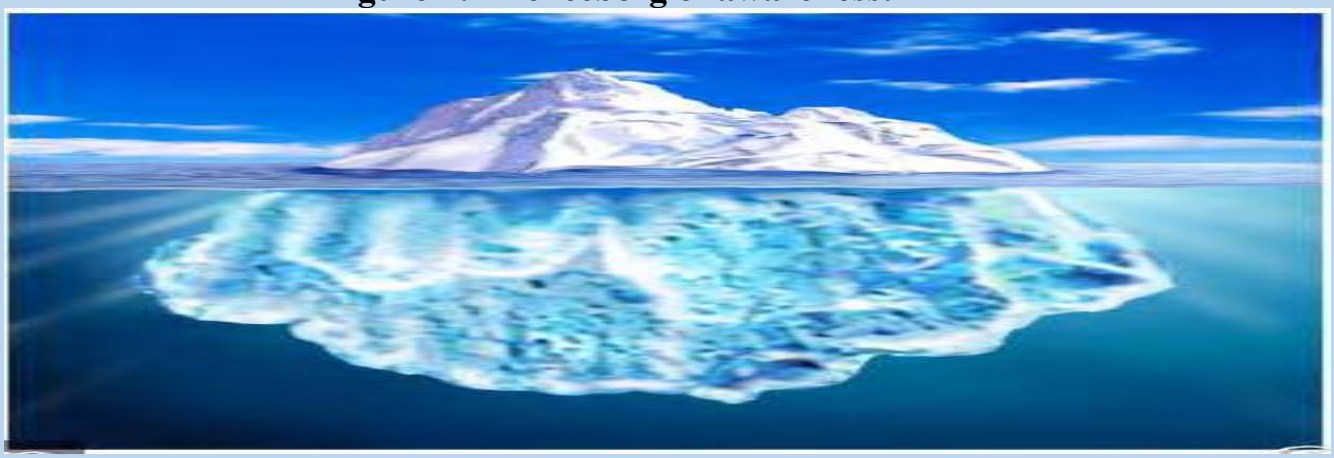
Applying this metaphor further, Consciousness could be purer possibly at those very high Consciousness substrate dimensional levels. That it has moved closer to a higher consciousness level may imply that consciousness is almost exclusive at those higher dimensional domains and that is why S and T may approximate 0, or possibly more correctly, reflect the sizes of quanta, in those domains. Beyond that, one would move beyond finite discrete dimensions into the infinite continuity, where existence is not quantized but literally continuous. That infinite may or may not be directly accessible to us in our physical 3S-1t. This then becomes the 'locality' or 'non-locality' for really impactful meaningful coincidences possibly at a define level.

'Meaning' might be a better expression than another we could have used, namely 'guided'. But, even 'guiding' implies at the basic subatomic level the most basic meaning involving potentially apprehending or perturbing of objects, events or information. This is very close to information delivery, not consciousness, per se, and very different from atoms or stones acquiring 'metaconscious' realities compared with live beings. However, one speculation would be to regard 'meaning' as a one-dimensional extent variable, and 'guiding' as more volumetric (i.e., three-dimensional) cubic Consciousness content or extent, and we regard this speculation as paralleling these dimensional perspectives with free-will.

The infinite would imply potentially some kind of meaningful reality, the difference being that the 'guiding' component may range necessarily from very broad but miniscule in impacting 'force' to any combination of the above. There

is no reason why the infinite may not impact dramatically and broadly, or may be very directed onto a particular narrow bridge. Because it is infinite and there are infinites influencing every dimension, the impact could be powerful and broad. This mystically evokes again an idea of Primary Consciousness, which some theologically would regard as equivalent to G-d.

Figure 2: The iceberg of awareness:



There is another component in Kabbalic Mysticism in regard to Consciousness, life and higher dimensions [94-96]: What could be regarded as the 'lower' tiers of creation, such as plants, are in fact loftier than the human being's own vital potential spark of divinity: The 'lowlier' something is, the 'loftier' its spiritual core. Yet in Kabbalah, humankind is the most spiritual of earthly creatures. The animal exhibits a more sophisticated vitality than the plant, and the mineral shows no outward signs of 'life' at all. Yet, the sublimity of the spark of divine life in a thing is in converse relation to its manifest spirituality. Thus, the mineral nourishes the vegetable, both nourish the animal, and all three sustain human life. However, perhaps only humans have the capacity to direct the metaphorical equivalent of 'vital energy' themselves, and they alone have free choice. The animal, vegetable or mineral conformity with the divine will is automatic and inevitable, and thus, devoid of moral significance. [97] Perhaps we could argue that even an electron exhibits free choice, and some results of split screen studies in photons make predictions unpredictable [75; 76]: But are they completely random or chosen? The choice humans exhibit may qualitatively be different from an atom, and far more impactful, but that does not mean that not everything, even particles, impacts and can be variably impacted by other particles and entities.

However, in TDVP, 'meaning' is also expressed by 'meaning' in that lowest of levels, even the inanimate. And applying a deep philosophical parallel, we could speculate on relatively more 'consciousness' in the inanimate at that 'lofty' transfinite / infinite, higher divinity type level than just mass-energy or space-time. Consequently, this could be similar though not defined as such but only in the context of the ostensibly spiritually. We also see a commonality of the free-will element, particularly in humans, and the concepts of the infinite to the concepts in Kabbalah are similar to TDVP. [94-96].
Free-will becomes a way we can impact the future and give our special meanings to our reality.

LOWER DIMENSIONAL INCOMPLETENESS:
We have demonstrated how we need to have higher dimensions and infinity for our TDVP model to be complete. Inter alia, if we regarded all of reality as purely based on three spatial dimensions and one point in time, then there could be no "meaning". If we extended "meaning" to a fifth dimension (variable of extent) of consciousness, we still could not explain completeness (which requires infinity) or asymmetry in nature, nor the incompleteness of awareness in the limited 3S-1t-1C reality of sentient beings. We could hardly conceive of higher realities, nor could we explain distortions of time, such as precognition. We would need to sacrifice either free-will or precognition, but not have both. By contrast, a multidimensional reality of extra time and consciousness dimensions explains why "bad things happen" in 3S-1t, and is, to boot, supported both mathematically with proofs and inductively with scientific empiricism. [23 p393]

However, Time is likely three-dimensional, and therefore has and has a volumetric component as does Consciousness Substrates in the 9-dimensional model. This makes dimensions quantized, integral and volumetric. Mathematically, each is volumetric because the most fundamental shape is three-dimensional, and these move through linear and planar dimensions, but they also differ considerably (as below).

FREE-WILL IN THEOLOGICAL MONISM, PANTHEISM AND PANENTHEISM, AND OTHER PHILOSOPHIES:
Theological monism usually implies terms like "unitary, eternal, unchanging, infinite, ineffable, immanent, transcendent, omnipotent, omniscient, omnipresent, omnificent, omnibenevolent, incorporeal, and emanating divine

reality". In this sense, this divine reality would be a source of and responsible for all matter, energy, time, space, awareness and essence in this Universe.

If we redefine Theological Monism more broadly, we can allow for variants.

- At its extreme level, Stoics taught that there is only one substance, identified as G-d.
- One variant is called *pantheism*. This monistic view describes only one 'Being': all ostensible aspects of reality are appearances, modes or identical with that one being.
- Much closer to Unified Monism [98; 99] as one direct philosophical derivation of the TDVP model is the related term *panentheism.*
- The panentheist implies that G-d is *contained* in all things, though neither identical to, nor totally separate from all things. [100] This might imply that G-d is in ourselves and personal, and yet allows a connection with all creation.

In a way, applying TDVP, panentheism could be contained in the Neppe-Close philosophical model of *'Unified Monism'* which is derived directly from the science of TDVP. However, panentheism must be specifically interpreted in the following manner: 'G-d' would *influence our content* being *tethered* to all of us, and maybe all 'things', through Space, Time and Consciousness (STC). [31] G-d would serve as an infinite continuous guiding reality. But we would have a separate existence, too. Hence, we would no longer be *part* of G-d in that sense, but 'G-d' could be *tethered* to all things, just like there are other tethers such as communication, psi, quanta and consciousness. G-d would, therefore, contribute 'theistically', and would not be just a non-participating observer as in 'deism'. G-d would not be the sole source of impact. So, if panentheism' allows for guiding and tethering as opposed to how 'part of G-d' is defined, then the panentheism concept is one kind of impact that exists in TDVP.

If a guided tethering from an infinite continuity was part of the distinction of impact in TDVP, we still would have *significant free-will* because we could choose what was going on in our own specific but limited restricted finite reality: However, that free-will would be *limited* to our own experience. It would not be absolute because it could only impact our limited finite dimensional experiences in a vast unending infinite reality almost all of which is hidden. If we speculate that *meaning always* involves some kind of 'guiding' infinite 'G-d-like' element, we could argue that panentheism in that sense is

'part of G-d'. That 'part' refers to 'tethered' to G-d, and therefore is a source of Distinctions of Impact on our specific existence—our content (our receptacle that contains all our events). Thus, in that context, the philosophical content of panentheism would be one part—one influence— of the whole TDVP model.

Let's imagine the option of inducing change. We add in at least a limited degree of free-will: our life-tracks can be modified and change our fate: there is another direction component of free-will: a further direction. We can now graph other lines that are not linear, that project in a different direction to the original lines. Relative to 3S-1t this third line of a multitude of planar time-life choices makes Time Volumetric. That necessarily creates 3 dimensions of time because we have a multiplicity of time choices, the Time choices may be individual and also intersect with groups and others. The Time choices can change. This creates a very simple model for 3-dimensional time. We could also likely portray each Time linearity in waves: This is so as even though waves or curves are not straight, they could metaphorically be pulled into a one-dimensional straight line. So, we do not utilize the curves as extra dimensions of extent: Waves or vortices do not increase dimensionality as the curvature is relative and can be spread into a straight line.

Effectively, we simply cannot explain all of existence using 3S-1t-1C alone. The extra dimensions are born out of necessity. We need to make sense of reality: We can with extra dimensions, infinity, order, and meaning. And we can empirically justify this inclusive "process of everything metaparadigm" by applying feasibility to the small jigsaw puzzle pieces of the results found in our very restricted experiential 3S-1t-1C domain reality [101].

Some final important comments: If *freedom of choice* were refuted, again a secondary hypothesis of TDVP becomes questionable. You may ask how could that be tested? We see free-will as a variant of not only influence or manipulation of future events such that they can change (so called 'psychokinesis' [68]) but as a subset of freedom of choice because psychological learned habits, reflexes, temperament and instincts, and spiritual philosophies may partly determine outcome. Choice, even if potentially free, is therefore confounded. Technically, however, work with Random Number Generators (RNGs) could set up an excellent experimental model. But even then, there is still the limitation: Is this truly an influence on events, or is it simply a prediction of an event, that experimentally is deliberately manipulated to

change, has changed? It must reflect some effect because statistically the chances of the RNG results are more than 'six-sigma'—one in a billion against chance.

If *precognition or retrocognition* were refuted, then a secondary hypothesis of TDVP is refuted. But it is not: Again, there is excellent six-sigma meta-analytic data supporting precognition. [24; 31; 102p237-245, 31]

Time and Free-will: Section 5. [i]

"The illusion of the passage of time arises from the confusing of the given with the real. Passage of time arises because we think of occupying different realities. In fact, we occupy only different givens. There is only one reality."
Kurt Gödel [103]

TIME MULTIDIMENSIONALITY:
Time is particularly difficult in terms of conceptualizing multidimensionality. Scientists for a century have tried to talk about time. For us to approach multidimensional time is a challenge. Yet, we can tentatively demonstrate Time in many dimensions by applying three ideas:

- Our mathematical algebraical and geometrical evidence suggests 3 dimensions of Time, though we cannot, as yet, definitively prove it in the way we proved 9-dimensions.
- We can recognize that all spatial structures in our natural empirical world are volumetric —they're in three dimensions, not linear (1-dimension) and planar (2-dimensions): We could possibly project this to Time and even Consciousness.
- We can also examine the inseparable tethering structurally of Space-Time-Consciousness: Space is embedded in Time. Time is embedded in Consciousness. There is a direct continuity.

There also might be limitations to proving 3-Time dimensions specifically, as opposed to any number of extra time dimensions.

LINEAR TIME
Our experience is of a finite time-line. Some would argue that this moment, the

[i] Vernon Neppe and Edward Close: Time and Free-will IQNJ. 10:1, 31-45. 2018. S5.

present, is a singularity with 0 dimensions—it is simply a point. We say this, because in a quantized 3S-1t there are no singularities, just volumes, in which case the present would be an infinitesimal volume. Linear time involves one dimension of time reflecting the individual's past, present, and future. This involves discrete moments in time that move forward all the time. Linearly, time involves a past, present, and a future—that describes only one dimension reflecting a straight line and not 3 dimensions as some mistakenly think. But, ironically, it's possible that what we conceptualize as linear time because it appears 1-dimensional in 3S-1t, might reflect volumetric 3D time in a 9-D domain. We can represent fluctuations suddenly in a plane with waves of time technically reflecting alternative routing and alternative directions. We can access records of the past very easily on a VCR or DVD, in newspapers, by memory, in movies, and possibly through retrocognitive awareness. We can access possible future knowledge by logical predictions or via precognitions or through combinations of the two. With predestined precognition one cannot modify anything. The future seems to move inexorably with us having no part in our future, except via learning to plan for the best options. We look at this *linear* time-line helplessly, or with the serenity that we can only impact through logic or our best attempts.

Subjectively this linear time might be distorted and curved. This is so because we interpret subjective time differently. For example, our estimate of the duration of some dreams may be very different from objective clock-based reality. If this were so we are superficially each experiencing two dimensions—our own subjective one and our clock one: Each "Time" has "extent" in that we can estimate time—the clock accurately and intervally, the dream only ordinally and very approximately. So, each fits the Time dimension definition and we can graph this on a plane—two dimensions. However, we could argue that the time experience is parallel here and a single dimension. Add to this everyone else and one is, therefore, producing an infinite number of linear time-lines, but we're not aware of them because we *experience* our time only as a single linear phenomenon. Our own individual world realities with these subjectively variable rates of time do not per se, reflect different dimensions, just a way to conceptualize the same single parallel dimensions. This is why *existence is very different from experience.*

However, Time may be an irregular wave progression—it is not entirely parallel, so we could argue that actually we're experiencing planar dimensions

(two Time Dimensions). Add to this different directions or angularities of choice (as in the Figure 1 tree and branches) and we could have a subjective three dimensions of Time. Let's re-examine this.

ABSENCE OF CHOICE, FREE CHOICE AND 3-DIMENSIONAL TIME

Without choice, however, we have one single unmodifiable direction, but given that linear direction of time might be curved or wavy, we could conceive Time as two-dimensional. But with freedom of will we have a hypothesis that is difficult to test empirically. That is because we don't know what would have happened if we had acted differently. However, we have different routing, different directions and waves or curvature.

With the original non-choice, we therefore get to three dimensions of Time, even individually. Even more so, collective time is a cultural phenomenon and may be measured akin to a Turing Apparatus [104], in this instance, a 3D- clock. That collective commonality of time we could argue would be another dimension. Yet, we cannot go beyond our 3D-Euclidean space, so can we in time? Our collective commonality of space, exists with our own individual collective "space" because we have our percepts and our concepts. We likely could not get beyond three dimensions by using collective time. Moreover, that "collective time" purely reflects the parallel experiences of many individuals in the same Time Dimensions. Applying TDVP, the 3 dimensions of space are embedded in the dimensions of time, not separate from them, and therefore when one speaks of Time, we also describe dimensions of Space as well.

ESTIMATION OF THE FUTURE

We can also access the future mathematically by estimation. At a simple level, if somebody is walking 16 steps and we know how long it takes from step A to step B, and each step is similar, we can project, but only with some degree of accuracy, and not absolute certainty, that a quarter of the way through the individual would have, for example, completed the fourth step. However, because with our limited senses, we only experience one quantum of time, this produces the whole indeterminacy components in terms of velocity and space, we can make logical predictions in the future but only with some statistical likelihood.

Linear time usually might be mathematically interval or ratio in nature, for example, clocks or VCRs, or dates in newspapers, but examples of memory or precognition may not be interval but ordinal in nature [105]

TIME SERIALITY AND INFINITE REGRESS

John Dunne [106] pointed out the paradox of a series of moments and their timing, for example in dreams. We could, if we were an observer outside such time, measure the time accurately with a clock. We could perform that repeatedly forever, until therefore, we could produce an *infinite regress*. Dunne contradicts himself arguing this is not infinite and we can understand why: This is not a continuous infinity, but a countable one—hence transfinite. Therefore, Dunne's infinite time dimensions appear to apply the logic of Georg Cantor's model of a transfinite series of numbers in finite reality [107], which in this instance would be a discrete, countable infinity, not the real continuous infinite. However, applying Close's new math called the 'calculus of distinctions' [108-110], this is not 'infinite dimensions' of extent, they are instead 'infinite dimensions of content' with each reality parallel or parangular (at 90 degree angles to higher dimensions) to each other in a non-Euclidean existence. Dunne's descriptions are esoteric and very difficult to follow, even after reading his theory and book several times. The major difficulty is the mixture of science with, not even speculation, but ideas that are stated as fact, yet are clearly not facts.

This kind of model involves observers outside a box. It is a theme Neppe used in his initial N-dimensional vortical paradigm [111-114] [111-114]. It can be one way to apply infinity, but in a finite way, it would be meaningless to conceptualize infinite continuity discretely as in the finite context.

More generally, the absence of free-will simply produces a philosophical helplessness, a fatalism of inaction. But complete free-will in 3S-1t would imply no learning of psychological, social or theological behaviors. It must be relative to one's experience. Therefore, more correct terminology is *potential freedom of choice:* Here we can potentially act by overriding our learnt and genetic predispositions.

DUNNE AND MULTIDIMENSIONALITY

John Dunne's basic thesis relates to demonstrating 'serial reality' of time. Translated into TDVP finite terminology, time is occurring in discrete periods and discrete points: It is moving from one period to another, and we can demonstrate that we can experience information pertaining to the future, in the present time. Therefore, Dunne's main hypothesis relates to the fact that time is not a moment in time, but *a single dimension of time* with it occurring in a *series* of *discrete* events. As indicated, his further examining different observers

observing time from the outside, produces an 'infinite regress'—the observer observes other time, then the next observes their observation, ad infinitum. This allows Dunne to talk about 'multidimensional time', but it is always 'serial'—like electricity jumping from node to node. The other difficulty is how he defines concepts such as 'seriality' and series. Yet this model of a different kind of multidimensional time —different times in observers in parallel, or regressive time, jumping from one observer to another like a serial electrical current should be examined in the TDVP context.

INFINITE REGRESS AND DUNNE'S PARALLEL TIME IN THE TDVP CONTEXT

How would we explain Dunne's 'infinite regress' concept applying the TDVP model? Because "regression" implies jumps from one Time variable to another, it produces different dimensions of extent each involving 'conscious' observers outside the box. This means the observers become transfinite. We propose that thinking about these Time dimensions in isolation is incorrect because it produces purely time domains. Transfinite Time dimensions alone cannot exist alone, because by necessarily impacting an observer, they impact "Consciousness". The key therefore is a "Time-Consciousness regress" not a "time infinite regress" alone: The transfinite Higher Consciousness dimensions have "Time" playing only a subordinate role. We, therefore, can describe it as NC- (0 to N) T (where N in T may be any of 0 or imaginary through to transfinite numbers). Space may or may not be relevant in this context. Moreover, this will vary by the domain (series of dimensions) conceptualized: Space and Time could easily appear relatively nonlocal, so S=0, T=0 or they may be SN-TN-CN. However, the C may fluctuate in dimensional quantity (fluctuating dimensions) and cannot be 0.

PARALLEL TIME IN THE TDVP CONTEXT APPLYING DUNNE'S CONCEPTS

Dunne critiques anything pertaining to "parallel time" happening at the same moment, yet implies that each person lives in his or her own particular universe. If this were so, then this does involve tens of different dimensions of Time as these are content variables. The density of such events may be converted to different Time Variables of Extent paralleling themselves depending on actions and thoughts, and modifying themselves through choice implying three time dimensions. However, these could reflect only the first three time dimensions in the first nine STC levels. Beyond that, the TDVP model necessarily requires

time be part of "metaconsciousness" in the transfinite.

FREE-WILL IMPLIES THREE FINITE TIME DIMENSIONS

If there is such a thing at that finite level of freedom of choice and freedom of will, this means we can actually meaningfully, at least to a limited degree, control our future. This for many, including ourselves, is philosophically satisfying and a philosophical necessity. *Now freedom of choice may not occur at the infinite level* because time, space, and consciousness all exist as a unit and therefore, ultimately the infinite regress could look similar but the "routing" to such infinity for any individual-units may be necessarily different, because we would have chosen which way to go.

CLOCK REALITY AND ORDINAL TIME

However, in 3S-1t physical standard reality, our second and third dimensions of time are logically ordinal not interval, relative to our observations in 3S-1t, if they exist (and theoretically, they do if we have free-will to make choices). In other words, if we made a different choice via free-will, then the choice went into a different direction, and we can't measure that time as interval moments of time with a clock, because such a clock would be purely subjective. We can only measure the gradual directions and possibly the end-points but the exact timing is indeterminate—effectively, we cannot locate and predict the 'orthogonal velocity' (or 'density') of the new time experience unless we are occupying that specific dimensional clock and, without considerable mental expansion, we cannot appreciate all three time dimensions at the same time.

If free-will exists, then time is necessarily multidimensional. Free-will could reflect the second time dimension, and because of density of impacting other individual-units a third time dimension: Choice implies a further linear wave so a plane—2d. Free-will might demonstrate additional time dimensions because there are multiple metaphorical branches which may lead to other options.

TIME AND CONSCIOUSNESS, AND STC

At the end of those choices, consciousness manifests or may be conceived or not experienced as those extra dimensions, although time might have components of that consciousness, just as space does. If in a dream, you dream about a place and a duration of time, is that a consciousness dimension, or is it a time dimension or is it space? This is an example of STC in our TDVP all inseparably tethered together at a higher dimensional level, with each

dimensional domain embedded in the next higher dimensional level, but manifesting individual tentacles of one or more dimensions of space, time and consciousness, that are theoretically separated by a complex TDVP process that we call 'vortical indivension' and manifesting, for example, as entanglement or psi. (Technically, indivension is an important new TDVP term. It referring to the movements of *indiv*idual-units [such as electrons] across, between and within dim*ension*s. The movements are usually rotating and spinning, which means they are 'vortical'.)

ARE THERE OTHER MOTIVATIONS FOR THREE DIMENSIONAL TIME?
We list a few of these briefly and without comment here.

- *Physics:* 3 dimensions of time are based on the concept of warped fields.
- *Consciousness:* The unified STC demonstrates S=3. Therefore, at the tethered area, T must be 3 in lower dimensional reality.
- *Psi:* If free-will exists, then time is necessarily multidimensional. Free-will reflects the second, and because of density of impacting other individual-units a third time dimension: Choice implies a further linear wave so a plane—2d. Only free-will demonstrates another third time dimension.
- *Archetypes of actual time?* This could be debated both in terms of existence and implications: Memory and precognition all reflect 1 dimension. 'Akashic records' [115], if they exist, may reflect parallel or parangular time but not necessarily in non-linear dimensions. On the other hand, these 'records' might not reflect time, but merely an analogy of time in pure consciousness.
- *Thought experiment:* Time will be passing at different rates on the sphere and the plane. We can calculate the relativistic time distortion and establish points defining a time-line for each dimensional world. Thus, there are two time-lines that coincide only when the clock on the sphere is exactly in the plane. In this case, time can be represented by two lines crossing at a single point. Two lines crossing define a 2S plane. Thus, time is, in this case, two-dimensional, and this is a 3S, 2T reality. If not, is it in a further dimensional reality because there are more than two time solutions?
- Multiple alternative realities present in each individual-unit. But terms such as "many-worlds", "many universes", "alternative realities" are not mathematical as they may not necessarily imply worlds or universes or multiverses. Therefore, a term like "co-existing reality" could be used as

less prejudicial. 'Co-existing' is often referred to as within 3S-1t, but it could be applied to any dimensional representation and even the infinite because it is not specific. However, reality may not be co-existent or parallel, because it is relative to the domain, and also because it can be ultimately unified. Hence, we prefer to use our neologism "parangular".

- *Relativity:* Passage of time as measured by atomic clocks is ultimately tied to light speed. So, if light is slowing down, so is time. This is a dance that we refer to as 'Relativistic time'.
- *Origins:* The time singularity is this moment in time. T=0.
- *Logic:* All populations parallel to these linear dimensions reflect a second and then a third dimension depending on the complexity of the description.

VOLUMETRIC TIME DENSITY

The 'density' of that choice could be through a consciousness expressed in terms of the time. It is impacting others with the same different kinds of linearities and their own special vortical expressions in 3D reality. Free choice reflects all coming together. It ultimately expresses a 3-dimensional Time in one way, at the same time perceived or conceived as conscious finite experience with an extent of discrete time because it is in moments.

But also, this time consciousness can express an N-dimensional time in another domain, because metaconsciousness reflects both conscious infinite experience because if we move to N-dimensional time, the dimension beyond 3 hypothetically may not be pure time, but time consciousness. It experientially will not have any effect on the time lines that are experienced my 3S-1t individuals.

PARALLEL DIMENSIONS AND UNIVERSES AND THE USE OF PARANGULAR

The term *"parallel dimensions"* is a misnomer. They are not necessarily parallel: Indeed, they may be anything from orthogonal to parallel and at any angle—parangular—some intersect other dimensions and this is why we have intersections, e.g., via vortical indivension. There is a literature on parallel universes, but *parallel universes* do not necessarily imply parallel dimensions. Parallel in this sense was initially used in an inexact manner and has just been perpetuated. It was never intended to mean that all of the dimensions of say two universes reflect the consequence of the drawing of distinctions of two universes

whose dimensions were parallel.

WHAT IF WE COULD APPRECIATE 3T AND THEREFORE, 3S-3T?
A conscious entity in the rare state of being aware of the finite S3T3 so 6-D continuum would be enormously advantaged in awareness but not be in an omnipotent, omnipresent position of being aware of all of the time-lines, all the pasts and futures of all individuals as this is necessarily linked with the infinite. This distinction can be drawn applying an infinite number for time and space but not for finite time.

SUPPORT FOR 3 DIMENSIONS OF TIME AND EXTENSIONS: SOME COMPLEX SPECULATIONS [24 P251]
1. Time as a moment is a singularity. Linear time may be planar. Free-choice is 3D finite. The moment experienced is in 0 dimensions. Linear time in an individual involves the past, present and future, e.g., memory. Because of curvature or waves of time, we have, at least, planar dimensions. But what could have been (ending as one alternative being free-will = choice) provides for different parangular routings (directions). Therefore, we get to at least 3 finite time dimensions because the resultant collective time is at least 2 dimensions added to the first.
2. Interestingly the poet WB Yeats, recognized gyres of time. Intriguingly, the way it was described was really vortical time, which is 3 dimensional. [116]
TDVP's Life Track allows for limited overall free-will, with significant and major changes in 3S-1t.

- Psi's potential influence on life, effectively allows us to extend our metaconsciousness and impact significant changes on all levels of our culture.
- An observation (i.e. the awareness of objects in 3S-1t) is understood to be a *relative state*, an event experienced by the observer, establishing a "time-line" through 9-dimensional (9-D) reality, part of the "life-track" of the individual.

FREE-WILL IMPLIES THREE FINITE TIME DIMENSIONS [24p240]
If there is such a thing at that finite level of freedom of choice and freedom of will, this means we can actually meaningfully, at least to a limited degree, control our future. This for many, including ourselves is philosophically satisfying and a philosophical necessity. Now freedom of choice may not occur at the infinite level because time, space, and consciousness all exist as a unit and

therefore, ultimately the infinite regress could look similar but the "routing" to such infinity for any individual-units may be necessarily different, because we would have chosen which way to go.
However, paradoxically, if any individual has free-will as opposed to predestination, the logical consequence is to posit that he is experiencing not only the second dimension of time, but necessarily the third dimension of time, as well.
Moreover, our specific postulate of three-dimensional time further suggests free-will. In TDVP, we posit that if that watch then ran only purely automatically, without guiding or meaning in the current finite subreality, then TDVP would make less sense, because even limited free-will would be compromised.

Effectively, by asserting free-will, we are making a choice. This is not just a parallel reality choice based in a second action linked up with time progression into the future. It is therefore, not just another parallel linear time line but it is a plane because it has impacts on everything else: It changes the actions of others, be they finite animate individual-units and on finite inanimate objects. That choice therefore, links up with others, producing a density, because we have our initial linear time, and our new choice, which impacts on others. This creates a 3D component. Applying TDVP, we describe the variations of impacting others vortices by vortical indivension. No man is an island entire of itself! [71] That choice necessarily has a certain curvature or planarity because of fluctuations: This reflects something that is a plane plus a line. This contrasts to absence of choice, a certain fatalism, because then the linearity (which may technically be curved one way but experienced as a single time-line) has its own kind of manifold—its own kind of movement through a curve—producing one reality of predestination without free-will. Of course, again we would have an infinite regress. Technically, as Georg Cantor would describe it, we would have an 'infinity of infinities' [107] at the continuous infinite level of reality.

How would an infinite regress affect free-will? Free-will may be relative, and in this context relative to the 3S-1t domain. The depth of time is consonant with the potential for choices and free-will. However, that free-will could be linked with C-substrate multidimensional manifestations that may be tethered with our apparent 3S-1t -1C domain of time and C-substrate. Using this explanation, free-will occurs in individuals in the apparent 3S-1t. This is because they are not really living in 3S-1t but in, at minimum, a 3S-3T-1C or even 3S-3T-NC. This

allows individuals to manifest their free-will choices in 3S-1t without contradiction. Free-will in any domain might not be free-will in another domain. However, if one combines the infinite and allows for meaningful interventions at that level, any finite multidimensionality should theoretically reflect some level of free-will. This is not complete free-will because it must conform to higher dimensional elements as well and must be part of the broader order of reality.

TIME, MINKOWSKI, QUATERNIONS AND IMAGINARY NUMBERS

In retrospect, the idea of space-time of Minkowski[117] has been dramatically extended: TDVP may have succeeded when others did not because of the recognition of the needs for multidimensionality, extended consciousness, ordropy, life, infinity, tethering, content / process (vortical indivension), origins and a supporting mathematical model as well as applications of LFAF and falsifiability, the empirical methods of science and the calculus of distinctions.

WHITEMAN'S MULTIDIMENSIONAL TIME

The remarkable mathematician and mystic, J.H.M. Whiteman, supported the idea of multidimensional time. This was not only based on Eastern mysticism [118], but uniquely this scientist and polymath had more carefully documented deliberately induced subjective experiences [119] than possibly anyone else ever[120]. His complex writings examined hierarchical potential versus actuality, structures in physics, and the implications for multidimensional thinking of such subjective experiences. [121-124]. Whiteman also described three levels of time [125]:

1. He used *"T",* more broadly than we use it in TDVP where we reflect passage of time. Whiteman describes this as the interior causation of a potentiality field that is set up or modified by interference with the field through a force such as gravitation or psychokinesis. Time T is more structural or spatial, a "plan" that can be accessed in the right state, potentiality from which one can read off past or future, although the plan is not completely fixed. This allows for the intervention paradox. But the "plan" is largely fixed.
2. He used *"t",* like we use it in TDVP, to reflect this moment in time, but also recognizes this as passage of time. Whiteman describes this as the actualization or manifestation of a not necessarily physical space-time reality; and
3. Whiteman's third "dimension" (different from our use of dimension as space-like variables) was the term τ ("tau") and this reflected intelligible structure and means. Unlike T, τ is mechanical and unalterable, what one might compare to collapse of a wave function once the actualization has

been triggered. But neither T nor τ are measurable: This is only possible with the actualized 't' as in clock-time, and so becomes measurable 'passage of time'.

Interestingly, Whiteman's three variables of time were combined with the three spatial dimensions of length, breadth and height. Of course, we draw this triadic distinction in TDVP and link the initial three dimensions of T-substrate and C-substrate with the S-substrate. Finally, Whiteman recognized the relevance of objective and subjective time, of the data on psi, of non-physicality, of the laws of nature, quanta [122], of hierarchies and of universality. [124-127] Combining Whiteman [125] and Dunne in his *An Experiment with Time* [106] (where although Dunne talks of time seriality, he effectively is describing parallel time), there are actually 16 different models of Multidimensional Time. [24] Such an idea is therefore not a rarity.

Let's introduce the concept of parallel universes, here as a comparison:
Parallel universes are whole sets or whole domains. In fact, parallel in the literature of Everett [88] and other people who use that to understand quantum physics, refer to it as just a stratagem because even if parallel universes exist they don't interact, and if they did they would do so in a way that we would never detect. They were using it in rather a loose manner—here's a universe and here is another one. While they may be very much alike they are not co-existent. Our model requires interactions involving all of reality: Such interactions enhance and diminish individuals, groups, families, societies, cultures and ethnic identities. We are never the same when interacting or meeting others and the same applies even not only to sentient beings but also to the so-called inanimate world. Everyone changes everyone and everything else.

Congruent realities may be momentary with time-lines crossing. To become totally congruent would be like cloning, in effect. Two consciousnesses with the same congruent time-lines would mean the same consciousness and logically, two physical individuals or individual-unit entities should not have exactly the same consciousness. [45] We suggest defining a new word so we don't need to use the word parallel, an unfortunate choice of words by somebody many years ago to describe the situation where a decision or the drawing of a distinction by a conscious being causes the universe to split into 'parallel universes'. Similarly, the phrase, *many worlds* exists [121], yet using another term like angular [128; 129] (where angular can be anything from parallel to orthogonal) may be logical.

We've proposed the term *parangular* [24], and we've used the phrase *individual-unit dimensions*[24] to reflect that *parangularity* has subjective components.

WHAT IF WE COULD APPRECIATE 3T AND THEREFORE, 3S-3T?
TDVP specifically provides a model for limited free-will, continual life—immortality, [63] origins, and the unextended continuous infinity of time. [24p367] An eternity in the infinite where time always exists at every moment and yet is dynamically changing at the finite levels, and where the present is the only moment in time that we in our physical world of 3S-1t can experience. This means that when we talk of 'free-will' it is relative to our 3S-1t experience, and that 'free-will' may have different levels depending on the dimensional domains we're in: It might not occur or be quite different if we were experiencing, as observers, dimensional domains 6 through 8, for example. Therefore, free-will is also relative to the domains of the observer's experience.

Also, by utilizing both the finite and the infinite, it explains that nothing begins or ends, and the finite beginning origins of such events as the 'Big Bang' can be seen as a 'Primary Consciousness' [130] (? G-d) event in the finite, contracted into a so-called 'singularity' [131] and then expanding continuously into the cosmos: This is one reason why our book is entitled *Reality Begins with Consciousness*. [24; 57-59; 61] At the infinite level, there is no beginning or end, and existence goes on forever: The beginning and the end are the 'same' in infinite time, except that there is no beginning and end in the infinite continuity. [25-30; 33; 132] But that existence involves impacts and influence as an order of existence, dynamically changing all the time —except that all the time is now when 'observing' from the framework of the infinite! [133] This refers to an order, and not a misnomer like 'chaos', [134-138]. It would only be 'chaos' as in the models that might not conceptualize the relevance of the infinite.

Awareness of more time dimensions could allow us to examine *evolution* [139-143] as it was happening: TDVP conceptualizes evolution [23; 24; 28; 65; 68; 144-146] as part of the required STC tethering: it would not just slow changes in structure occurring over time. The model of evolution being a progression without meaning would not fit the fabric of continual free-will. This means evolution must necessarily be meaningful and involve consciousness.

The TDVP model has also demonstrated a link of gimmel with 'dark matter' and 'dark energy. [80; 147] The correlation is so strong that gimmel could *be* the dark

substances themselves, or in union with them, [80; 147] if we were to understand multidimensional consciousness. Similarly, we now know that gimmel is closely in union with sub-atomic particles. [79; 148-150] This union was what we had originally formulated as 'qualits' [57; 58] early on in our model. [65] That was before we formulated the idea of 'gimmel' [79; 149; 151-154], but it was, in a way, the same: It was the realization that even at the quantal level there had to be a linked consciousness that was tethered to the quanta or was part of the quanta. Even then, in 2011, we recognized these subatomic components as more than quanta because they had consciousness. The concept of quality and later of gimmel are pertinent in our free-will formulation because we can recognize that it is not just the particles or dark substances that would be involved. It would imply rotations through 9-D and eventually impacts through infinity and that would introduce again the role of control of the infinite by choice, again a deity, in free-will. Moreover, we would want to conceptualize that the infinite continuity was ordered and impacting that order on our physical existence. [30]

Interestingly, TDVP supports the idea of a multidimensional order in the infinite ('ordropy') [30] —in contrast, with the classical tendency towards disorder called 'entropy' in 3S-1t [26; 27; 29; 132], a model that does not explain life well as life involves order. The ordropy impacts possibly through the finite because the infinite and the finite are always unified at every dimensional domain level including 3S-1t. This implies that 'G-d' (or the infinite equivalents) always can influence the action of everything (ranging from humankind to subatomic particles) in the finite. The impact obviously varies in degree, and we would regard the so-called 'quantum or qualit consciousness' as being at a far, far lower level than humans, except paradoxically humans are made up of quanta. This might the reason why Kabbalah gives a primacy to lower beings in terms of their potential to actualize their behaviors by free-will (?) into good or positives. But effectively, we speculate that the concept of ordropy, with the impact of order from the infinite to the finite, would be a major way in which theism would happen.

Gimmel in union with particles, and 'qualits' are different from another who has written significantly on Quantum meaning, namely the respected physicist, Dr. Amit Goswami, who has used the phrase 'Quantum Activism'. Goswami recognizes probabilistic features and limits freedom of choice to areas associated with 'conditioned choice', which effectively means that even within limits, we do not really have free-will. TDVP, too, points to Quantum Consciousness, and

therefore probabilities, but this is applied predominantly in the dimensional context and eventually within the probabilistic infinity. TDVP's bidirectional link of the finite and the infinite, reflects part of the unification of the single unit, and recognizes the core unification with the infinite. [24 pp 370-371] Goswami [155-157] does not utilize concepts equivalent to ordropy, which are fundamental to TDVP in its multidimensional context, nor does he show how life is infinite and therefore immortal or allows for life in 3S-1t. However, he does not perceive physical death not as an extinction but as a transition: But he doesn't scientifically explain physical life or survival adequately, instead, he applies it as a belief system of , for example, Theosophy [158] and Indian teachings.

Neppe Law of Cause and Effect Revisited: Section 6 [j]

For an important summary perspective, we mention a concept Neppe strongly regards as true because of his own experience and some follow-up theorizing. We have referred previously to the *Neppe Law of Cause and Effect ('NLCE')*. [35] Any spontaneous events are difficult to prove because there are no validating standards on what we perceive as our 'single point-to-point time-dimensional reality'. However, briefly, in NLCE, we postulate that a 'psychic' may sense precognitive data. In some way, this may be because it has become a 'reality' in some kind of alternative, 'thought-like' (consciousness?), multi-dimensional domain that is nascent, unfixed, and fluctuates from moment-to-moment. This instability can be compared with an altered-state like we experience in dreams. At that time, the 'psychic' may obtain impressions that are correct, but only at that moment in 3S-1t. Nevertheless, our more stable, usual 3S-1t physical reality can still be altered because it hasn't happened, and when that change actualizes physically in 3S-1t, the psychic seems to have missed the precognition. But, from the framework of that original dimensional domain, he may have been spot on at the time of the prediction. The cause has change; consequently, the effect has changed. But we just cannot prove this cause-effect relationship to scientists. Yet, we may have contributed to the spontaneous reality experienced by mankind.

The following is recounted in first-person by Professor Vernon Neppe: "More than fifty years ago, as a twelve-year-old, after a rather remarkable 'show-me'

[j] Vernon Neppe and Edward Close: Neppe Law of Cause and Effect Revisited IQNJ. 10:1, 45-47. 2018. S6.

experience, I developed a model that I, at that point, named the 'Neppe Law of Cause and Effect' (NLCE). Effectively, I proposed that we have free-will and yet can change the future. This is, even today, a problem that even till now has proven largely insoluble using other explanations. We could give some examples, but they are lengthy. Suffice to say the following: Essentially, when an impression is precognized (e.g. in a dream, altered state, or waking consciousness), it may be reflecting what is happening at that moment in another, let us call it 'thought-realm': In effect, a true impression being picked up of an event was actually occurring at that moment, but it was not (yet) in our restricted moment of our present time-perception in 3S-1t. Now, circumstances change. The current cause-change produces an effect-change. Effectively, a new event occurs in that 'thought- realm' instead. Therefore, a precognition picked up by a 'psychic' may appear wrong when it doesn't happen; but it was not wrong because it happened in the 'thought realm': It just did not physically actualize in 3S-1t.

On the other hand, there could be other overwhelming impressions (or in TDVP terminology 'impacts'), with such powerful current causes in that thought-realm predestination, that a precognition would almost certainly come about physically, and not be easily changed: Let us say that millions independently think X which would produce Z into the future. Now a few individuals think Y, but unless those few persons influence the millions, that may not change the event X from happening as Z. As a variant, sometimes the cause may ultimately be expressed through mainly 'physical' not 'consciousness' causes: X could be so powerful because it might be geophysically based, as in a strong earthquake. But, even then, perhaps, we might be able to prevent some of the anticipated damage by acting on an intuition and moving away from the epicenter. "

"Historically, I developed this model long before I discovered Dunne's *Experiment with Time*.[36] I thereafter studied Dunne's thesis several times, and confirmed that Dunne's model does not emphasize changing causality, and therefore actualized free-will. It is not clear how Dunne treats precognition in the context of modified cause and effect. He refers to 'serial time', when possibly aspects could better be conceptualized in 'parallel time'. But I regard both as too simplistic. I prefer to apply a broader model of an N-dimensional reality of time, space and consciousness, where events may interface but at parangular levels (a concept that we developed only much later in *Reality Begins with Consciousness*. [21]). Nevertheless, Dunne's conceptualization of serial time,

can reflect the discrete quantal measures we describe in TDVP. [159] Discrete quantized events portray very much TDVP's finite reality, however, we also recognize that these events must be volumetric, and there is also a continuous infinite reality impacting everything." [160]

"Remarkably the fundamental tenets behind NLCE have not changed in a half-century, remaining with the same basic structure: Change the cause, and alter the effect. The cause may be hidden, but the effect can be noted in our physical reality—the change may be minor: You cancel a cab that you have a bad 'feeling' about, and take another, and no adverse event happens. Effectively, based on spontaneous experiences to which I've been exposed, and then descriptions of cases drawn to my attention, I postulated that both precognition and actualized free-will was demonstrable." [35] Precognition data, as indicated, is now regarded as overwhelming (more than six-sigma or a billion to one against chance). [161; 162]. However, *sometimes intuitive certainties about the future do not come about:* Possibly the prediction was wrong, or misinterpreted, *but maybe it turned off*. In the NLCE, one explanation is that at any point, in our limited 3S-1t-1C sentient reality, the events that were moving inexorably toward one result, change because *we changed the fundamental cause: by so doing, we change the effect*."

"My experience working with 'psychics' who specialize in precognition is that most of the time (maybe 90% of the time) the events do not actualize, almost as if the event has turned off before it reached them. This again, encompasses the life-tracks concept and turning off the track. Yet, the data on 'prayer' and healing strongly suggests that we can impact such events—we can either impact the adverse event directly, or perhaps bi-directionally influence by allowing our visualized prayer to reach another source (? G-d, or the infinite—and those may be synonymous) that then impacts events at the 3S-1t level, changing the effect." 163-168

"Nevertheless, we cannot 'verify' most events in our physical 3S-1t domain. For example, a 'precognizer' (someone who does precognitions and has been successful) had a strong intuitive impression. He posted this on what might be regarded as a monitored Internet site that was being read by authorities. He 'felt' that a launch due for that morning would lead to the space-shuttle exploding. He needed to warn of this. Yet, apparently all checks had been done and the shuttle was ready to go within some minutes. It turns out that NASA further

investigated and they found a problem. The launch was delayed till the problem was fixed, and nothing untoward happened when the launch occurred.

This begs the question, however: Would the accident have occurred? We don't know but given the logic it might have, and changing the cause of the precognition is conceivable. This kind of example, and the many other unproven ones that I encountered in a precognitions group I ran, might imply one is *master of one's own fate*. But, on the other hand, there is no easy way most psychic predictions can be validated: They are subjective. Even more so, fragile individuals might psychotically misinterpret reality [169], a major complication psychologically."

NLCE explains free-will, and the changed cause appears rather obvious, but this had not scientifically been written about before, and so translated. For example, later, in 1975, Alan Vaughan[170] pointed out, as an aside, that one can rarely change patterns of 'prophecy', by not acting on an already established cause. However, in my opinion, in NLCE, Vaughan's 'rarity' is not a rarity at all, but something that should work every time provided the cause is modified, and there are no other alternative factors opposing it. This allows a simple escape valve for us as individuals where we are the only one's making the choice—large or small. However, there often are alternative factors, because 'life-tracks' involve multiple intervening factors from many other areas. Changes of our 'life-tracks' requires us incorporating all other related tracks.

NLCE therefore is part of the whole 'life-track' matrix conceptualized in TDVP. Because there are changes in time dimensions it implies multidimensional time. And it refers to consciousness in higher dimensions, as well.

The Evidence for Precognition: Section 7 [24p207. k]

And now a final element: How do we know Precognition is true, and what of presentiment?
There are nine psi—consciousness—protocols with six-sigma data (Table 2). This is truly remarkable and each reflects more than one in a billion frequentist statistics against chance. The ninth of these six-sigma protocols involves

[k] Vernon Neppe and Edward Close: The Evidence for Precognition IQNJ. 10:1, 48-52. 2018. S7.

research in precognition: Precognition reports are often spontaneous and difficult to quantitate, particularly as there may be complex psychological elements existing, as well. We examine in this instance individual site research, which also combines into a meta-analysis, both of which generate six-sigma data.

It must be emphasized that these are rare events. [24p208-209] This is why studies require large sample sizes because there are just slight deviations from statistical chance. This explains, too, the reason 3S-1t appears to work most of the time in our usual life. We could have classified precognition as one of the solid six-sigma protocols, but instead we're listing it as the ninth because the data though impeccable, has derived only from one main source and some subsidiary sources (which for any other scientific endeavor would be sufficient)! [24p219]

PRECOGNITION AND SIX-SIGMA DATA [24p221]

Precognition involves information about knowledge of the future, which is not obtained by statistical prediction or logic. It can be studied in the lab situation with excellent controls for any kind of information leakage, particularly as the event being considered has not yet occurred in our current reality. Nevertheless, precognition research demonstrates six-sigma data in psi research. In this regard, there are two important databases: The first is a meta-analysis of many studies, and the second is a particularly impressive study from one lab, both with overwhelming data that is more than six-sigma—roughly more than one billion to one against chance. [171]

Table 2: The Nine Six-sigma Protocols in Consciousness Research

1.) RV: Remote viewing
2) REG: Random event generator
3.) Ganzfeld
4.) GCP: Global consciousness project
5.) Presentiment
6.) Backward precognition (Bem protocol)
7.) Survival-superpsi
8.) Staring protocol

The precognition meta-analysis was performed by Charles Honorton and Diane Ferrari [161]. They analyzed research data from 1935 to 1989 pertaining to precognition. They examined 309 precognition experiments carried out by 62

investigators. 50,000 participants were used and there were more than 2 million trials. 30% of these studies were statistically significant, whereas only 5% would be expected to be significant by chance. The statistical significance of this meta-analysis is overwhelming even for six-sigma data: 10^{20} against chance. This on its own constitutes overwhelming evidence for a mechanism occurring that cannot be explained by chance.

The single lab study comes from the Princeton Engineering anomalies research labs in Princeton, NJ. Robert Jahn, Brenda Dunne and Roger Nelson performed 227 formal experiments on precognitive remote perception[162]. Individuals were asked where one of the researchers would be hiding at a pre-selected later time. The probability against chance was 1 in 100 billion. The description was accurate to the same degree whether the viewer was looking hours, days or weeks into the future. This has implications about the concepts of future time and the inverse square law.

An aside: It may not be precognition but psychokinesis (mind over matter; or mind controlling events). This might mean that free-will actively impacts what appears to be precognitive events. [171; 172]

Often results can be interpreted as supporting psychokinesis because of the set influence of the REG (Random Event Generator) attempted [172, 68], but conversely this may support precognition knowing what to predict. [24p217-219] Essentially, in a meta-analysis by Radin and Nelson, the odds against chance were far less than even a staggering one in a trillion to one—they were 1 in 10^{17}. Their study assigned each experiment a quality score, examined the 152 references they found in 832 studies. 68 different investigators performed 597 experimental (of which 258 were from the PEAR lab in Princeton) and 233 control studies (which were well within chance levels). [173, 174]

THE EVIDENCE FOR PRESENTIMENT

One highly relevant recent exciting piece of research looks at unconscious responses, sometimes in the brain, other times in other parts of the autonomic nervous system (e.g., heart) [175]. The most provocative is research on presentiment, because not only is this psi research, but research where one has to change one's perspective of time. [175-178] Effectively, this is work with precognition with the difference that this knowledge is not even consciously made, it is completely unconscious and looks at events just seconds before they

are actualized. The apparatus generally is very sophisticated and therefore, such studies are usually very expensive. The most important physiological measures used in presentiment studies are heart rate, EEG, fMRI (BOLD signal), and electrodermal activity (EDA). So far, all of these have shown evidence of presentiment, so the whole body appears to be involved. Presentiment is measured in terms of certain physiological changes in the brain, the heart or in one's brain waves. Communications generally involve two different individuals, if necessary separated in different rooms, but monitored together by a stimulus to the one which can also be recorded in the other, and surprisingly reflecting, at times, the response seconds before. Quantitative measures include functional MRIs or positron emission tomography (PET). Experiments have also been done in a free-running environment. Much of the early work to that date has been well-summarized by Radin and Nelson [86; 173; 174] but research continues. Testing presentiment hypotheses in experimental research designs that are familiar to mainstream psychologists, such as studies about learning and habituation, may encourage psychologists to better appreciate the anomalous results and to attempt to explore presentiment hypotheses themselves [175]. However, the methodology has to take into account appropriate techniques to perform and interpret: Harvard researchers have stumbled [114]. Presentiment research has even been done in non-humans, including earthworms! It is interesting, as an aside, that there do not appear to be significant declines in presentiment research, possibly because it involves unconscious measures. Essentially, when one again does a meta-analysis in terms on presentiment studies, the overall carefully assessed statistic suggests these results happening by chance are less than one in a hundred million billion ($p<1x10^{17}$ based on 37 studies between 1978 and 2010 based on Mossbridge, Tressoldi and Utts, 2011[179])! Many studies in this field of presentiment research have confirmed what appear to be these retrocausal effects, in which physiological arousal occurs *before* the stimulus [180]. Presentiment research has shown some special characteristics [175]:

- Emotionally arousing visual or auditory stimuli produce stronger anticipatory effects than more neutral ones.
- Women appear to be somewhat more sensitive to presentiment than men. Effects of meditation are mixed.

THE ROLE OF PRECOGNITION. [24p234-235]

If we accept the cogent evidence for phenomena like precognition, locality becomes untenable. Therefore, we would have no impediments to the preference for realism. In fact, the Leggett inequalities, a somewhat improved extension of

the Bell inequalities [181], are frequently touted as having ruled out nonlocality and forced the acceptance of nonrealism. The Leggett inequalities (from Anthony James Leggett) are a related pair of mathematical expressions concerning the correlations of properties of entangled particles. The inequalities are exemplified in terms of relative angles of elliptical and linear polarizations. They are fulfilled by all physical theories that are based on certain non-local and realistic assumptions that may be considered to be plausible or intuitive according to common physical reasoning. [182]

THE ROLE OF TIME

However, Leggett's assumptions in deriving those inequalities specifically ruled out the backward-in-time nonlocality that consciousness and time researchers are accustomed to dealing with. [181; 183; 184] Therefore, nonlocal, realistic theories are appropriate and supported by precognition.

The Leggett inequalities are violated by quantum mechanical theory. [181; 182; 184; 185]

The results of an experimental test in 2007 by a team directed by Anton Zeilinger showed agreement with quantum mechanics rather than the Leggett inequalities for a broad class of theories. [186] The Leggett related work is probably the most important theoretical advance, though the inequality refutation doesn't quite accomplish the task of absolutely proving nonlocality though with precognition, it could be argued that it did. The Leggett–Garg inequality is always violated on the microscopic quantum mechanics scale. [181]

REVISITING NONLOCALITY

Establishing nonlocality is based on significant supporting data. The original experiments confirmed that entangled particles violated the Bell formulas. Nevertheless, there was still an "out" for those insisting on "local realism": [182] The experiment was slow enough that information about the detector settings could propagate from one end of the apparatus to the other long before the photon measurements could take place. This meant that a purely local process could, technically, be carrying the information the particles needed to "make up their minds" about how to be measured. There were no particular candidates for what might carry such information, but the communication was possible in principle.

Aspect refuted these local-realist ideas by randomizing the choice of detector

settings on extremely short time scales. This made it such that there was no way before the measurement was complete that any light-speed-limited signal could carry information about the outcome of detector A over to detector B (or vice versa). [187; 188] Technically, extending the causal gap to miles does nothing to make the demonstration of nonlocality more rigorous: It simply tests the QM prediction that EPR correlations don't weaken with distance—which they don't.[182] But such research has been done to consolidate the previous work.

TDVP and Freedom of Choice: A perspective: Section 8.[1]

In this final section, we will summarize Triadic Dimensional-Distinction Vortical Paradigm (TDVP) briefly in the context of causality. TDVP is complex, but the work of sixty years of combined cogitation by the authors (Edward Close and Vernon Neppe) is being articulated. We encourage a full reading of *"Reality Begins with Consciousness"* to further appreciate the finer points, particularly as the focus here is free-will. Can we choose? Yes, but to a limited degree.

Effectively, a pertinent aspect, in this instance, of the TDVP model involves 'metatime' (a universal all-existing time in the *infinite*). Metatime is an aspect of our "infinite subreality" and involves all of time (in what we would conceptualize as) "simultaneously". The continuous infinite subreality necessarily interfaces with our discrete finite dimensional subreality. This 'finite subreality' includes our current physically *perceptually* experienced 3S-1t (the three-dimensional space—moment in time domain that we experience every day). However, our 3S-1t domain is limited greatly by the *"physical reduction valves"* we have (for example, limits in all our senses and also of the instruments to measure extended extremes of such phenomena as vision and sound): This creates limitations of perception and consequently in *conceptualization* and *interpretation* of our subjective 'experience' in our 'consciousness'). Because of the commonality of higher systems like physical, life, consciousness and social science experiences, our subjective experiences ultimately, partly express themselves as "common actualized realities". These common realities can be shared almost completely (e.g. 99% or more) with other individuals. One common experience is experienced in 1t— the experience of this moment in

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time (and today it could be commonly experience by billions on a TV screen — correcting for slightly different delays in transmission and receiving).

Our perceptual limitations create a conceptual illusion of forward time only in 3S-1t, but given that time exists in infinite metatime, there might be no problem with backward or forward conceptualizations of "time" in specific domain realities involving much higher discrete finite dimensional levels or in a "continuous" infinite subreality. However, in 3S-1t, we cannot perceptually experience the revision of the backward track of time because we're experiencing only 1t. We can interpret the past but not change it: We can remember what we remember; we see use videos or other mechanical instruments to help—so we can conceptualize pictures of the past: But we cannot modify it in 3S-1t, and we cannot read two different simultaneous moments in the past in 3S-1t because the *discrete* changes we're dealing with, namely 1t (a moment in time) are conceptualized as results of previous *linear* time events. The aspect of "time" that is relevant to us and can be partly conceptualized is 3S-1T. But that is literally but a moment in the infinite metatime fabric. 3S-1t limits us to 1 momentary point in time and incomplete discrete linearity of past and present, with limited expectation or predicted conceptualization of the future). In finite subreality, in TDVP, one postulate (and motivation) is multidimensional time, and a subpostulate is that it is likely 3S-3T. Space and time is also associated with a "fluctuating" number of postulated dimensions of "consciousness" in finite subreality producing a finite 3S-3T-3C subreality. In 3S-1t we are very limited in conceptualizing the parallel or crossing optional tracks in finite "multidimensionality" ("dimensions" outside 3S-1t) including multidimensional time, because we cannot perceive them.

IN ESSENCE, IS THERE FREE-WILL? AND CAN THIS CAUSE A DIFFERENCE?

We answer these questions speculatively, but based on the data presented.

- *Is there free-will?* Yes. We argue there is ‘freedom of choice’, a term that we’ve used synonymously with ‘free-will’. But our free-will has limits: freedom of choice can impact our immediate primary contacts, analogous to the leaves on a tree touching other leaves, but leaving the forest largely untouched, though minimally possibly creating some wind: This wind—our impact—can spread further and further, to other non-contacts (our primary, secondary, tertiary, quaternary, quinternary and more distant groups) through the influences of these immediate and then distant

contacts. This continues, theoretically, ad infinitum. This means that to a limited degree, we can make the whole world better, even if that is in a tiny manner: Our free-will is 'relative' only, not 'absolute'. [20 21]

- *Is there only individual free-will or is there some kind of collective one?* Free-will can be more easily conceptualized in individuals. But, like all other 'systems models' it can involve various collective levels. This is why in TDVP, we use the term 'individual-unit'. [45] The individual unit can be all encompassing and at every group level such as family, social, cultural, ethnic and even collective world groups, and the same choices can be made at the individual and ethnic levels together at the same time. We could speculate that the same choices performed through many people or groups could have more impact than just one act of free-will. But, we could argue that the intensity of the choice would also be logical. This appears to borne out by psi data. [24 68 21]
- *Is free-will available to everything, even electrons?* Yes, free-will is available to everyone and everything, but all to the restricted limited degree that the limitations of the specific living or inanimate object might allow. Humans hypothetically should have relatively far more free-will than atomic particles. But even those subatomic particles can potentially apprehend or manipulate objects or events: pure randomness is unlikely; even at the electron level, there may be some component of free-will, and a multitude of billions of subatomic particles make up humankind, and everything else. There are, of course, major differences qualitatively and quantitatively between mankind and electrons. But to each their own.
- *What about G-d?* The only complete free-will would be if we could control the infinite. Theologically, this might imply a deity in an infinite continuity, impacting and influencing everything in our existence, and in every other universe. The degree of those impacts can be profound on our world. And our interaction or intercession at that mystical, G-dly, level may be through 'prayer'. [163-168] Perhaps the power of a deity, increases our free-will enormously. Perhaps that reciprocity could allow great impact for ordinary individuals.
- *On what model is free-will based?* This, again, is a speculation. We argue that free-will can be successfully applied from the Neppe-Close TDVP model. This Triadic Dimensional Distinction Vortical Paradigm covers all the bases to explain free-will and its actualization, as well as precognition. TDVP is not only not contradicted by any known data, there is great and growing empirical and mathematical support for TDVP. [12-14, 24]

- *Can that free-will have an effect?* Yes, it can. That would imply *'actualized free-will'* where not only did we *influence* other living beings, objects or events, but our free-will can *impact* on the nature of reality. Such impact might often be only minimal or slight. This is because there are many other influences all interfacing in our existence. This implies that precognition or psychokinetic influences exist. The data supports this and we've discussed the data [24] on precognition and presentiment in this paper. [172, 180, 175, 68]
- *How does free-will work?* We think that free-will may occur in more than just in our physical or material realm of 3S-1t: That is just the tip of a largely submerged iceberg. Applying a multidimensional model, the free-will concept goes beyond 3S-1t, possibly to varying but appropriate domains of the finite 9-dimensions.
- *Is time alone involved in free-will or is there more?* Free-will likely involves multidimensional time. It is possible that some or all of TDVP's proposed three dimensions of Time is involved. But there is more: Applying TDVP, there is a continuity with higher-level dimensions including the lower ones. For example, Space (S) might often be embedded within Time (T), and Time within Consciousness (C). This way all of STC is involved.
- *How specifically does any actualization of free-will come about?* It may be that the 'Neppe Law of Cause and Effect' provides significant insights. [35] Certainly, this model can explain short-term and long-term precognition, as well as free-will. Moreover, when the cause actualizes reality in our 3S-1t (physical) domain, or at least impacts at any higher dimensional domain level, it implies cause and effect. We might not know that effect has come about, but this is a very spiritual message for our whole existence. Additionally, the NLCE argues that we can almost definitely change our *immediate future* by making decisions, because there likely would be less interference from other 'life-tracks'.
- *Is NLCE then an alternative free-will model to TDVP?* There is no need for that. NLCE can be part of TDVP [12-14], and is fully compatible with it:
    - NLCE [35]can involve extra dimensions: this was originally described as "some kind of thought form or other reality";
    - NLCE [35] recognizes the need for a time change as events could then be actualized in 3S-1t, and is therefore compatible with multidimensional time;
    - NLCE [35] applies impact and influence;

Moreover, NLCE [35] appears to be the only model we know of that is compatible with both free-will and precognition. Because it's compatible with TDVP, this makes it a subset of TDVP, which then is also compatible, without contradiction, of the dual existence of free-will and precognition.

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Emotions, creativity, and the gut.

Introduction

As far as the history of human visual manifestation reaches back, people with creative abilities have been considered exceptional and usually thought of as people with a higher calling, even gifted by the Gods; nowadays they are recognized as artists. Anytime an artist attempts anything "creative," it is not without attempting to do the best to achieve at least the quality level of already known successful artists. The apparent motivation for doing their best would be to prove that they are worthy of the task, to boost their ego and, first and foremost, to exhibit themselves.

Our first creative attempts happen early in childhood, and it is then when we are faced with the first critiques, coming from our family members at first, and later on from our schoolmates and friends. These first encounters influence our attitude towards creativity in general and the way we perceive creative people throughout our lifetime. For the purpose of this article, we will not explore all the different aspects of the psychological impact of artistic evaluation in our growing years, but mention just two basic situations which should be sufficient illustration.

People who grow up supported in their artistic efforts, soon comes to the realization that any such creative effort requires the full attention of their intellect, possibly without any interruption, and that for the brain to work efficiently and effectively on an original mission, a few additional environmental conditions are required. It is not enough, as we thought in the past, to have a quiet space without interruptions, but also balanced homeostasis, supportive emotions, and comfortable feeling are more and more being recognized as necessary conditions for the brain's full cooperation in imaginative activity and, according to research over the last few decades, these feelings and emotions come mainly from around our belly, and the stomach is very much involved as well. The advice we were once given, to "just forget about the interruptions around you and focus on the work," are recognized as erroneous, because it has been proven many times that this approach just does not work.

Secondly, those who do not grow-up with creative support lose trust in their creativity, believing they are not capable of coming up with anything original, so they don't. This behavior, more often than not, comes from their earlier experience of the adverse reaction of their peers. Typically, as early as preschool, they heard, "Oh, you think you are Mister Famous," or, "You have to do much better than that to achieve anything." "If you continue like this, you will never get anywhere," or merely a negative headshake followed by a chuckle can be quite enough. For which the usual solution is to stop all attempts to create, and instead pick a famous person they feel a connection to, and mimic that person's looks and behavior to cover for their own distrust in themselves. In spite of the early negative experience, some people will rediscover their artistic ability later on in the life, as their creative calling overtakes their lost confidence, in which case, they often experience even stronger emotions compared with those individuals who grew up with creative support.

That intense emotion, often reaching an anxiety, known in some countries as "stomach neurosis", is experienced as an uncomfortable feeling in and around of our stomach, sometimes felt as vibrations and sense of being scared, which can lead to compulsive behaviours or attacks of panic and might completely

ruin any reasonable attempt to use our brain, not just for creative performance, but for any cognitive work we need to get done. Social interaction is especially impaired. For example, when we are required to do something or meet someone for the first time, we have uncomfortable feelings of different levels in and around our stomach, primarily in our gut. These feelings can be sometimes strong enough to evoke nausea or even diarrhea, but mostly it is just a vibration-like sensation in our gut we call “butterflies in our stomach,” which can be somewhat negative or positive at the same time. To help us to choose a correct solution and behave appropriately in such situations, we quite often hear “Trust your gut feeling-instinct” which is easier said than done unless the reality behind the expression is understood.

Ultimately, any artist creating an original piece (and in fact not only artists) always encounters some kind of feelings and emotions, which could be, as was said above, positive or negative, but almost always interferes with the creative process. In order to overcome these negative interferences, which could reach stress levels, and turn their hinderance into positive, supportive stimuli, it requires an essential understanding of the source of these emotions and feelings.

Reasoning

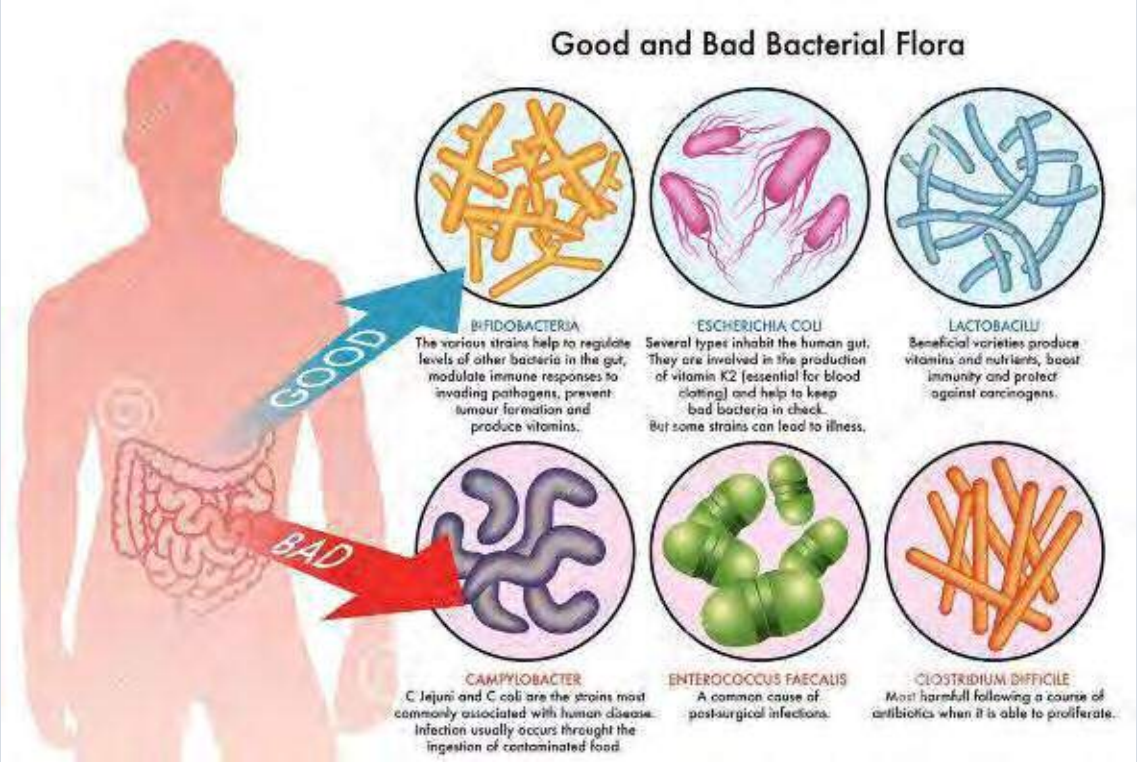
It has been quite clear for a century or so that the brain communicates very intimately with our stomach. Now we recognize that the gastrointestinal tract, the gut, and its microbiological content, create emotions and feelings which influence our social life, including creative cognitive performance. These feelings occur and are experienced by everyone quite frequently, and even though there is a large number of neurobiological studies, they are still undoubtedly worthy of a great deal of further research.

Digestive tract and the Enteric Nervous System the ENS.

To appreciate the impact of external stimuli on the gut and vice versa, as well as the gut's bacterial conditions, on feeling and moods, we have to understand the similarities and connections between the upper brain (in the head) and the second brain (the gut).

From the discovery of the neuronal sheaths in the gut in the middle of the 19th century, the gut-brain connection has been of great interest to many neurobiologists; mainly the research on the connections between the central nervous system and neuronal layers in the gut's sheaths. Hidden in the walls of the gastrointestinal tract, this "brain in our gut" is revolutionizing medicine's understanding of the links between digestion, mood, health and even the way we think and behave. It was called the "Secondary Brain" at first but later classified more appropriately the Enteric Nervous System (ENS). This system is increasingly recognized as an indispensable part of our nervous system for influencing our adaptive/reactive behavior, filled with emotions and emotional reaction to the stimuli coming from outside environment (external effects). Even though the way we cope with external effects, since it reflects knowledge from past social encounters and learning, is happening in our upper brain in the head, the final output, the reaction to the stimuli, is predominantly governed by emotions the moment, which typically comes from the ENS.

(Furness JB1, Callaghan BP, Rivera LR, Cho HJ.) (1)*The ENS works in harmony with CNS reflex, control centers and with neural pathways that pass through sympathetic ganglia to control digestive function. There is bidirectional information flow between the ENS and CNS and between the ENS and sympathetic prevertebral ganglia. The vast majority of ENS small ganglia are found in the myenteric and submucosal plexuses. The myenteric plexus forms a continuous network that extends from the upper esophagus to the internal anal sphincter.* A number of studies, related to bowel and gut pathology, shows that irritation in the gastrointestinal system may send signals to the central nervous system (CNS) that trigger mood changes. It is the microbiota, some beneficial and others not as much, in our digestive system, which influences our emotions and regulates our day to day activities, importantly, creative thoughts and communication.

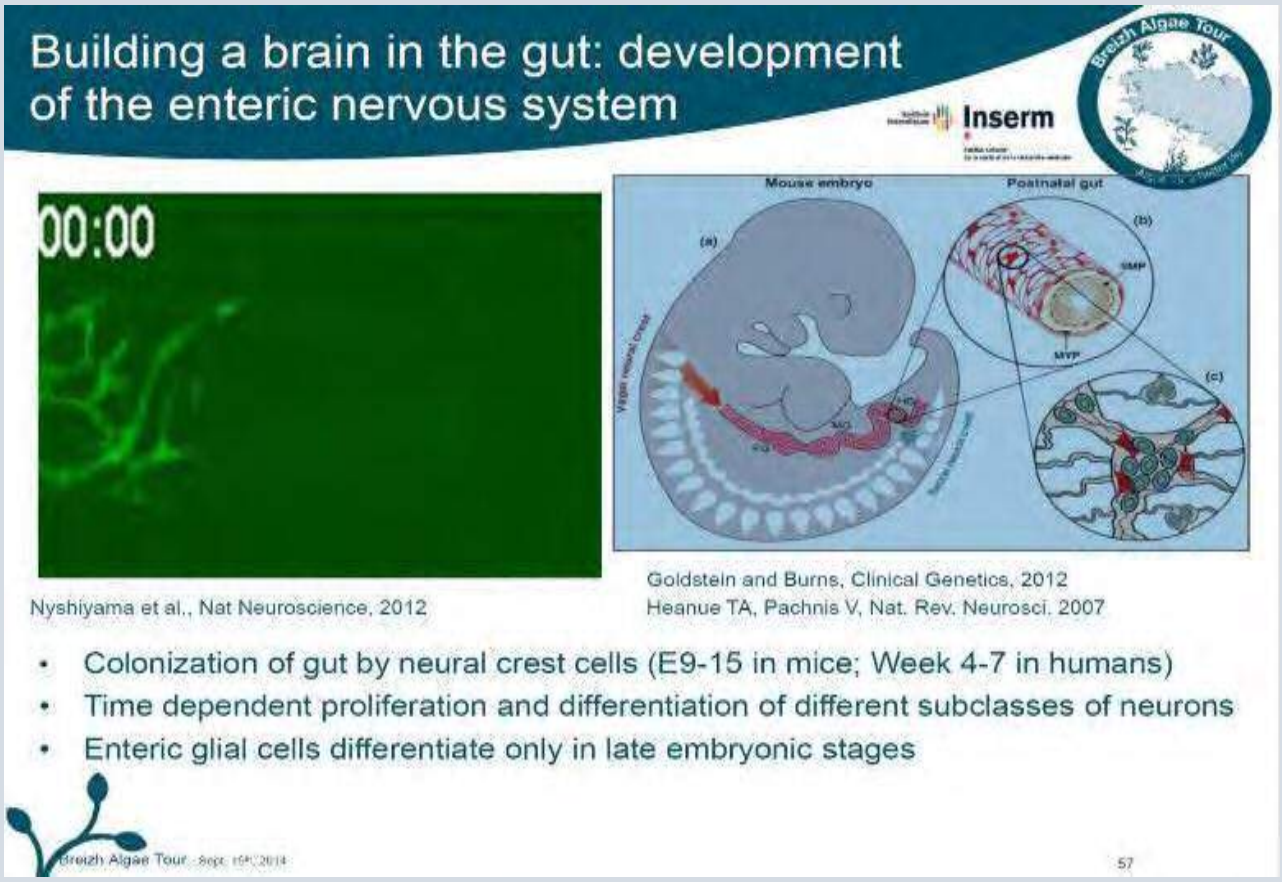


Justin and Erica Sonnenburg note in Scientific American (May 1st, 2015) (2) "*For example, the gut microbiota influences the body's level of the potent neurotransmitter serotonin, which regulates feelings of happiness. Some of the most prescribed drugs in the U.S. for treating anxiety and depression, like Prozac,*

Zoloft, and Paxil, work by modulating levels of serotonin. And serotonin is likely just one of numerous biochemical messengers, dictating our mood and behavior, that the microbiota impacts."

Our brain is primevally connected to our gut. The hundreds of millions of neurons connecting the ENS with the brain in the head used to be thought to control the movement in our gastrointestinal system only. The present research shows that not all communication is directed to the ENS but, surprisingly, 90 percent of the fibers in the primary visceral nerve, the vagus, carry information from the gut to the brain and not the other way around. *"Some of that info is decidedly unpleasant,"* (3) *says Michael Gershon,* It seems that the ENS is listening to the trillions of microbes in our gut and sending information to the CNS and consequently, in a sense, is responsible for our moods and feelings and thus influencing our cognitive and social performance.

The ENS or second brain, as it is still often nicknamed, consists of sheaths of about 300–600 million neurons (in humans), which is more than the spinal cord or the peripheral nervous system. It is embedded in the walls of our 30-foot-long (9 meters) GI tract, which, as we mentioned above, extends from the upper esophagus to the internal anal sphincter. It uses more than 30 neurotransmitters, including acetylcholine and serotonin, the same as the brain in the head and, most importantly, 95 percent of the body's serotonin is found in the bowels. The ENS arises from the same tissues as the CNS during fetal development (image below); it consists of sensory and motor neurons as well as glial cells, which support and protect the neurons.



The image is a property of Prof. Michel Neunlist ● Directeur de recherche INSERM
"The enteric nervous system and gut homeostasis.pdf."

In spite of its significant similarity and far-reaching influence, the ENS does not have the capacity of conscious thoughts or decision-making but does have the capacity to influence them.

(3)"*The second brain doesn't help with the great thought processes……religion, philosophy, and poetry are left to the brain in the head,"* Michael Gershon points out.

(4)*"The ENS is way too complicated to have evolved only to make sure things move out of your colon,"* The second brain informs our state of mind in other more obscure ways, as well. *"A big part of our emotions are probably influenced by the nerves in our gut," (4) says Emeran Mayer, For example, "Butterflies in the stomach"—signaling in the gut as part of our physiological stress response, Gershon says—is but one example. Although gastrointestinal (GI) turmoil can sour one's moods; everyday emotional well-being may rely on messages from the brain below to the brain above. For example, electrical stimulation of the vagus nerve—a useful treatment for depression—may mimic these signals, Gershon says.*

It seems even for our immune system; the second brain is more important than the upper (first) one. (5)New research is currently investigating the second brain's mediation of the body's immune response; after all, at least 70 percent of our immune system is aimed at the gut to expel and kill foreign invaders. And for the immune system to react to the gut bacterial state, the gut first has to send the information to, and activate, the immune system and it has 70 percent of it available, which would mean, that the gut has a significant role in the healing body pathologies as well as by being partly involved in immune system response distribution.

But for the purpose of this article's argument, it is the high quantity of serotonin found in the gut what stirs the interests.

At this point of research findings, it seems that it is the serotonin, above others the most critical neurotransmitter necessary for pleasant feelings, homeostasis and thus significant support for fruitful creative thinking, as well as social communication. (8)Serotonin is essential to a multiplicity of other physiological processes, such as body temperature regulation, circadian rhythms, pain sensitivity, stress response, appetite, etc. Since there is over ninety percent of serotonin found in our gut, it would appear that our gut and its bacterial condition is a compelling component influencing and manipulating our moods and feelings, therefore being involved in creative and social life more than anything else.

To maintain our psychological and physical health level high is to maintain a healthy level of serotonin circulating in our blood; mainly, besides the drugs, by modulating our lifestyle.

It is helpful to appreciate that peripheral serotonin is richly produced by enterochromaffin (EC) cells in the gut. (9) Research on mice shows that germ-free mice produce about 60% less serotonin than mice with healthy colonies of common bacteria. The same experiments show that EC cells depend on microbes to make serotonin, and manipulation of the gut bacteria has been shown to play a significant role in the regulation of the neurotrophin protein (brain-derived neurotrophic factor (BDNF)), helping to support the survival of existing neurons and encourage the growth and differentiation of new neurons and synapses in the nervous system. (8) We do know now that the colonization of our gut occurs during the first few minutes following birth, and it is likely that from that moment, the enteric nervous system, neuroactive metabolites, neurotransmitters, and immune signaling influence the brain development and function over the lifetime.

Latest research demonstrates four primary methods of increasing serotonin in our brain without the help of pharmaceuticals, such as selective serotonin reuptake inhibitors (SSRIs). (10)

- One, overlooked and not much-supported approach, is a study by Perreau-Linck and colleagues (11), which reports that positive self-induced mood changes can influence serotonin synthesis. Just as serotonin lifts a mood, convincing yourself into a good mood can induce serotonin, which afterward can help to keep the spirits high.
- Spending time outside in daylight as much as possible, or keeping the room you are in well-lit, is considered the second most studied approach. Even though most bright light studies are related to depressed mood or seasonal depression treatment, and the evidence of increased synthesis of serotonin by a bright light is regarded as indirect, there is research showing post mortal serotonin levels in the brain are higher in those who died in summer compared to those who died in winter. In addition, there are studies measuring serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) in the venous outflow from the brains of healthy volunteers, as well in the rats, showing higher volumes in the daylight or light part of the light-dark cycle. (10)
- Exercise has been known for centuries, especially in Asia, as an excellent antidepressant as well as a cholesterol-lowering activity due to, as suggested, raised serotonin synthesis. The research of the effect of exercise on serotonin suggests that it is the exercise itself, not the rewards that stem from exercise may be significant. A large body of evidence supports the idea that exercise, including exercise to fatigue, is associated with increased levels of plasma tryptophan, from which serotonin is synthesized.
- Lastly, the diet is an essential player in raising brain serotonin. Amino acid tryptophan, contained in many foods, increases brain serotonin in humans and thus is a useful antidepressant in mild-to-moderate depression. Tryptophan is essential for general growth, development, and synthesization of serotonin.(12) High tryptophan foods include nuts, seeds, tofu, cheese, red meat, chicken, turkey, fish, oats, beans, lentils, and eggs. The recommended daily intake of tryptophan is 4mg per kilogram of body weight or 1.8mg per pound. So, a person weighing 70kg (~154 pounds) should consume around 280mg of tryptophan per day.

Bryan B. Yoo and Sarkis K. Mazmanian in "Immunity" journal, 20 June 2017, (13) describe the current understanding of the anatomy and physiology of the GI tract by focusing on the ENS and the mucosal immune system. The primary attention of the research is paid to the interactions between the nervous and immune systems. The communication of these two systems enables the gut to respond to the variety of dietary products that it absorbs, the broad spectrum of pathogens that it encounters, and the diverse microbiome that it harbors. Thus, the ENS senses and reacts to the dynamic ecosystem of the GI tract by interpreting chemical cues from the environment into neuronal impulses that propagate throughout the gut and into other organs in the body, including the CNS. Although most basic and applied research in neuroscience has focused on the brain, the proximity of the ENS to the immune system and its interface with the external environment suggest that novel paradigms for nervous system function await discovery.

Conclusion

The ENS discovery and research expand the understanding of the importance of diet and exercise on moods, feelings, cognitive performance, social behavior and daily tasks, including sleep. The significance of

diet in our life has been quite clear for a very long time, and it is even more so now, since we understand that it is not just the brain in our head and CNS that are responsible for our acts, but our essential neuronal system, the ENS, which in fact can influence our behavior to the point where we cannot use our upper brain efficiently. It has become quite clear that the efficacy of the cerebral cortex depends on the ENS and its condition a lot more than we imagined. This research is additional evidence of how the food we eat and exercise we take to influence the neuronal processes of our gut (ENS), which in turn is responsible for our emotional state, and is a significant co-regulator of the immune system.

There are other possible outcomes so far, emerging from the research of the ENS.

It is apparent that by coercing positive thoughts upon ourselves, we can influence not just serotonin synthesis in the ENS, which makes us feel well but, together with the CNS, the influence expands towards stronger homeostasis, thus to a stronger immune system generating, among others, mainly white blood cells to seek out and destroy disease-causing organisms or substances. The stronger immune system means faster healing and getting over sickness, not only by not succumbing to uncomfortable and stressful feelings arising from sickness but also by holding on to positive thoughts, so improving our homeostasis and supporting the work of the immune system to activate the healing process without external intervention (pills). This would suggest that the so-called “Placebo pill” is not just something useless to trick us to feel better, but a “trick” that help us feel better and more confident, improves homeostasis and activates an intense reaction of the immune system to fight foreign bio-invaders; in other words, it creates real medical intervention, coming from within ourselves.

Next, our thoughts turn to our surrounding three-dimensional environment which, via our multitude of sensations, is combined and interpreted in the cerebral cortex for us to understand what is going on around us. The adaption, coping and reaction to that information is, undoubtedly, governed not just by learned information collected throughout the growing life, but by microbiota in the gut (ENS) and, since no two people have the same combination of microbiota, no two people adapt, cope and react in the same manner to the same environmental stimulus. And since our vision is obscured and influenced by fatigue, stress, and emotions, not surprisingly, everybody reacts to the exterior environment differently and, in fact, no two people react in the same way to the same exterior pressure. Many scientists now believe that it is not the surrounding environment, as we like to believe and blame, that makes us happy or upset, but we ourselves who are responsible for positive and negative reaction, feeling, and emotion.

Now we are touching the answer to questions such as, “do you know what I mean,” “do you understand my feelings,” “how can you feel that way,” “don’t you get it?” and so on. These questions have very personal meaning, and no one can really fully comprehend the real feeling behind the question presented, except the presenter him/herself.

It is analogous to pose the question, “Are we in charge of our thoughts and actions?” A good answer would be, just as a car runs well if it is well taken care of, our psychophysiological, and thus, social life is under our control up to a point; “only if we take good care of our holistic body, and its physical and nutritional needs” we might indeed be in charge. Otherwise, we had better get ready for surprises.

And last but not least, it seems that—and it will not sit comfortably with many artists—our original cognitive performance will always reflect the microbiological state and comfort of the ENS and the gut’s flora. So, as an artist is working on an original creation, by understanding where excitement, stress or upsets are coming from, the artist can cope with uncomfortable, even intrusive, feelings and emotions by taking a break with a lite snack or mild stretching exercise and can turn the thoughts around. Naturally, there are mood-enhancing/altering chemicals, which work faster and stronger even, on controlling the user but never without later repercussions.

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Bharatanatyam Arangetram

A glimpse of Indian classical dance repertoire

Devatanam sirastastu gurunamasya samsthithaha |
Vakshsthaschaiva vipranam seshetwaniyamo bhavet ||

Meaning as per the Natya Shastra : Salutations should be offered above the head to the gods, in front of the forehead to gurus and scholars, and in front of the chest to Brahmins . There is no rule regarding salutations to others.

The typical arangetram begins with Mallari. The word Mallari literally means to 'wrestle with lord'.Mallari in dance is a passage of sollukattu set to a certain ragam and talam. It is executed in 3 speeds bringing out the nrita aspects of the dance.

In carnatic music Mallari is associated to Nadaswaram instrument, the Mangala vadyam meaning an auspicious instrument. Rendition of Mallari is an important part of of the repertoire. During deepa aradhana's and temple processions Mallari is played with this instrument along with Tavil. The common ragas in which Mallari's are presented are Gambheera nattai, Nattai, gowla, and Arabhi.Mallaris, come in varied forms and thalams, and are generally set to ragam Gambheera Nattai. There is no sahithyam or lyrics in a mallari.

You would see in a performance that the musician renders the ragam Nattai set to Adi talam elaborately and plays sorkattus beginning in madhyama kalam, gradually increasing the tempo into duritha kaalam and subsequently reduce the tempo to vilambam.Once again, the artiste switches over to madhyama kalam, duritham and does thisram before increasing the pace to duritham and finally comes back to madhyama kalam thereby ending the Mallari piece.

The second piece shall be the Dhyana sloka :
It is traditional to start a dance practice with a dhyana slokam. 'DhyAna' is a Sanskrit word that means meditation and 'Slokam' means a prayer.

This is a popular shloka in praise of Lord Shiva, who is said to be the King of Dance. The dancing form of Lord Shiva is known as 'Nataraja and we have hand gestures (mudras) for this slokam too.

“Angikam bhuvanam yasya
Vachikam sarva vangmayam
Aharyam chandra taradi
Tam namah satvikam shivam.” The meaning of which would be:
Whose limbs are the world,
Whose song and poetry are the essence of all language,
Whose costume is the moon and the stars…
We bow to Him the benevolent One.

Alarippu shall follow next.
The Alarippu meaning flowering bud is traditionally the first actual dance piece that Bharatanatyam dancers learn and perform in this type of classical dance recital. It is an invocation piece which comes after the Sloka and Mallari, symbolizing the offering of respects to both God and the audience.

It is a dance ritual accompanied by a nattuvanar and a mridangist. According to T. Balasaraswati “Alarippu, which is based on rhythm alone, brings out the special charm of pure dance. The movements of Alarippu relax the dancer’s mind and thereby her mind, loosens and helps to coordinate her limbs and prepare her for the elaborate dance. Rhythm has a rare capacity to invoke concentration. Alarippu is most valuable in freeing the dancer from distraction and making her single-minded.”

Alarippu begins with Atamis or neck movements followed by Mandi adavu in the second half, which culminates into vibrant foot work and teermanam adavu.

This dance is a pure nritta offering in double and treble rhythms, there being absolute harmony of movement between the head, the hands and the feet. Hands joined above the head, feet

touching, the dancer begins with 'rechekas' or neck movements with the eyes and the hands acting in unison. The same 'rechekas' are later executed in a semi-seated posture or the mandi adavu, after which, rising, the dancer moves back to the starting position.

Natesha kautukam is one of the most beautiful pieces of the rendition.It is in praise of the Lord of the dance Shri. Nataraja. The earliest mention of the formal Kauthuvam in Tamil literature dates back to the work in 1725 AD by Supradipa Kavirayar.

It is a hymn a song of devotion in praise of a deity. It was performed by the devadasis as part of the daily rituals, or on special occasions or during the festivals. Most of the Kavutuvams are dedicated to a particular deity. For eg, the Chidambara Natesha Kauthuvam by Gangai Muthu Nattuvanar is dedicated to the deity at the Chidambaram Natarajar temple and similarly Nachiyar or Andal Kauthuvam is dedicated to the shrine at Srivilliputhur.

Whereas, there is no apparent mention of a particular kshetra or shrine in the Subramanya and Ganesha Kavutuhuvams. Kauthuvam have an unique structure – it begins with a rhythmic recitation of sollukattu, followed by lyric recitation in the same santham (rhythmic metre) as the sollus and the later a melodic rendering of the lyrics and ends with a sollukattu. Sometimes Thattimetti for the lyrics when repeated the second time may be seen.
Musically most Kavuthuvams are composed in Nattai, Gowlai, Arabhi, Varali, Hamsadhwani and Sri Ragam. Gangai Muthu Nattuvanar and the Tanjore Quartet have penned most of the Kavutuvams.

Jathiswaram is another Nritta piece. Jathiswaram brings out three aspects of dance – unity of music, rhythm and movements. Ragam and thalam are the major aspects of Jathiswaram.

Raga can be understood as special musical space where certain patterns of swaras or tunes live in. Raga has it own mood. It guides flow of melody as a canal guides the river.

Thalam and kalam (tempo) give feeling of time. They make melody move on, define how fast it should flow.

Besides general thalam and kalam of music composition, which are constant, each dance adavu in this piece has its own rhythmic pattern. Sequences of adavus are fitting inside avartanam as sketches are fitting pages of artist’s sketchbook.

Jathiswaram reminds us of the mountain river – streams of melodies appear here and there divided by stones of rhythmic patterns spread all along the main canal of Ragam, bending gently to and fro, following shape of the mountain.

Message of Jathiswaram is beauty. It is pure Nritta item, thus anga shuddha (proper postures and movements) in combination with flow of melody and rhythm should evoke sense of harmony and joy of dance in hearts of spectators.

Jathiswaram includes one jathi (sollukattu) and several korvay-s with mai-adavu in between.

First two-three korvay-s are executed to Pallavi, one korvey as a rule includes Pallavi in combination with Anupallavi, next korvais are executed to Charanas.Here the advaus are performed to swara patterns. Like Sa , ni , da , pa. There is no Sahityam unlike swarajathi. Every Jati is alternated by swarams. A jathiswaram has Charanams which are sung in swarams and followed by Pallavi every time. There can be three or more charanams.

Jathiswaram are in different Ragams and Talams. The Tanjore quartet compositions are widely performed. Some famous compositions are:
Kalyani ragam Rupakam, Ragamalika in Misrachapu and Vasantha in Rupakam.

The music of this piece does not convey any specific meaning; as a result, the dancer and audience are simply left with the pure joy of rhythm, melody and movement.

Shabdam is a Bharatanatyam Item in which the Expressions (or Abhinaya) are introduced for the first time in the repertoire. The song (sahityam) is usually separated into stanzas and between each stanza, you'll have a simple Korvai (nritta steps). Each stanza can contain a different story or all of them put together is one single story. But essentially the whole item is about one person, one theme.

This item is usually set to the Misra Chapu Thalam and Ragamalika (different Ragams or Tunes for different stanzas). Misra Chapu Thalam is a series of 7 beats (1-2-3 ; 1-2-3-4 or tha-ki-ta ; tha-ka-dhi-mi)

The movements here are leisurely. In the Shabdam, emotions are withheld at the beginning; thereafter, when the dancer has clarified herself, they are released in a measured and disciplined manner.

Shabdams are also referred to as Yasho Geethams . They have also inherited an Islamic Influence of repeating the Salaam or Namostute (paying respects to the Almighty or the King) at the end of each line. This pleased the patrons. Initially Shabdams were composed and rendered in one Raaga. But it is now a common practice to use one Raaga (or tune) for each stanza and present the composition in Ragamalika.

In many performances the dancer shall be presenting to you the Ayar Sheriyar Shabdam. It is a very famous shabdam in Bharatanatyam narrating about Lord Krishna and his miracles and mischievous games in Vrindavan.

In this story, Magician Krishna is playing his flute, and no one, neither his mother, father, not gopis, know it. His hair is curly and beautiful as its flowing at him playing the flute, at this time his face is radiant like flames. His music makes the deer forget his body. Krishna’s lips are like

coral stone. His beautiful delicate fingers caress the flute, his eyebrows are dark and attractive. His music makes the gopis, forgetting their chores, run to hear him and praise him.

Varnam is the most enthralling, interesting and a challenging item in a bharatanatyam recital. It is a piece-de-resistance where in the expertise of the dancer is known.

There is a perfect synchronisation of Bhava, Raga and Tala, thus giving the dancer abundant scope for displaying her rhythmic talents along with rich and variegated abhinaya. It is also a measure of one of the 'Dashapraanas' (the 10 vital characteristics of a good dancer), that is 'ashrama'(endurance), since it is the longest and the most demanding item where in the dancer uses her feet dancing to the Adavu-Jatis, the hands and the hastaas indicating the meaning of the song, while the feeling (inner emotion) is portrayed by the satvika abhinaya through subtle facial expressions.

Varnam creates an impression of beauty, grandeur and profundity while depicting the changing moods of love for the hero who is a God. The mood is of Shringara Bhakti- the worship through love.

The structure of Varnam: is divided into two sections:

The 'Purvaranga', that is, the first half comprising pallavi, anupallavi and muktaayi swara, also called as chitta swara with abhinaya being alternated with pure dance steps. The second half is the 'Urraranga', also called as the 'Ettugada' or 'Charana' comprising ettugada sahitya and ettugada swaraas. Also there are two kinds of Varnams- one is Pada Varnam and the second is Tana Varnam.

Taana Varanam is mainly intended for musical practice. Much of it is in middle or fast tempo. Though it has sahitya but the sahitya does not have much room for the exposition of rich and variegated abhinaya.

Whereas Pada Varnam which is also known as Chouka Varnam is sung in slow tempo (chaukakaala meaning vilamb or slow tempo) and hence give ample scope for abhinaya as well as the nritta.

The most popular Pada Varnam Devar Munivar in Shanmukhapriya ragam set to Adi talam composed by the legend Shri. Lalgudi Jayaraman is a masterpiece creation.

The song of this varnam is split into three stories. In the first story the dancer describes the fight between the gods and the demons over the nectar or amruta. As the sea is churned the nectar rises and is taken by the gods. Soon enough though the demons conceitedly steal the nectar at which point the gods approach lord Vishnu for help in returning the nectar to them. Lord Vishnu takes the form of a beautiful woman and tricks the demons into giving her the nectar so she would distribute it appropriately between the two parties. Taking the nectar she began to pour it

in the hands of the gods telling the demons their turn too would come. However when she went to pour the nectar for the demons there was none left and in this way Lord Vishnu ensured the success of the good over the bad. The moral of this story is that good shall always overcome the bad.

In the second story the dancer describes how Pandavas are invited by the Kauravas to play a game of dice. By cheating, the Kauravas ensured that the Pandavas lost everything including their kingdom then when they had nothing else to lose the Kauravas tell the Pandavas to bring in Draupadi. When the Pandavas lose that toss as well Draupadi is forcibly brought into the court. She begs for mercy but is harassed and calls upon Lord Vishnu for help. Seeing her plight the lord rushed to her rescue by making her a saree of never ending length thereby protecting her reputation. The moral of this story suggests that one cannot win in life by cheating.

In the third story the dancer tells the tale of a great king who holds a yagna and offers his prayers to the lord and then hosting a charity for the people of his kingdom. He spots amongst the crowd a stout brahmin whom he calls towards him questioning him as to what he wants from the charity. When asked the brahmin answers that he simply desires three steps of land and that he would be content with it. The king says proudly that the brahmin's request would be fulfilled. The Brahmin then grows to reveal his form as Lord Vishnu. At this point he takes one step which covers the earth and one step which covers the heavens.The king astounded at such glory kneels before him. The lord asks where he shall place his third step and the king offers his own head. The lord obliges and the king is humbled. The moral of the story is to be humble in life.

Anandanardhana Ganapathim is a famous kriti in Nattai ragam set to Adi talam. Kritis form the backbone of any typical concert and is the longer format of a Carnatic music song. Kriti also means Creation.

In this piece the dancer portrays the greatness and splendor of Lord Ganesha. The expressions of the dancer shows the devotion of Lord Ganesha to his father Lord Shiva who always resides in his heart as the supreme. The piece also describes the divine beauty of Ganesha and narrates as to how Lord Ganesha always fulfills the wishes of the needy and ensures that all those who sing his praise are always honored.

The tumaka Chalata Bhajan shows a mother's love for her son. This composition belongs to a group in which Sri tulsidAs imagines himself to be part of the scene at rama's birth and his growing up in dashrath's palace.

The dancer describes via gestures the growing up of Rama as imagined by the composer. The poem goes like this:

The anklets on his feet make a tinkling sound as the toddler rama walks unsteadily everywhere. Bubbling with laughter, he falls, gets up , runs , stumbles and falls to the ground. Seeing this,

the queens of dashrath, his mothers run and pick him up and hold him on their laps. Using the pallU of their sarees, they clean the dirt and bruises from his limbs , and comfort and caress him in many ways . Completely surrendering themselves to him with their bodies , minds , and material possessions , they speak soft and sweet words of comfort.With lips that are redder than a coral , his mouth utters extremely sweet (madhur madhur) words while beautiful nose rings dangle from his lovely nose.Poet Tulsidas is thrilled at the face of Ram, which has the glory of the Sun Baby Ram is exactly what he imagined him to be.

The next piece Thillana is a brisk and a lively number performed towards the end of a concert. Usually a carnatic vocal or a Bharatanatyam concert culminates with a Tillana followed by a short mangalam. Most of the Tillana's include the word 'Thillana' in the lyrics. It is predominantly a rhythmic composition.

Tillana usually has jatis as a part of the composition and few lines of Sahityam in the charanam followed by Muktams (Patterns of swarams) or Sollus. Tillana consists of a Pallavi, Anupallavi, Sahityam and Chittaswaram. The composers enjoy the freedom to add the Sahityam based on the presiding deity of the composer or their Ishta devata (beloved god).

Melattur Veerabhadrayya is said to be the earliest composer of Tillana's in the 17th century. The Modern day composers like Late Shri Papanasam shivam, Shri Lalgudi Jayaraman and Shri Balamuralikrishna have also composed exciting Tillanas for Dance.

The Kapi Thillana composed by Ramanathan Pillai and sung by Prince Rama Varma in Adi Talam Tisra Gati is a very popular piece in the world of Bharatanatyam.

The meaning of the piece goes like this: Oh sanctifier/purifier of the fallen , Oh consort of Siva , I have placed my faith/believed in [the protection offered by] your feet. Please protect me , who has desired/sought your compassion , Oh lady with lotus -like eyes ! Is it in my capabilities to talk about or praise your greatness , Oh protector of the people who bow down to you? Aren't you the all powerful (Adi Shakti), the one that this prime/principal disciple of varadachariar bows down to and prays to?

The repertoire concludes after the Thilana with a small mangalam piece performed by the dancer. Mangalam- Meaning ending the performance. Here the artist will again salute god, guru & the audience for making the performance a success.

Fine Arts

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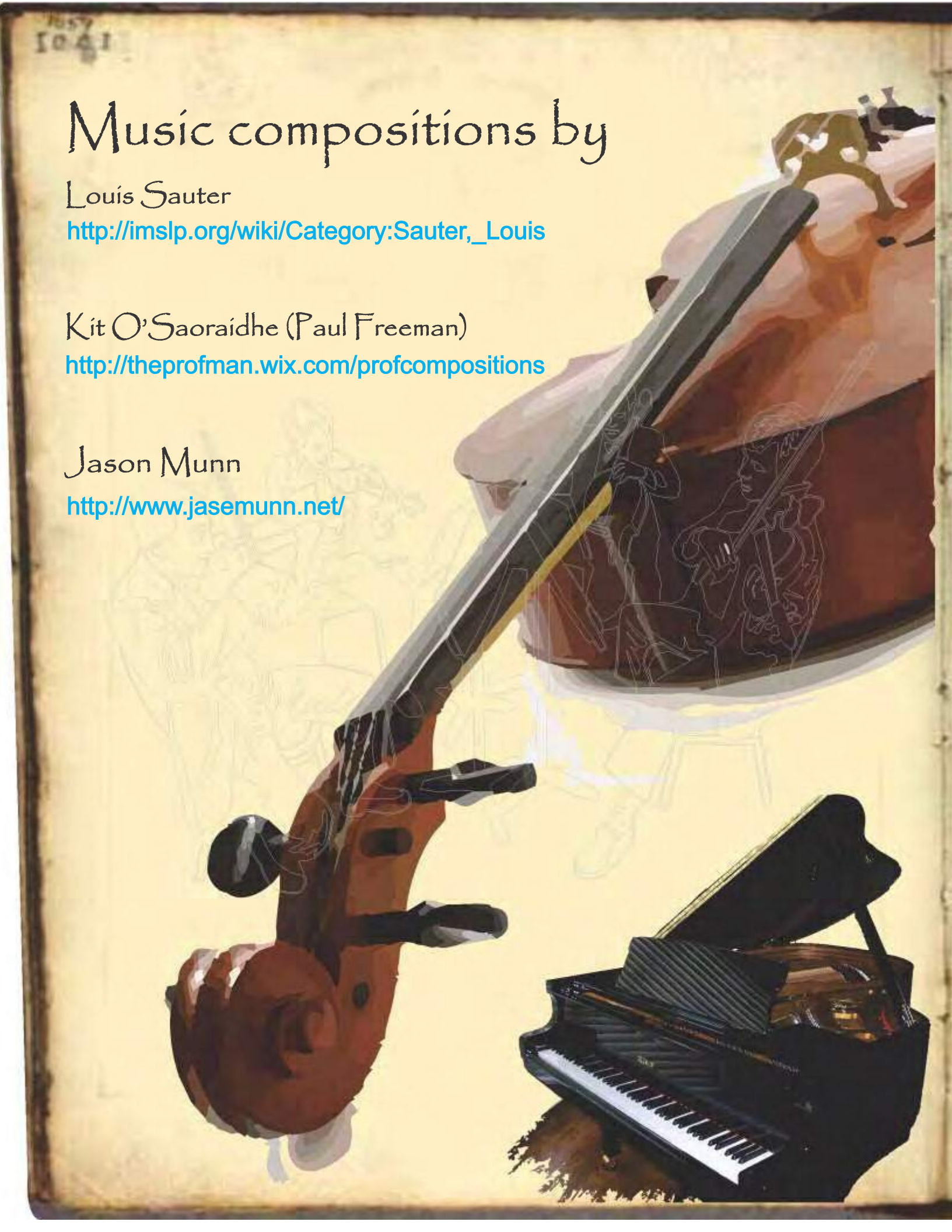


Las bodas de Helena

Las bodas de Helena is the third and last number of Les noces de Chounette, a set of piano pieces based on the notes HEEE CEDA HEEE E♭ACE. It is a Tango dedicated to Astor Piazzolla. I made several arrangements of this piece, including one for clarinet, violin and piano that has been quite successful! A video of its premiere is available at https://youtu.be/LlHWljYmWeU

I have also included the score of a version for solo flute which was recorded in 2017 by flautist Iwona Glinka, soon to be released on a CD album named Gimel.

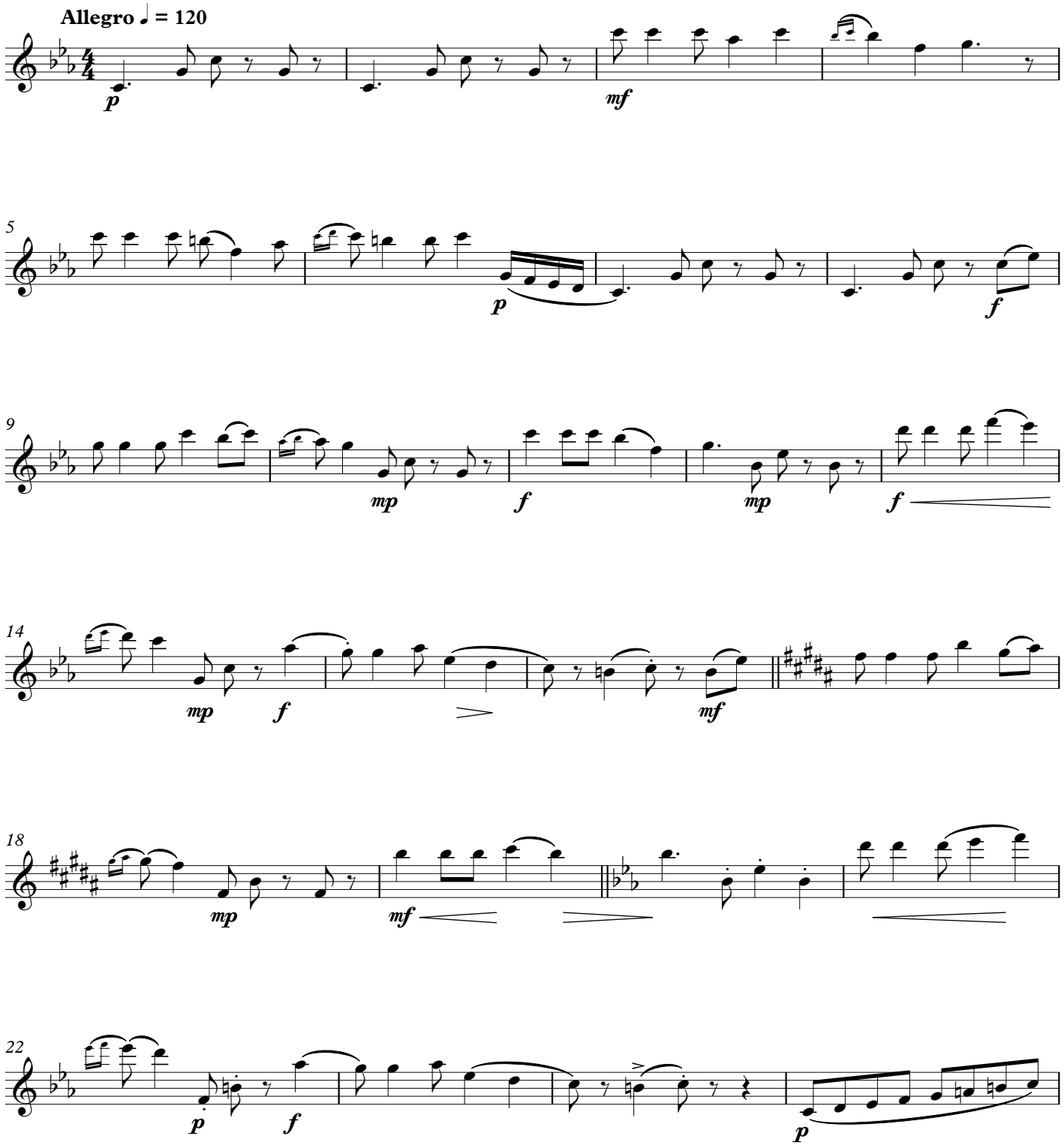
If you look at the second page of the piano version, you will find a little quote of Für Elise by Beethoven (which is there for sentimental reasons). When I wrote the trio version, I decided that the pianist would be distracted by memories of his own marriage, and sometimes play wedding-related music instead of the tango proper. If you listen carefully, you might hear some notes from Bach, Mendelssohn, Grieg and Wagner!

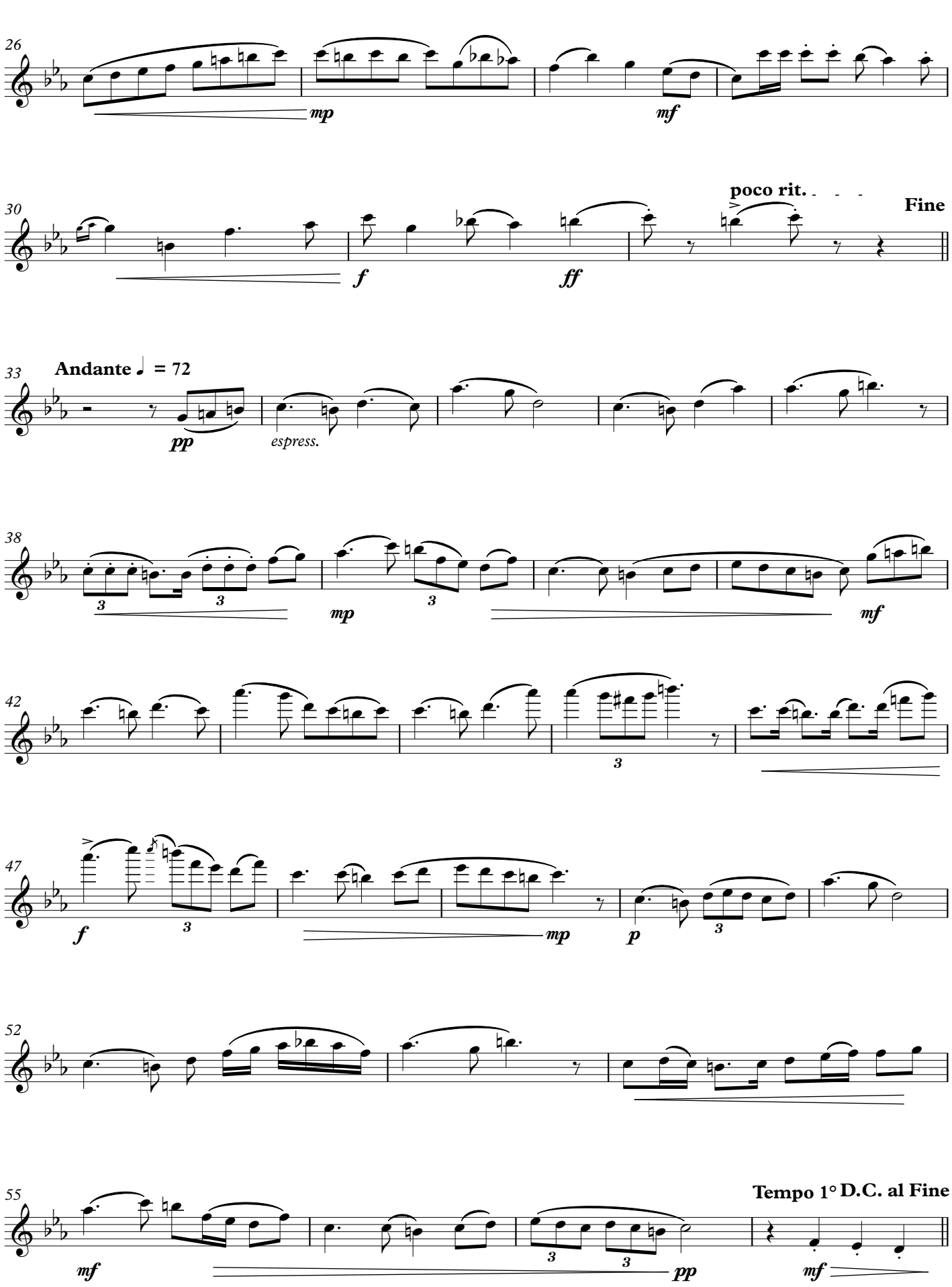
by Louis Sauter

Las bodas de Helena

Tango pour flûte

Louis Sauter

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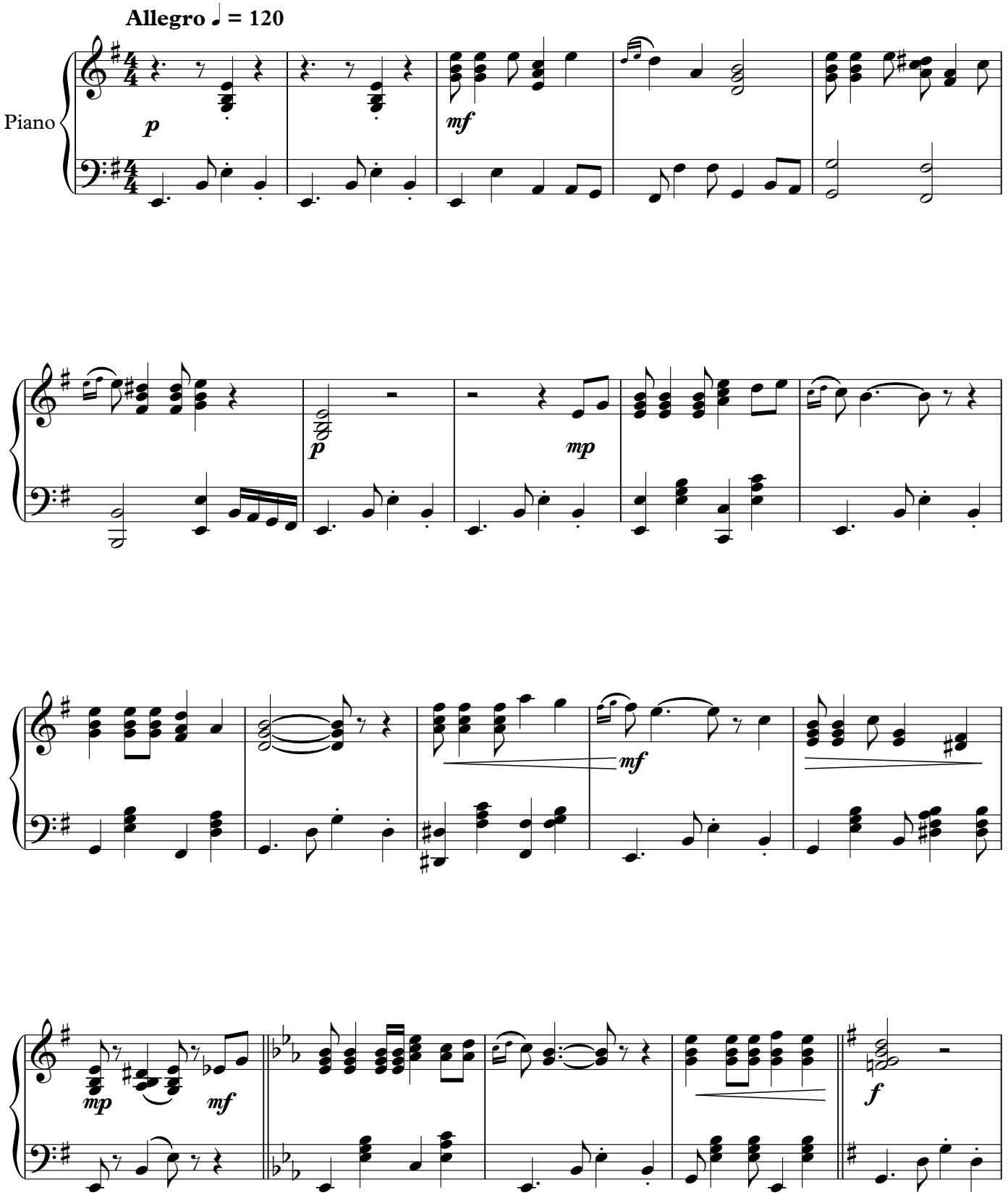
mp
3
mf
42
3
47
f
3
mp
p
3
52
55
Tempo 1° D.C. al Fine
mf
3
3
pp
mf

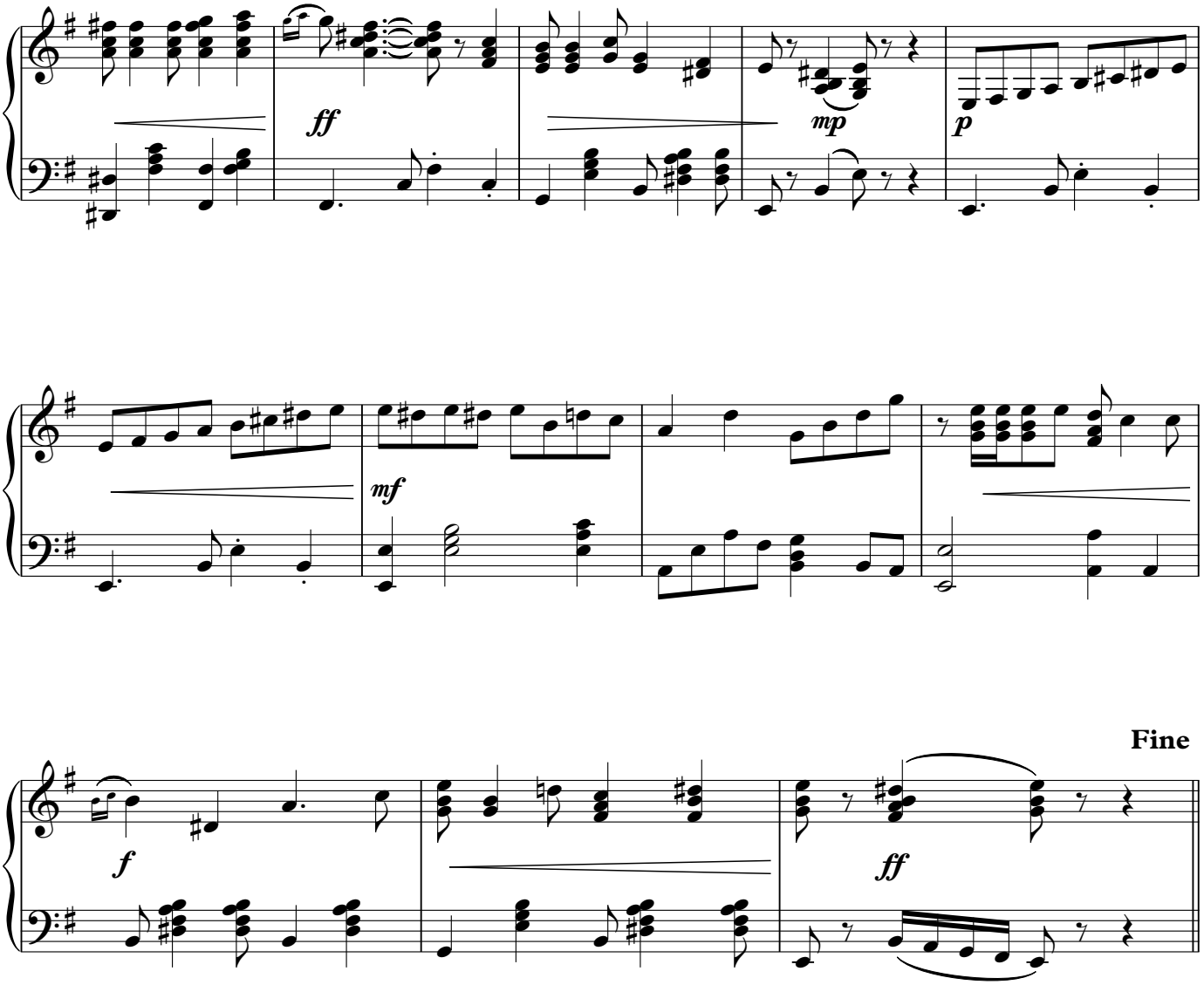
III. Las bodas de Helena

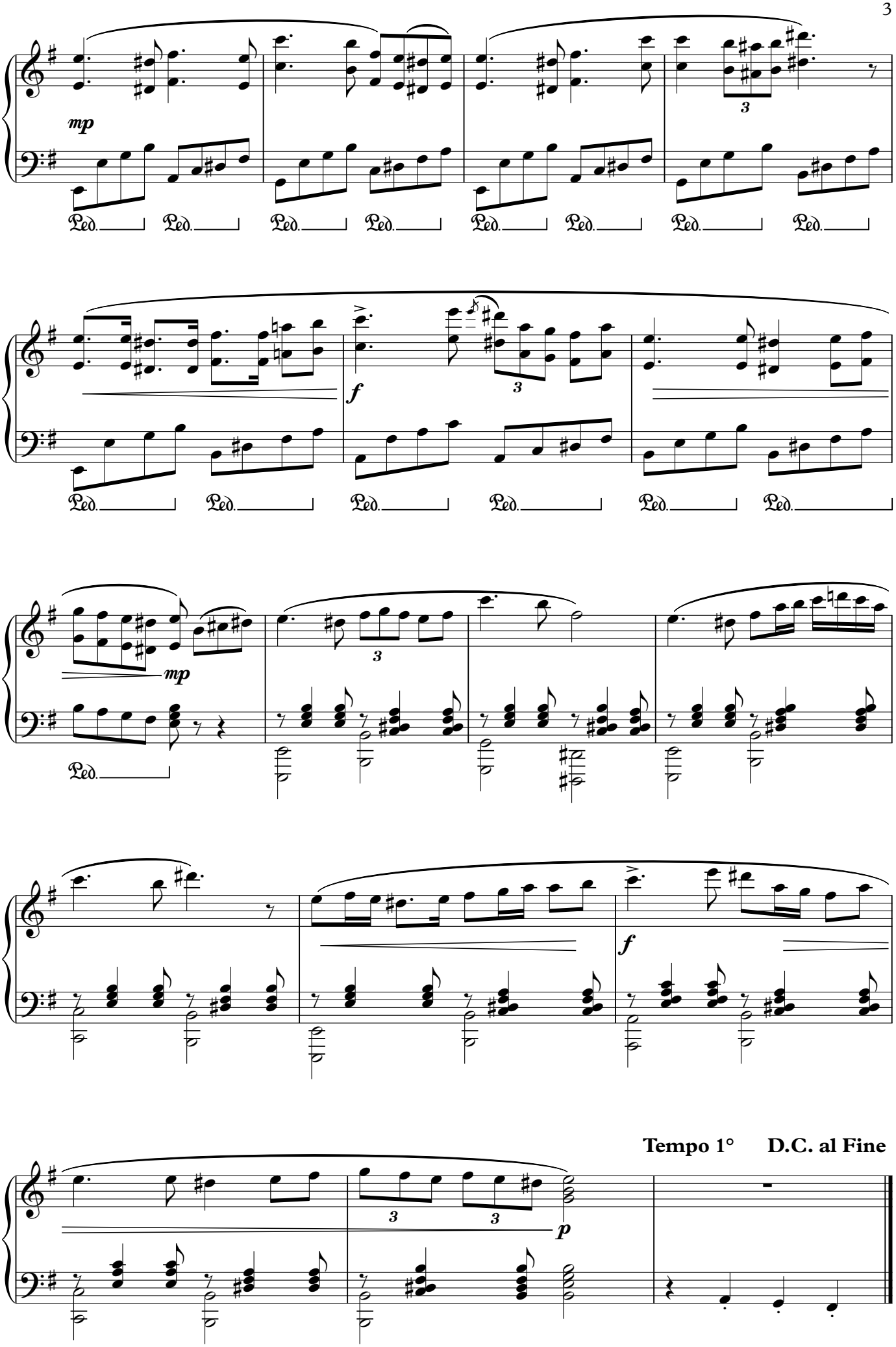
Tango

En hommage à Astor Piazzolla

Louis Sauter




ff
mp
p
mf
Fine
f
ff
Andante ♩ = 72
p
espress.
3
3
3
mf espress.


mp
Ped.
f
mp
Tempo 1°
D.C. al Fine
p

12 nano-preludes

By

Kit O'Saoraidhe

Score

12 Nano-preludes

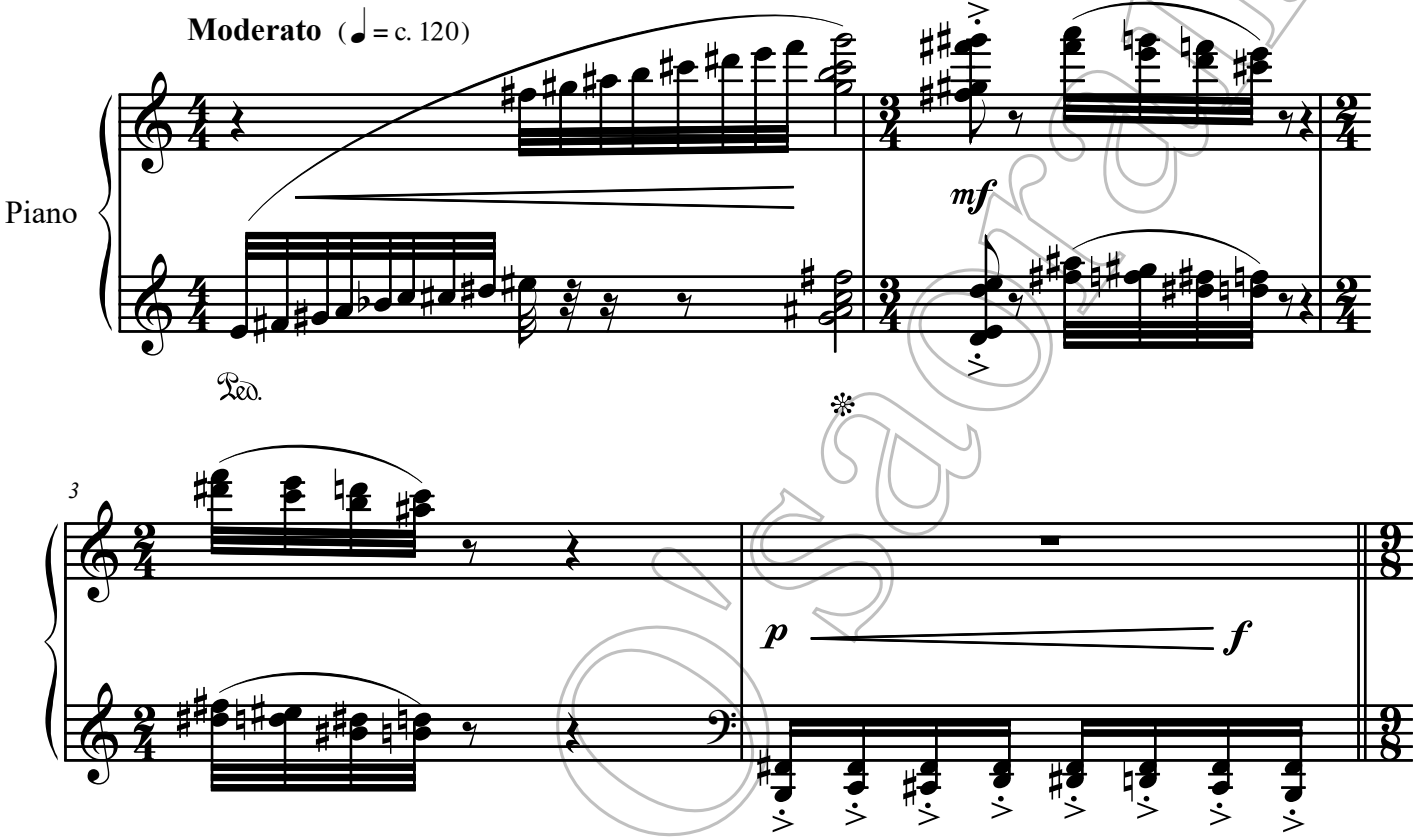
for John Howard

Kit O'Saoraidhe

1

Moderato (♩ = c. 120)

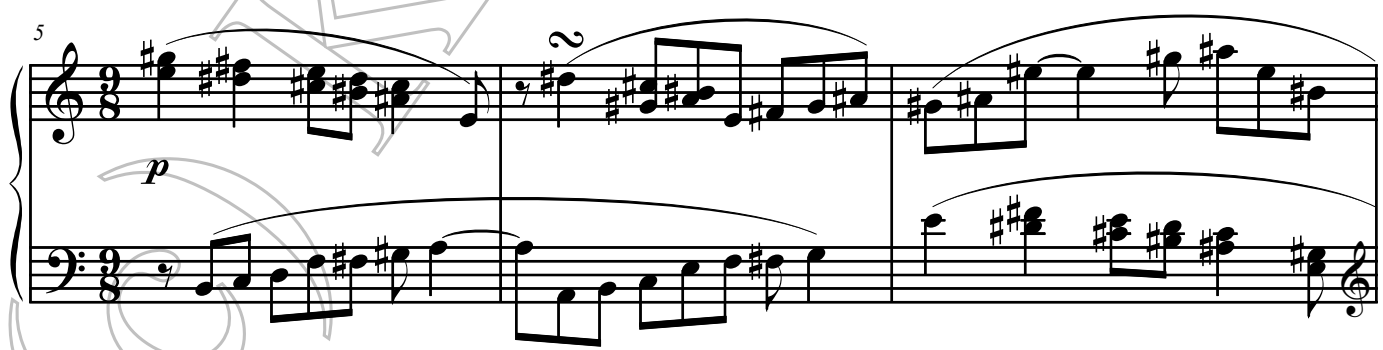
Piano

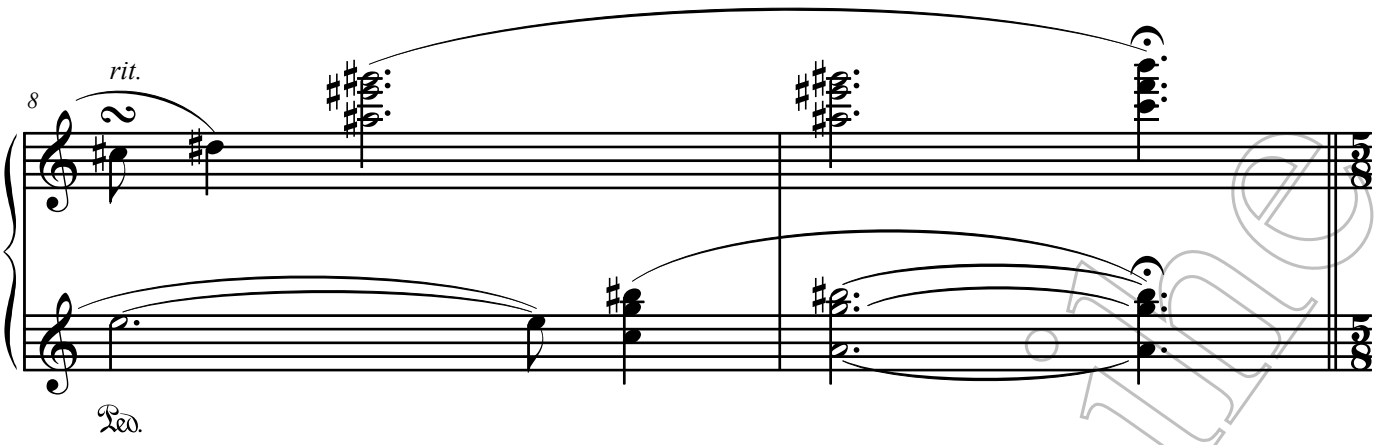


(allow approx. 5 seconds between numbers)

2

Andante (♩ = 110 - 120)





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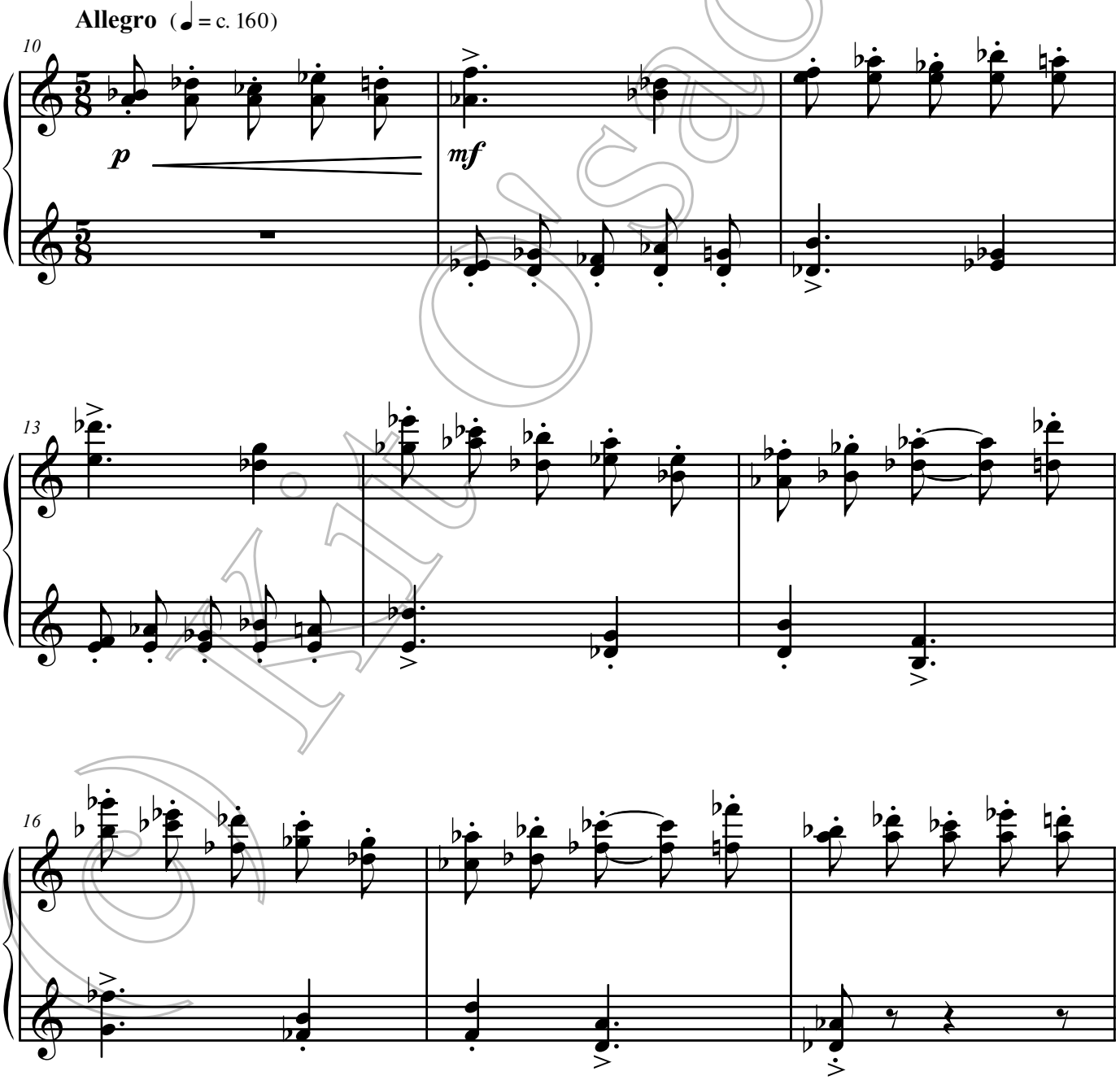
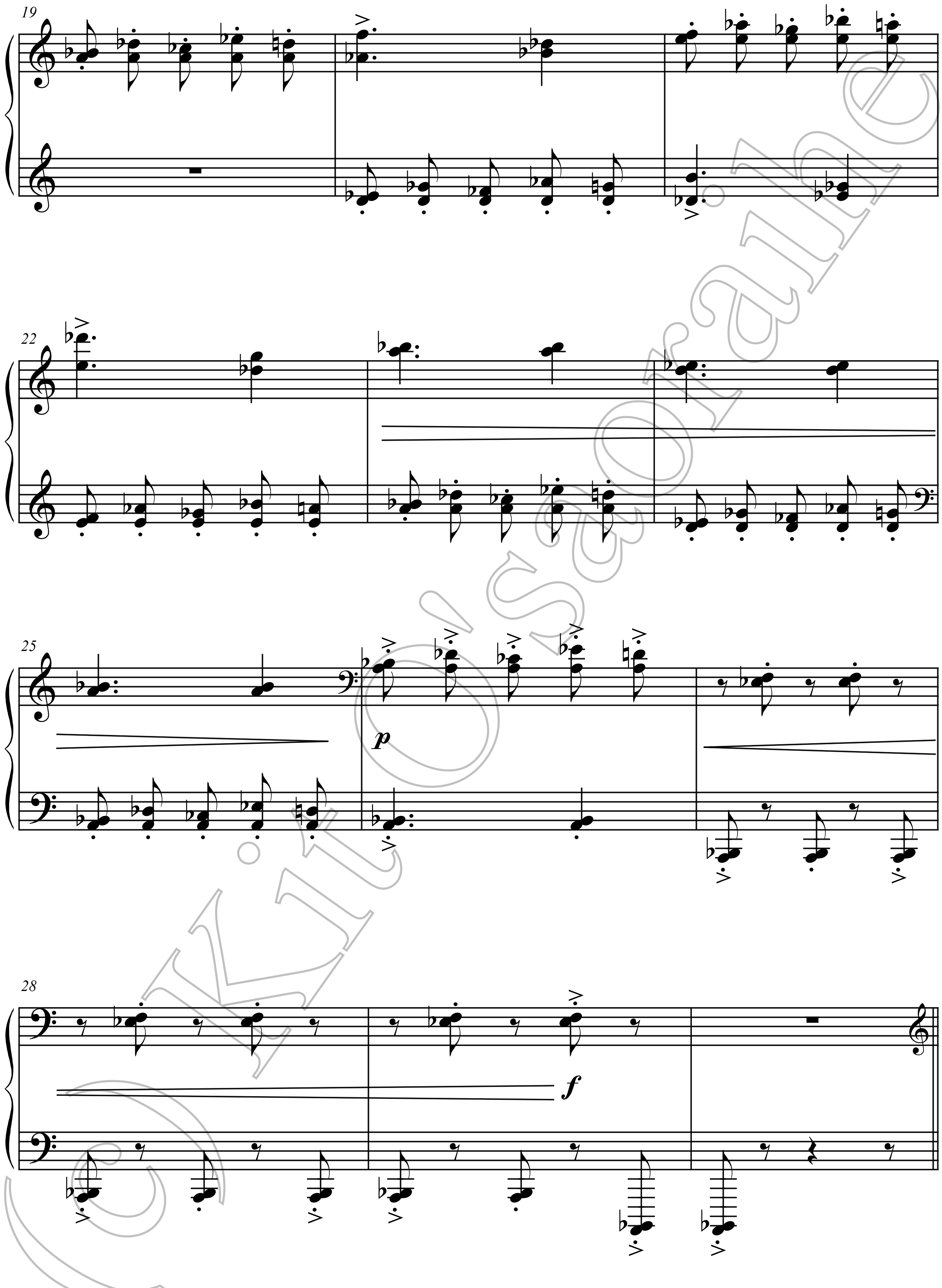
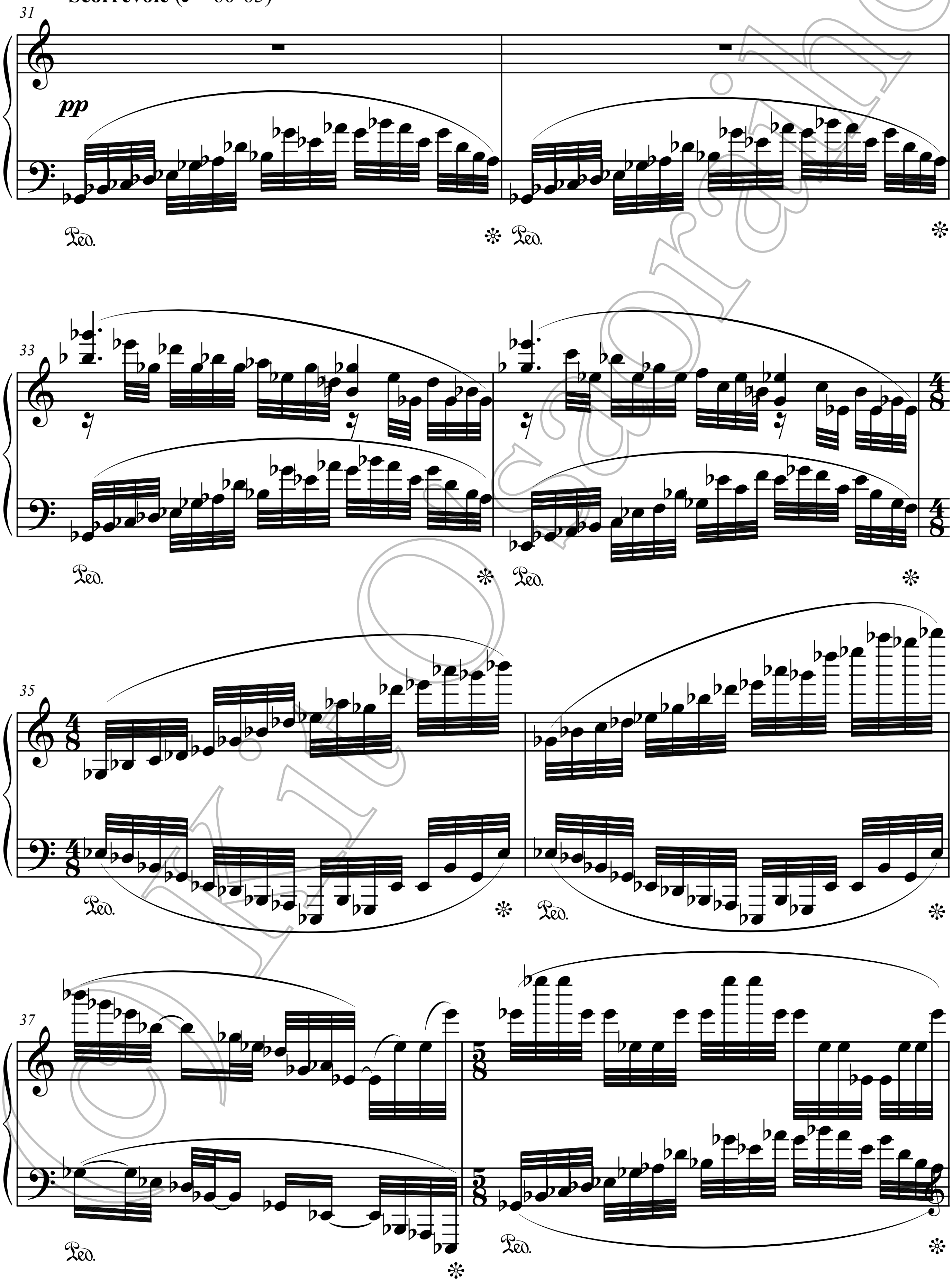
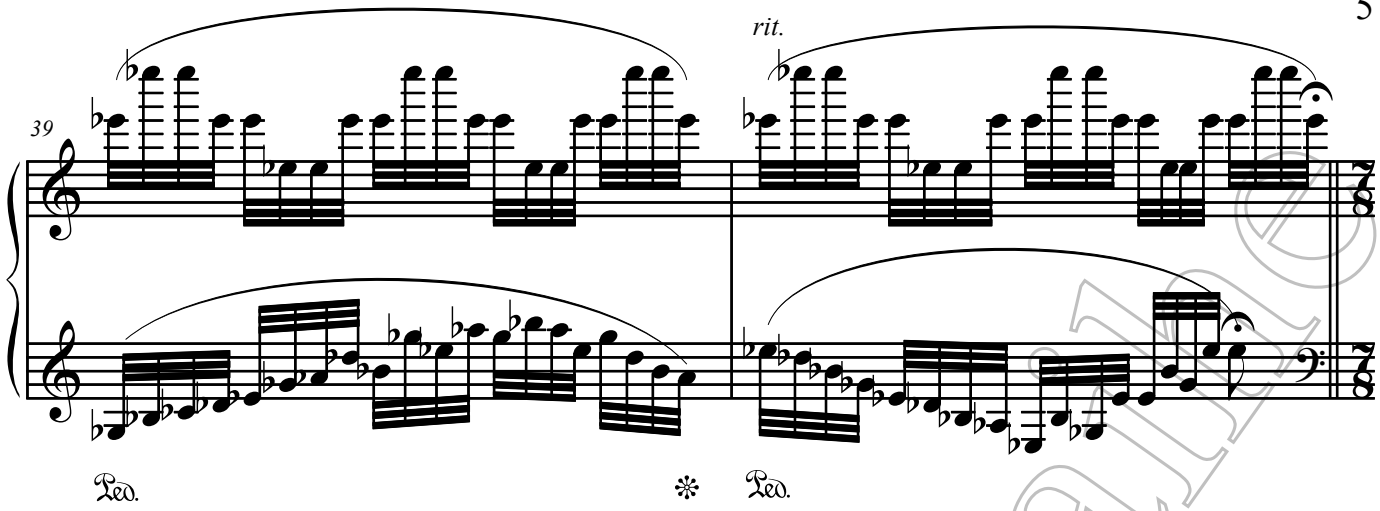



19
22
25
p
28
f

4

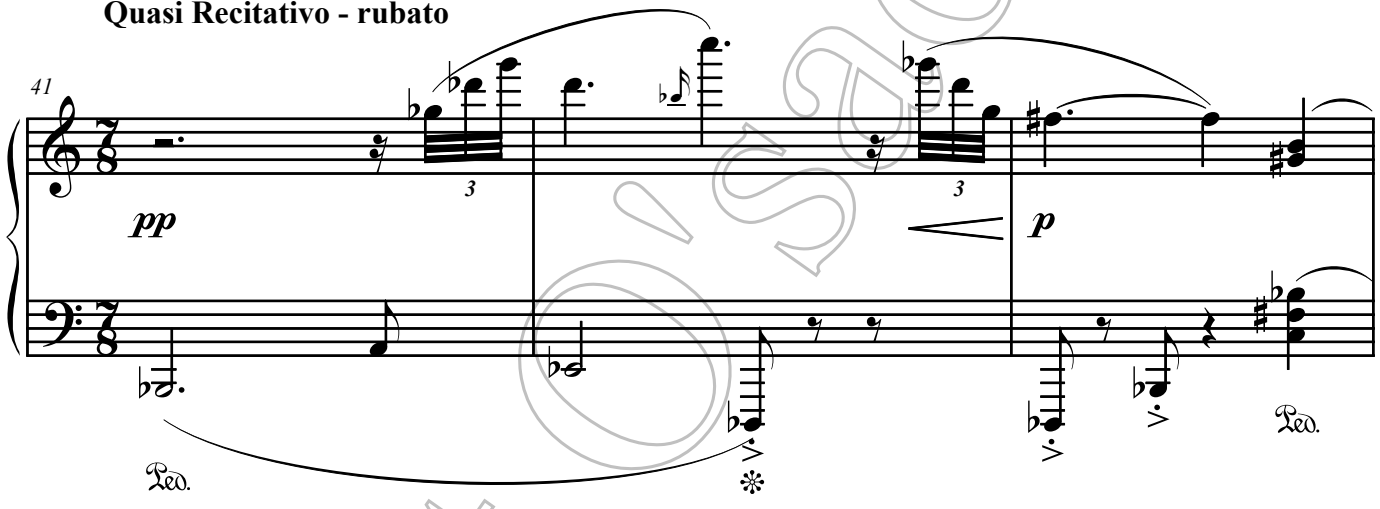
Scorrevole (♩ = 60-65)

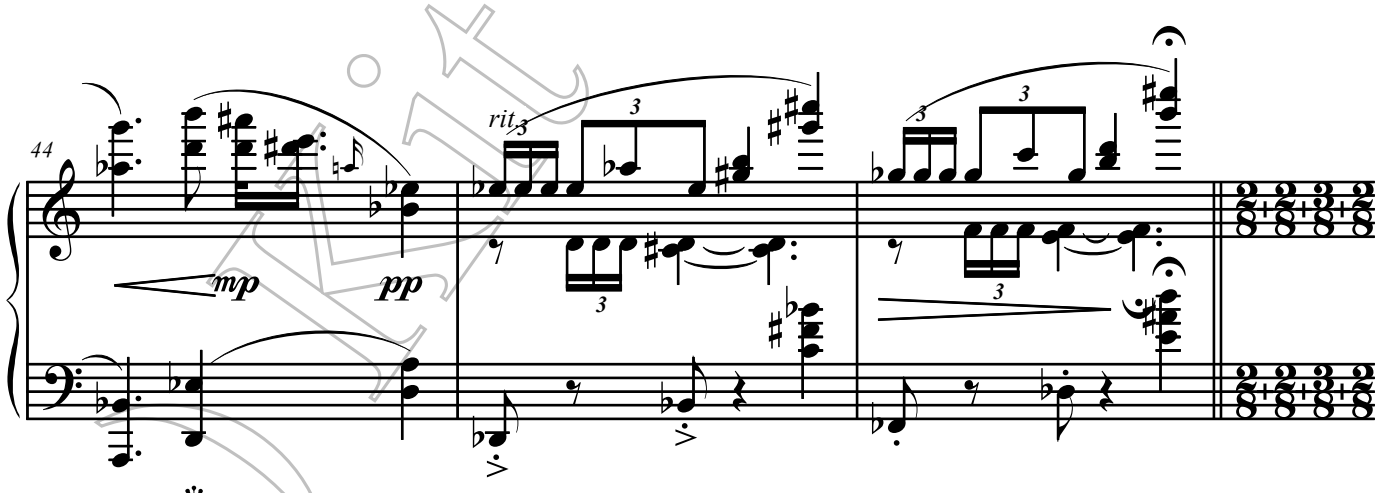




5

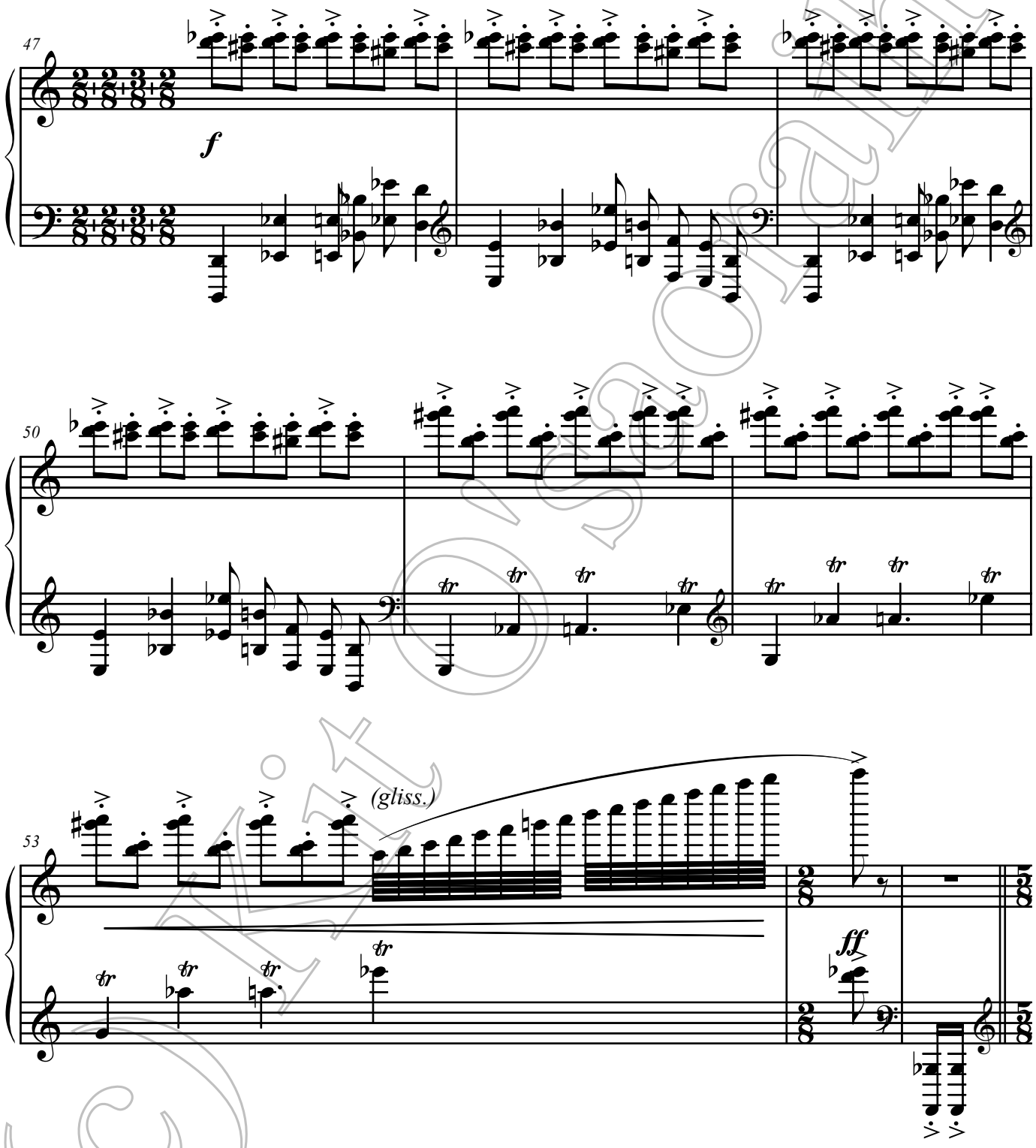
Quasi Recitativo - rubato





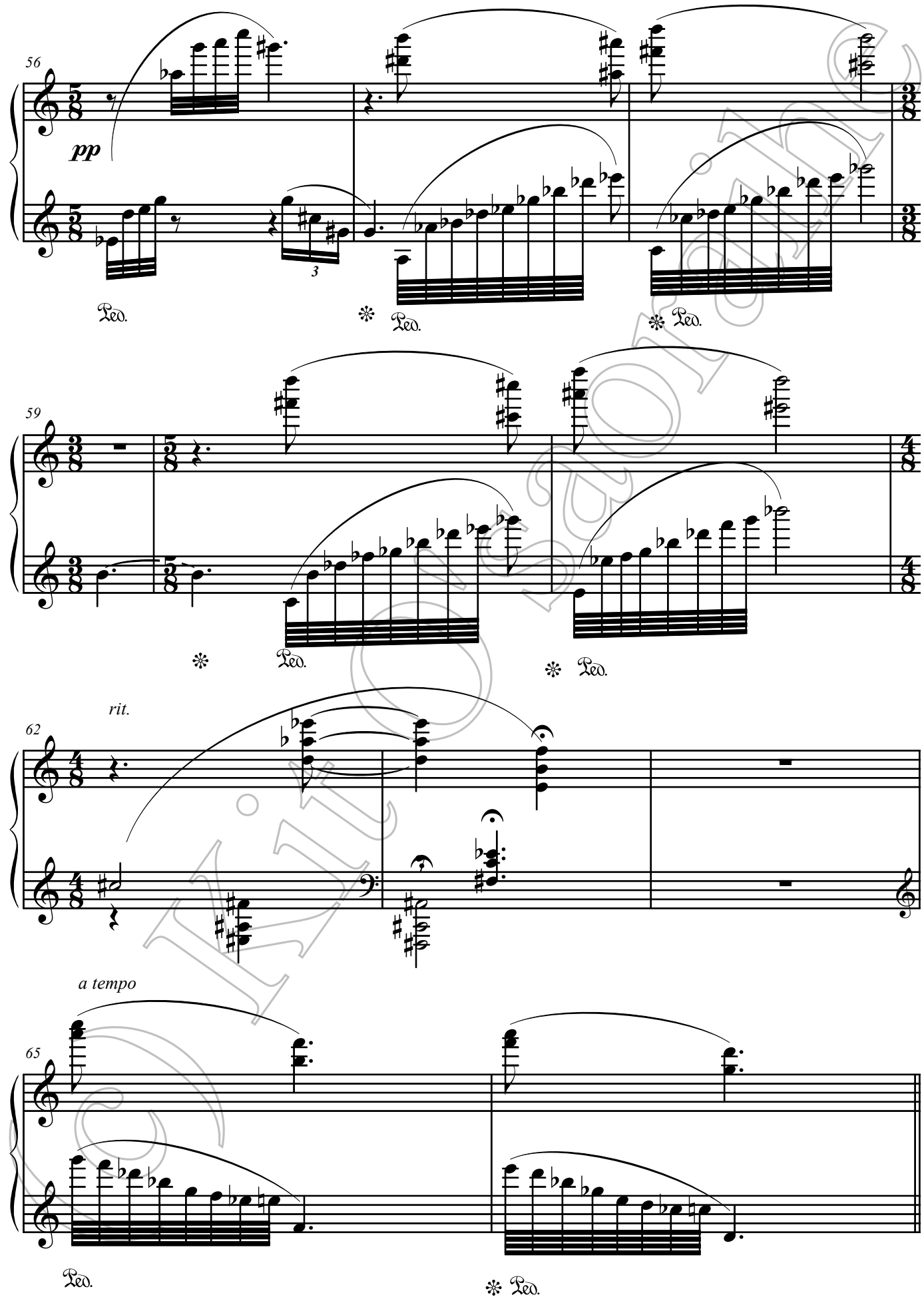
6

Violente (♩=160)



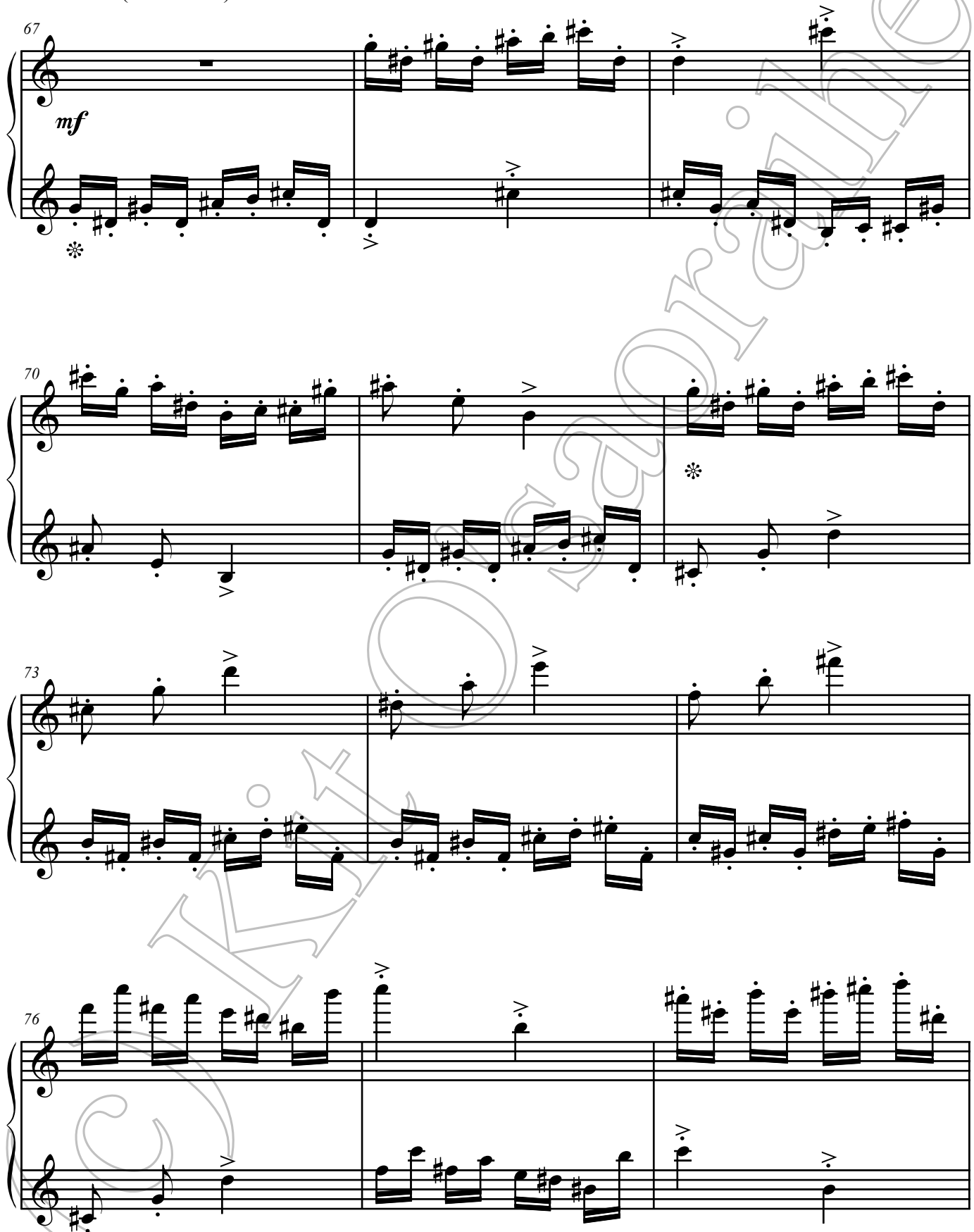
7

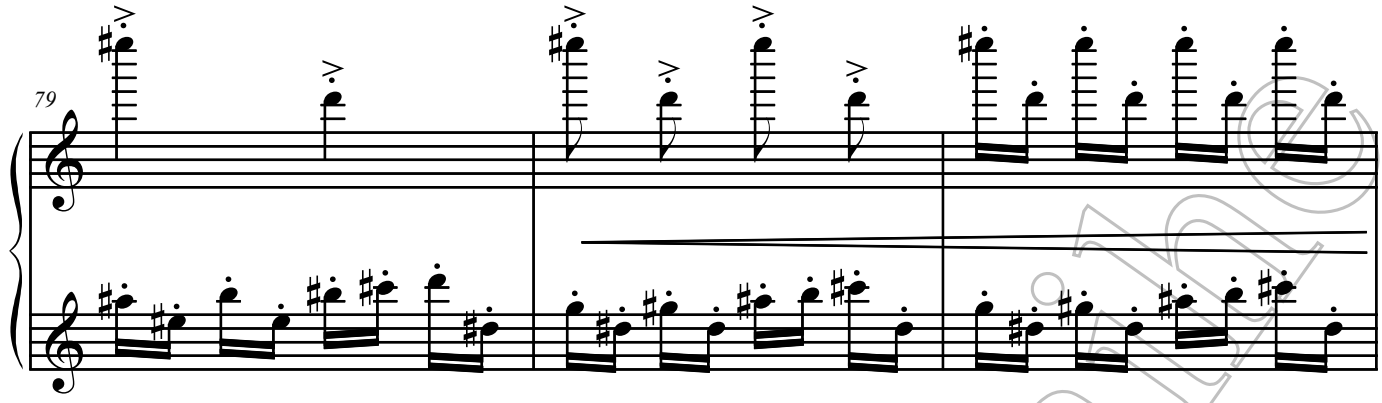
Lightly (♩=55-60)

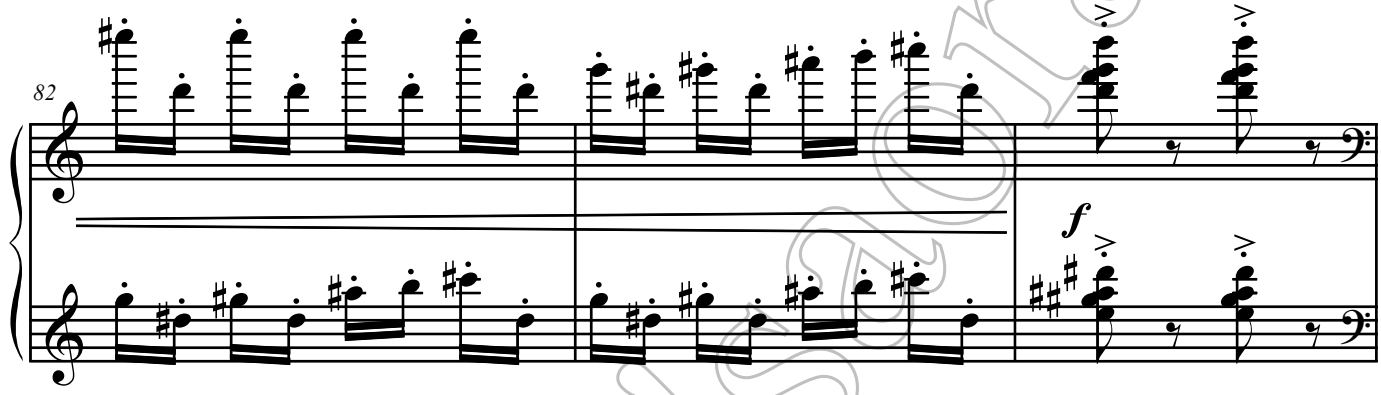


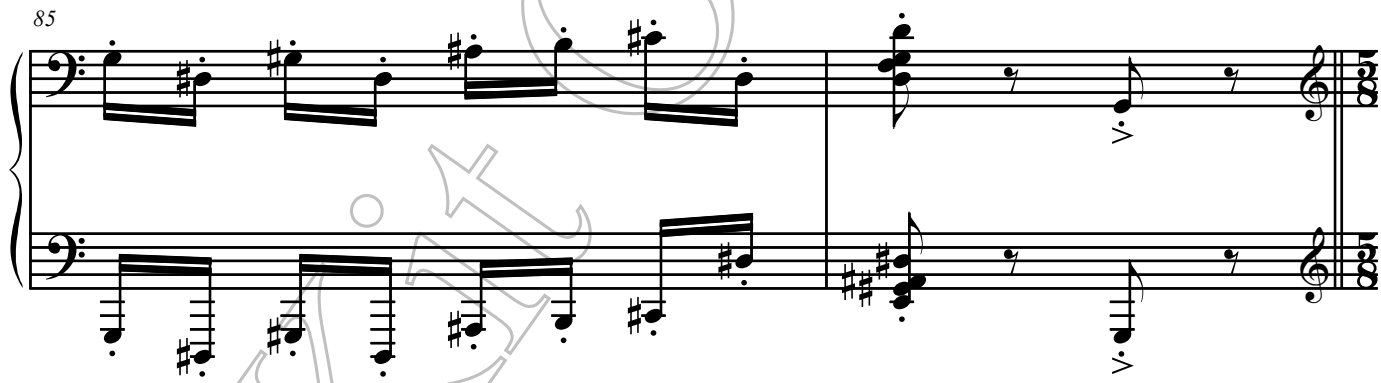
8

Presto (♩=155-165)









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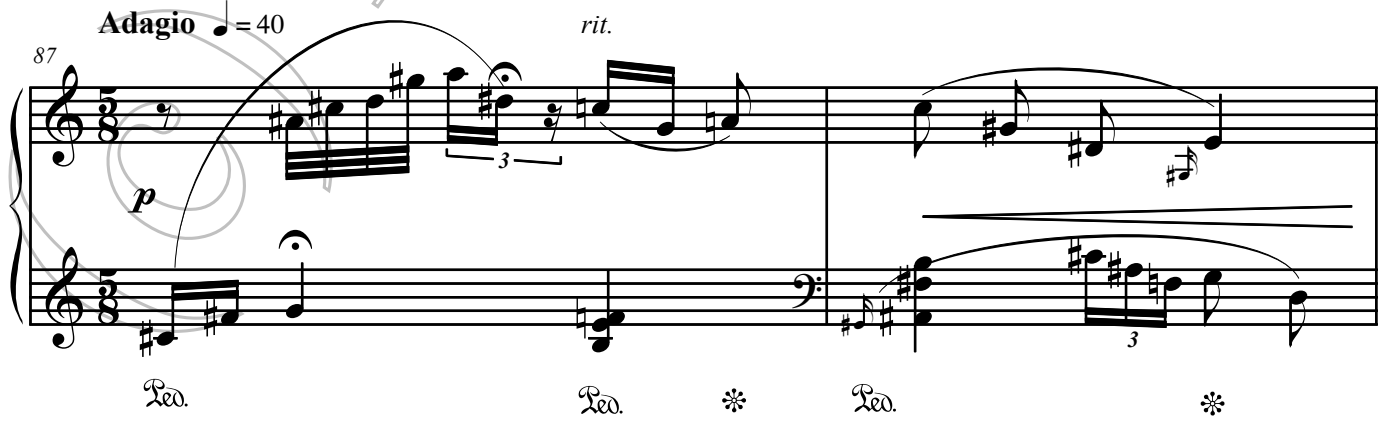

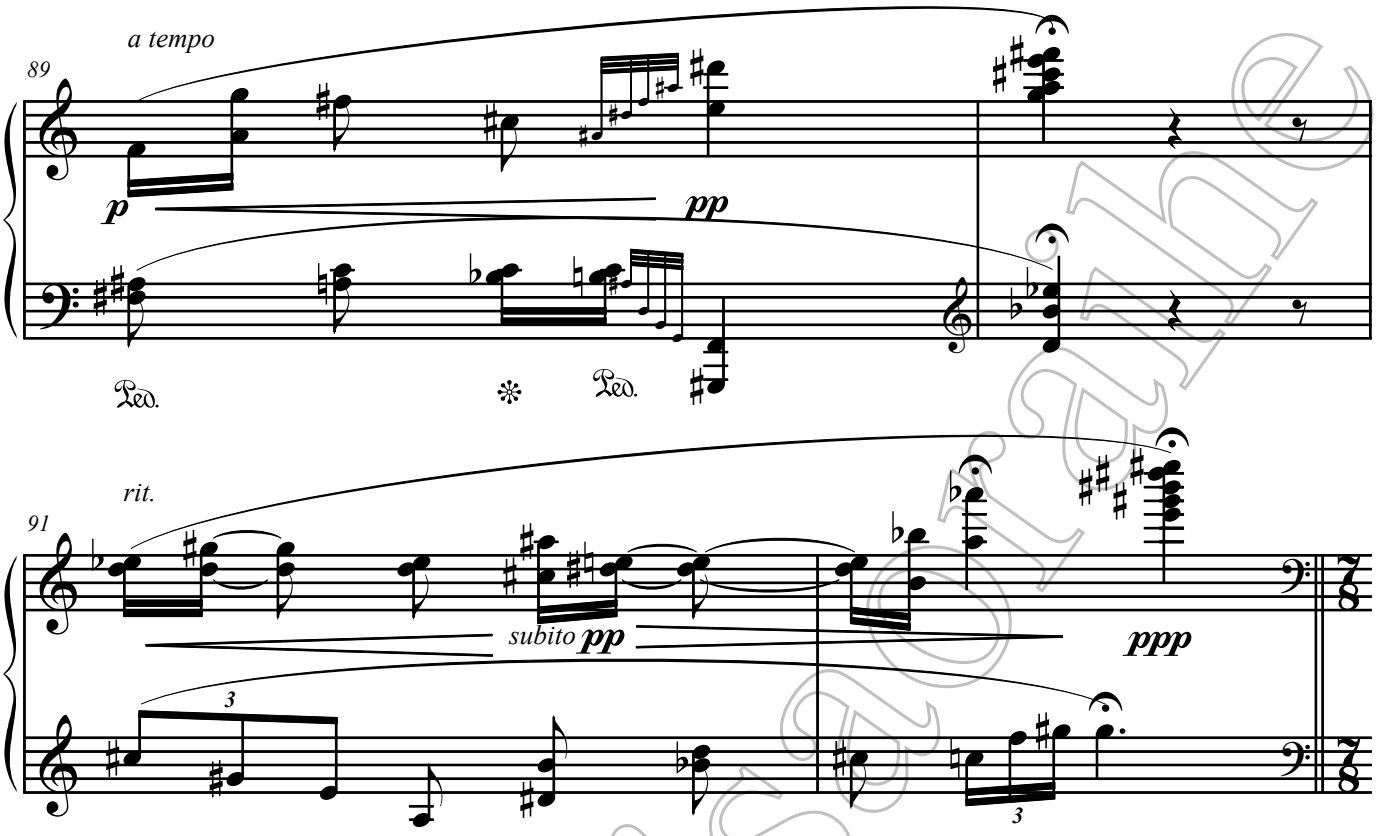

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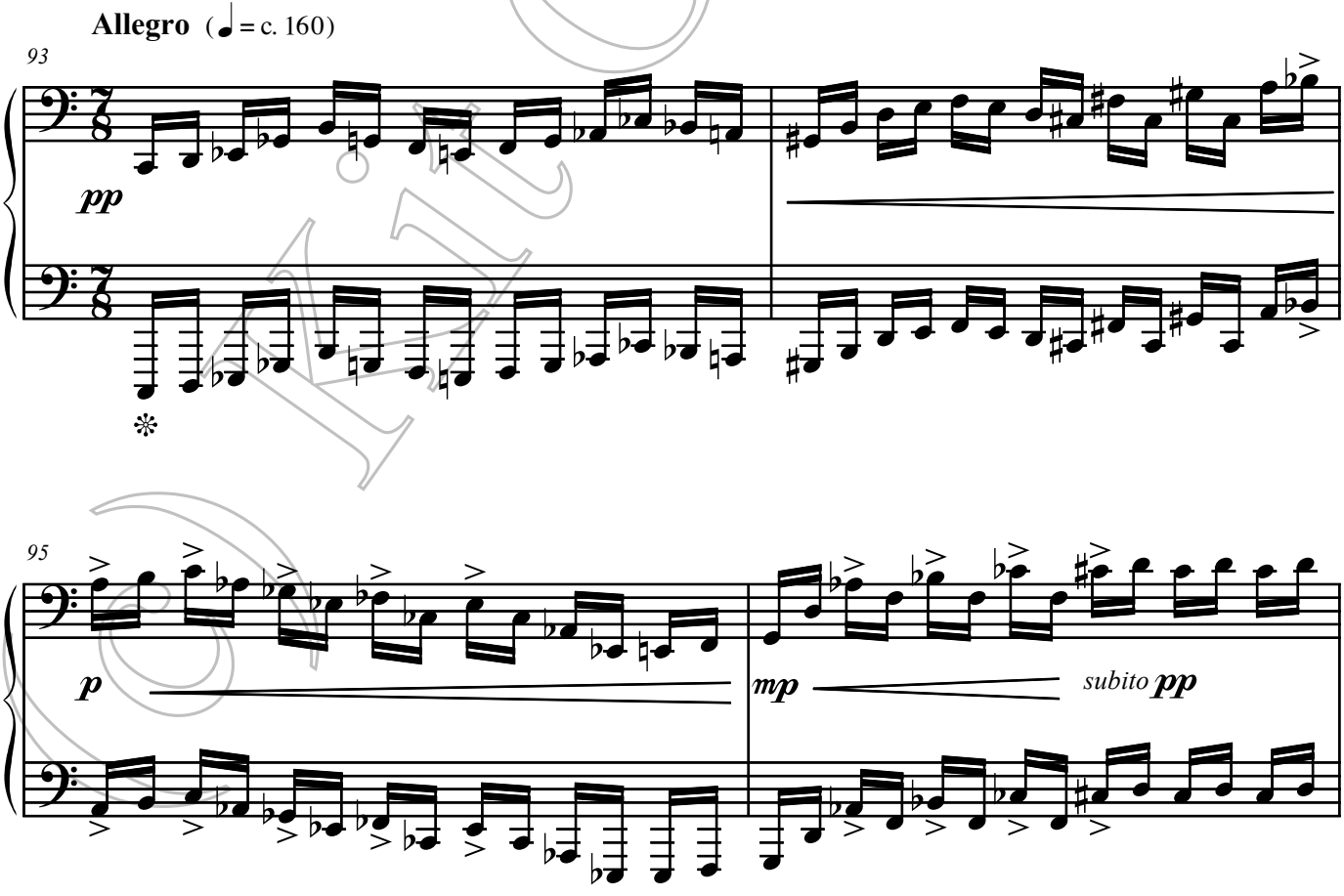
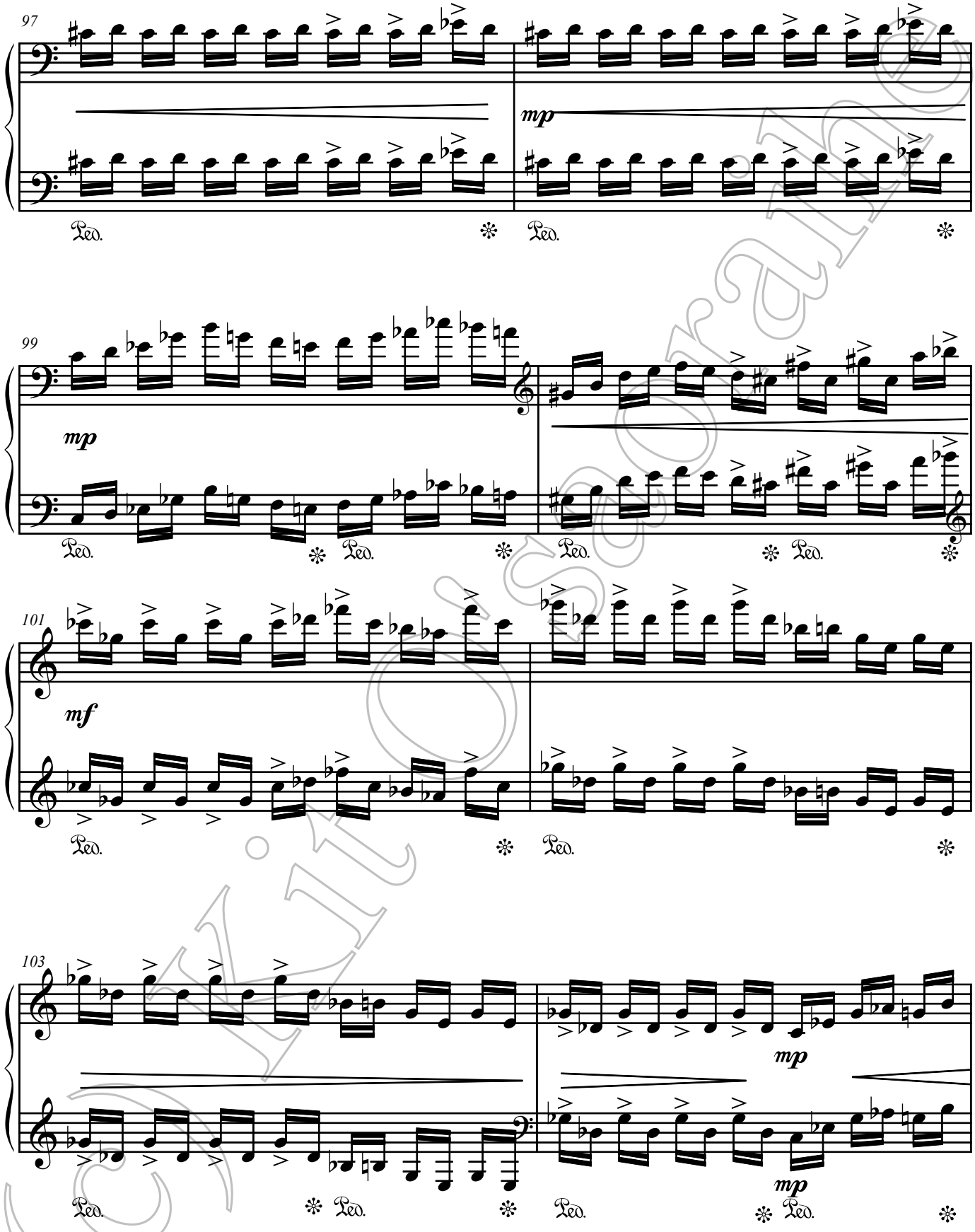
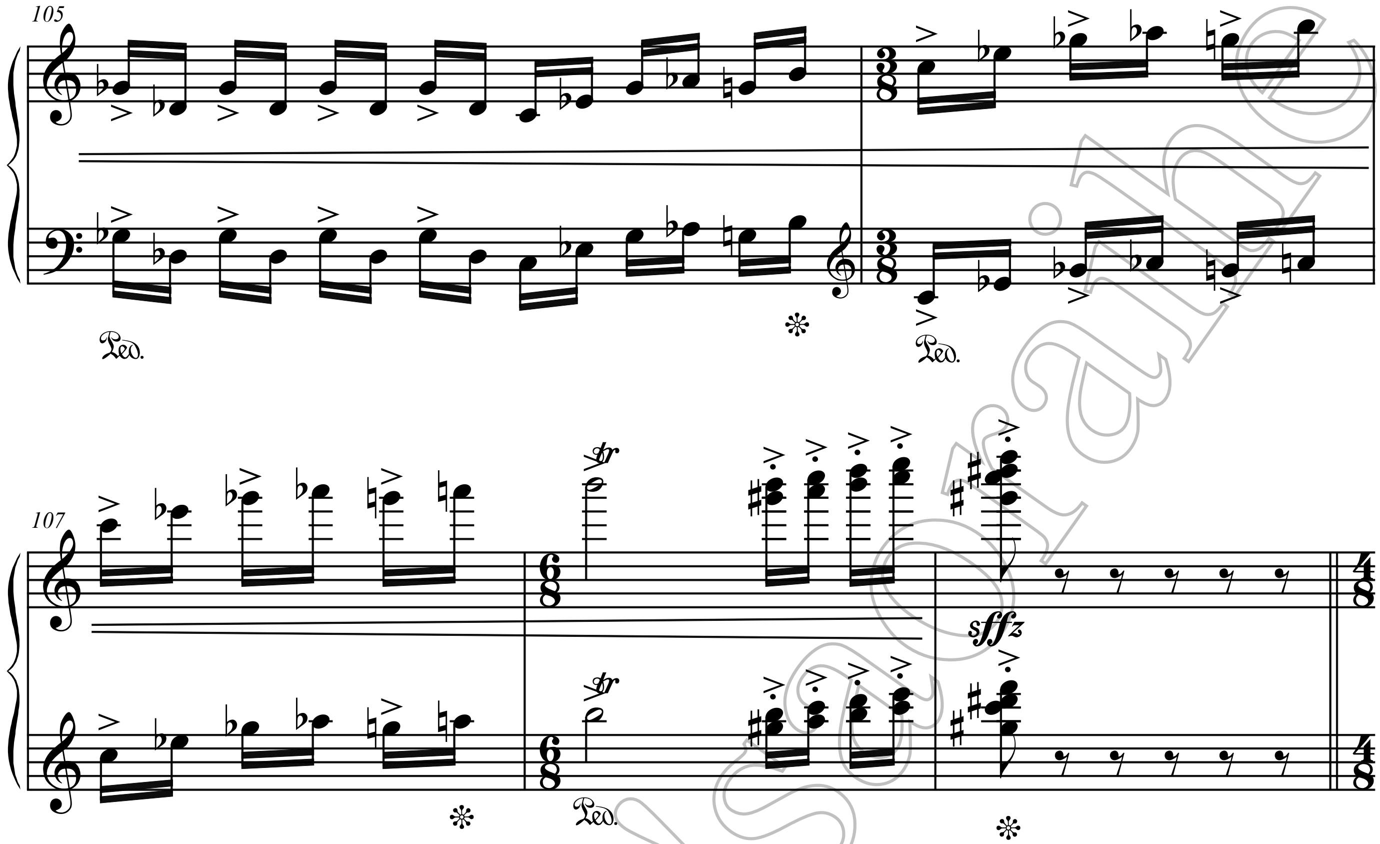
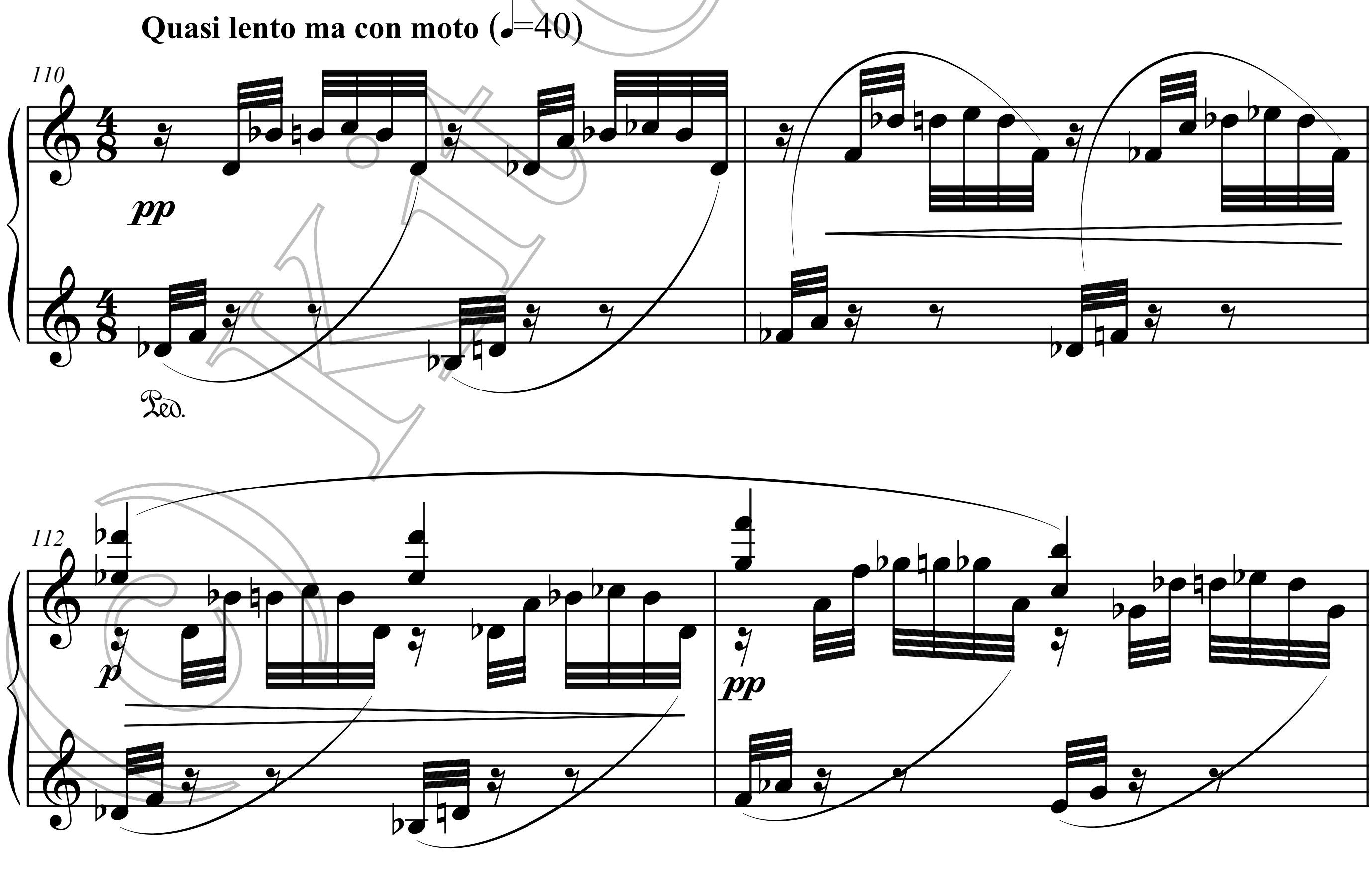
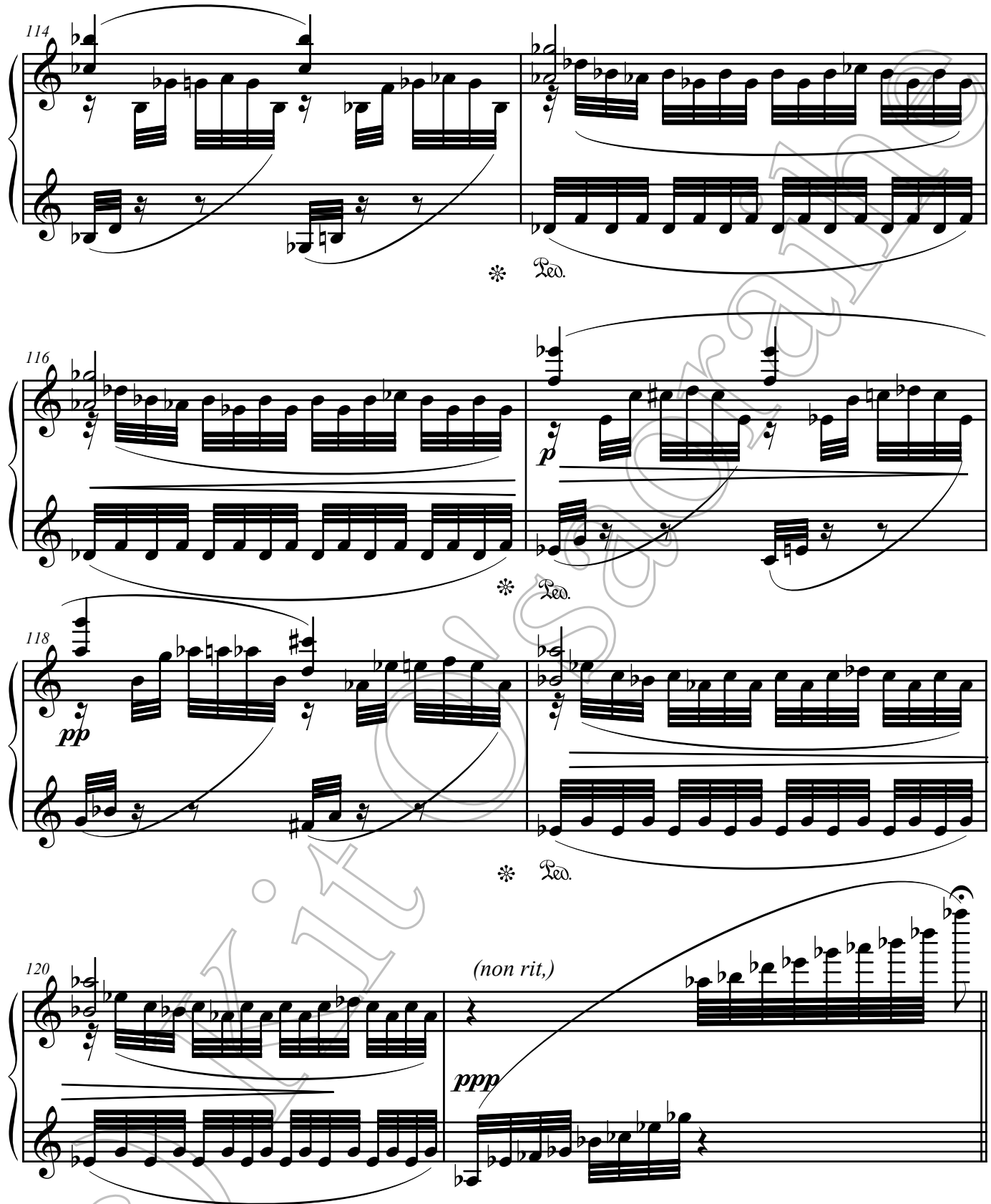





105
Ped.
Ped.
107
tr
sffz
tr
Ped.

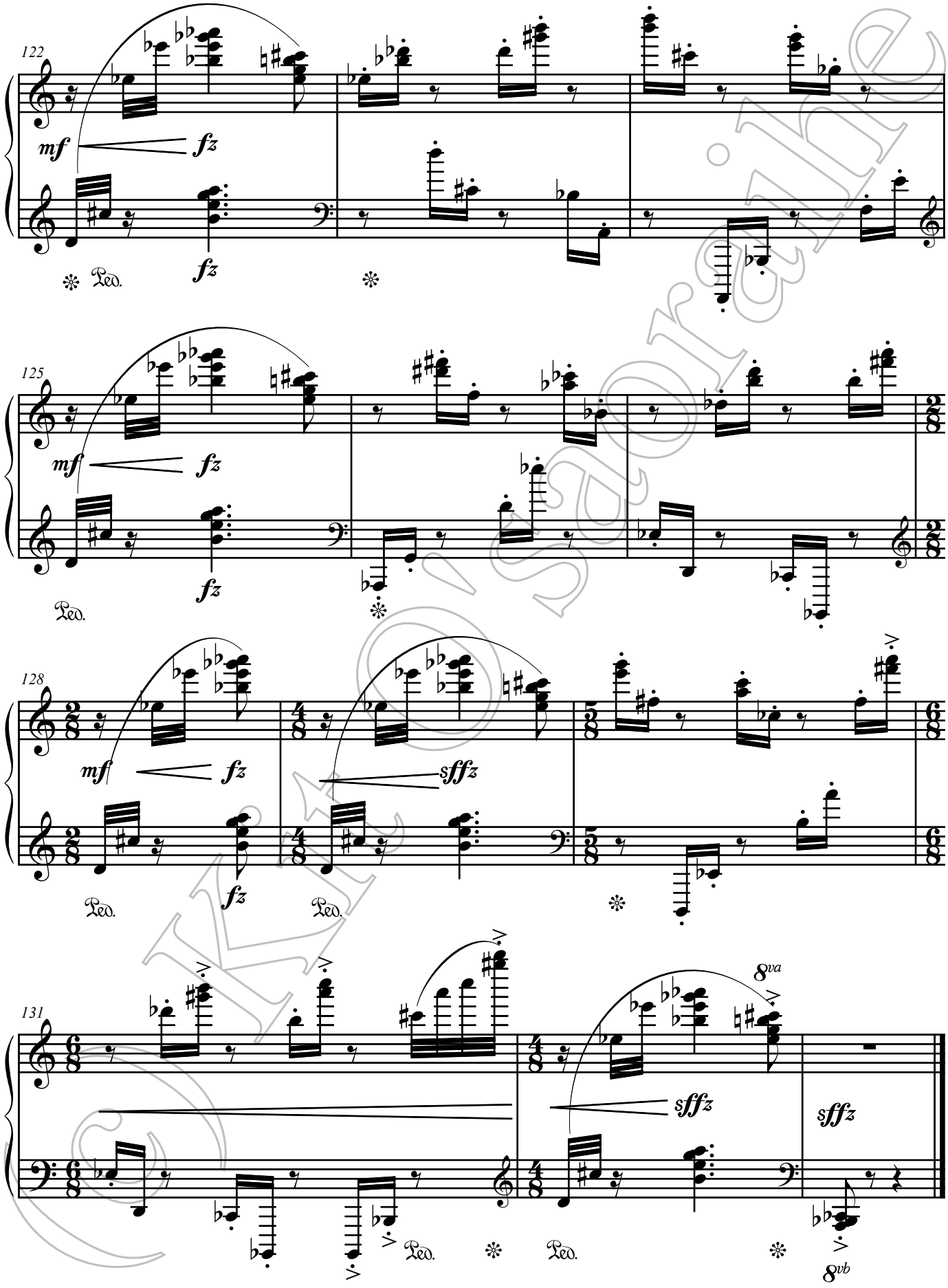
11


Quasi lento ma con moto (♩=40)
110
pp
Ped.
112
p
pp



12

Allegro molto (♩=105-110)



Video and Musical Composition by
Jason Munn

Wood Water Air

https://vimeo.com/246563883

Life in Single File

https://soundcloud.com/jase-munn/life-in-single-file

POETRY

by

Lao-Tzu 500bce

Late T. G. "Tong" Hadley

John McGuire

Wisdom of ancient Masters

Tao Te Ching

Lao-Tzu 500bce

Know the male,
yet keep to the female:
receive the world in your arms.
If you receive the world,
the Tao will never leave you
and you will be like a little child.

Know the white,
yet keep to the black:
be a pattern for the world.
If you are pattern for the world,
the Tao will be strong inside you
and there will be nothing you can't do.

Know the personal,
yet keep to the impersonal:
accept the world as it is.
If you accept the world,
the Tao will be luminous inside you
and you will return to your primal self.

The world is formed from the void,
like utensils from the block of wood.
The Master knows the utensils,
yet keep to the block:
thus she can use all things.

Dawn

*The "*Uhu" calls her name from deep 'neath the crowns*
of darkest green fir boughs...
"U-huuu, u-huuu, U-huuu"...

Wee mouseys twitch wispy whiskers
Judging the run from bush to nest
as the owly mantra recedes...

Coyotes' choir has died down as
Daylight bids them return to cozy dens
Tucked into the folds of sandstone around the bay.

First Red-Tail lofts in the upwelling wind
Which has arrived from Pacific swells,
From the Sandwich Islands so very far, far away.

Atop Chuckanut Mountain, Eagle flaps mightily,
dropping into the uplift from her aerie
showing her eaglets how to hunt.

The woman in denim tends to her wintergreen and kale,
The buffalo-shirt man kick-rolls logs to the splitter as
Their woodpile grows longer, higher.

Far norther, Jack Frost's eyes twinkle
as he readys to sojourn southward.

Spaceship Earth tilts her pole away,
Course set now for Winter Soltice.
The stars somehow seem to be God's Dreams.

FRAGMENT

Give me somerespite from the vagaries of living
And you findfrom me the dwellings of the giving.

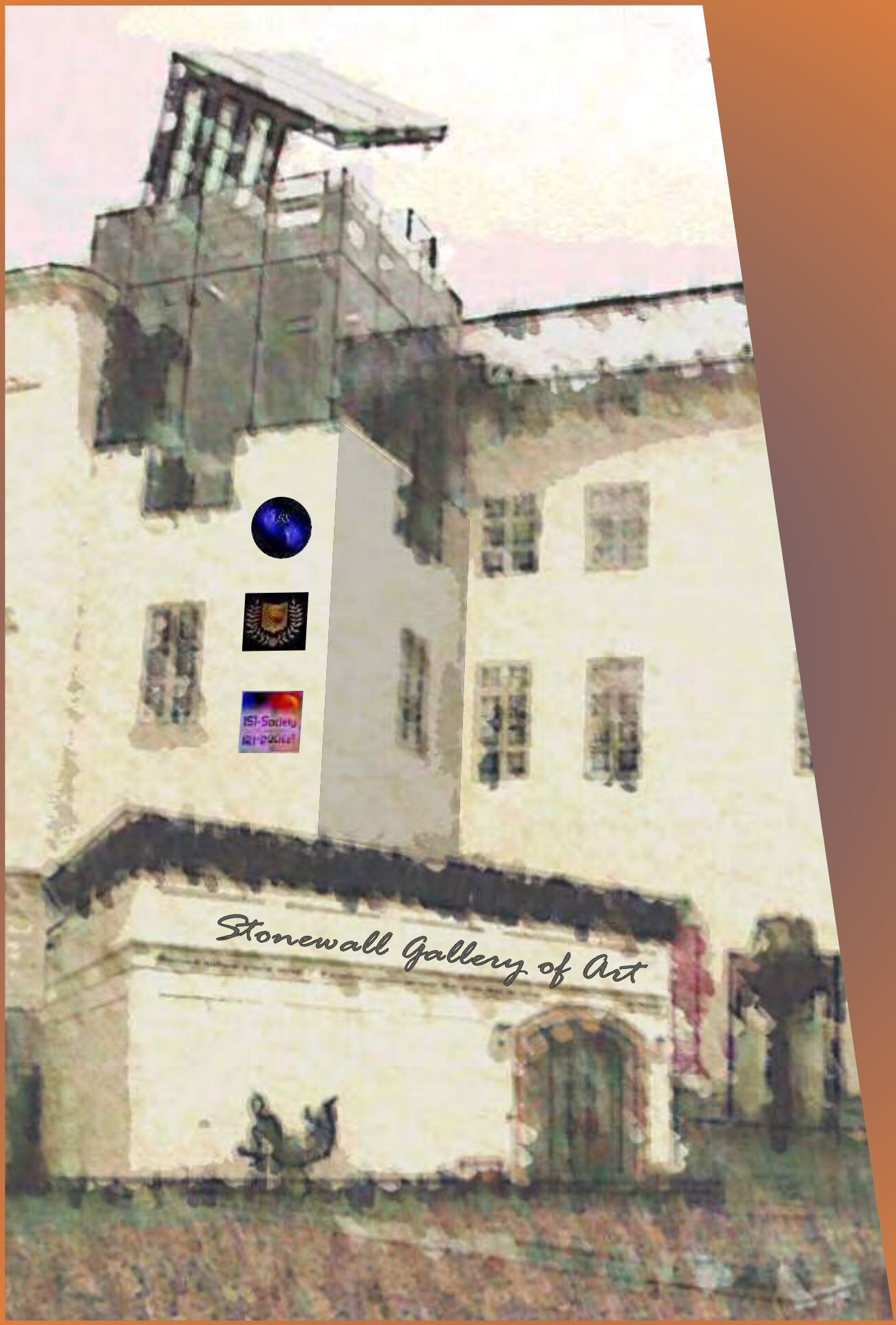
THE ESSENCE OFRELATIONSHIPS?

Any long-term relationship
Possesses bumps and curves
Some expected, others surprises
(Perhaps only to the couple involved)
We see the path ahead, but perhaps
It only contain coincidences
That must be tackled without any other
Support besides our existences
And expectation of clearer things to come
The sustained hopes of our ancestors
And the continued exhilarations of our existences
Which give a plethora of experiences
That can guide us through the difficulties of maintaining
Stability in a world that often embraces entropy.

THE REMNANTS OFCONSCIOUSNESS

The gates yawn wide in our minds' contemplations
And exude in our consciousnesses remnants
That linger in the subconscious substratums
Of our fumbled imaginings and yearnings
For a better future
A more contemplative period of poetic understanding
That will hopefully blossom into
Emissions of empathy
And heightened consciousness in
Pale gratification of these desires which
Exude from under our skins
And come into our cognitions
Making us aware of straitened circumstances
That empower us to go beyond the boundaries of
Incomprehensiveness
In apparent seas of miasmic trauma.

John McGuire


Stonewall Gallery of Art

Stonewall Gallery of Art

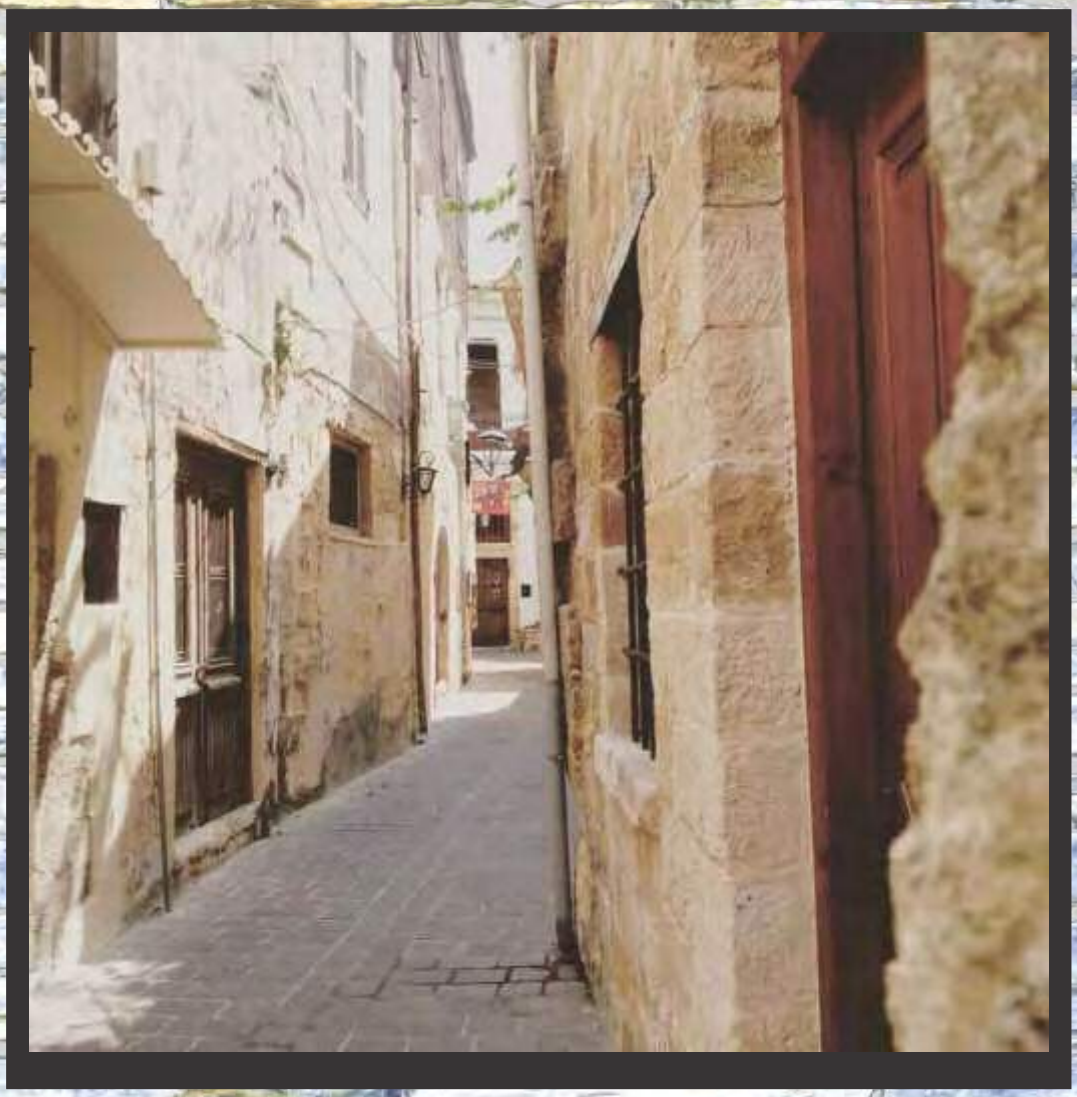
Photography by
J M Cervenka
"Puzzle"

Photography by
J M Cervenka
"confidentiality"

Stonewall Gallery of Art

Xavier Jouve
"Crete" collection

Stonewall Gallery of Art



Xavier Jouve
"Crete" collection

Stonewall Gallery of Art

Photography by
Mark van Vuuren
"Johanesburg colection"

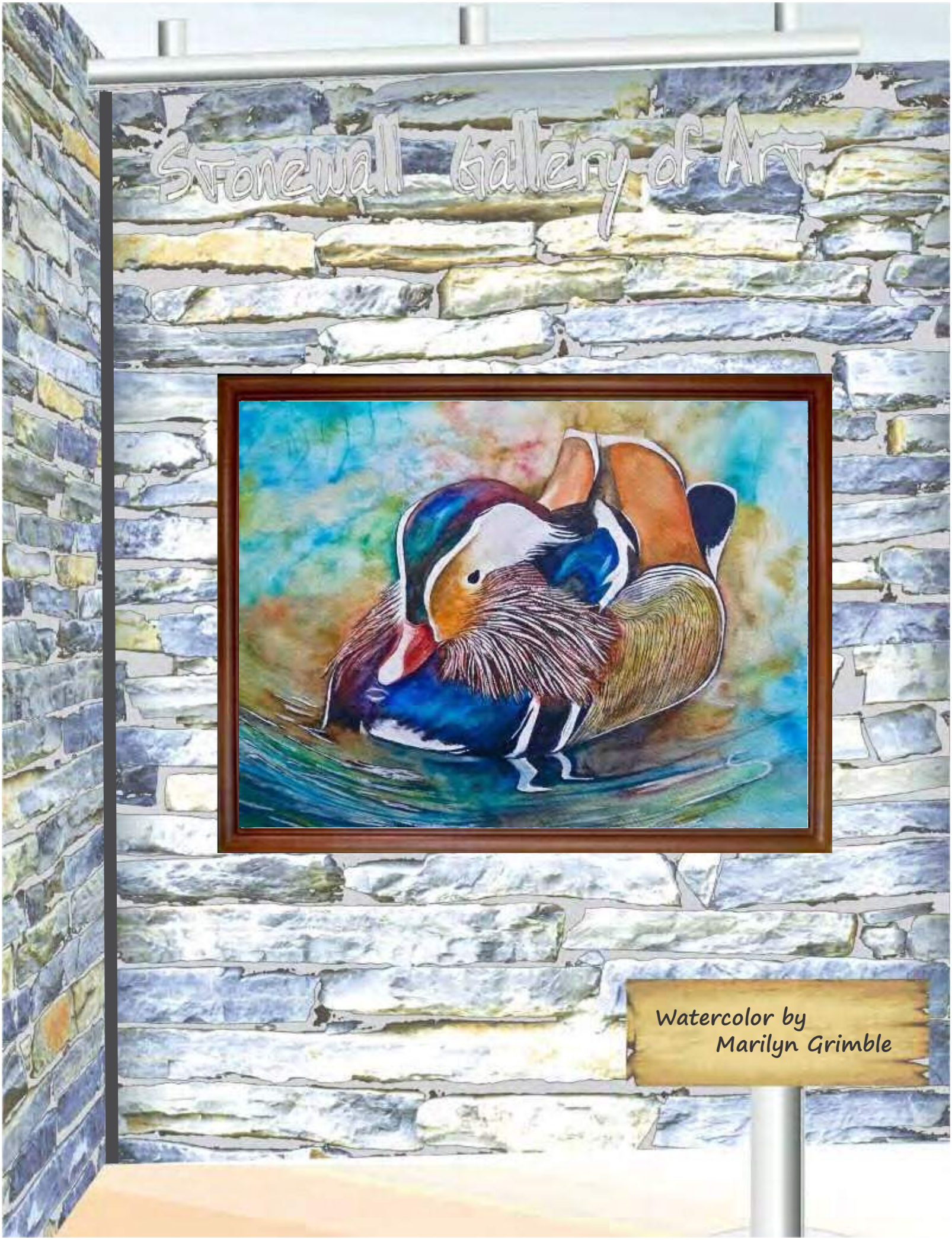
Photography by
Mark van Vuuren
"Johanesburg colection"

Stonewall Gallery of Art

Photography by
Alena Plistilova

Photography by
Alena Plistilova

Photograph by
Marilyn Grimble

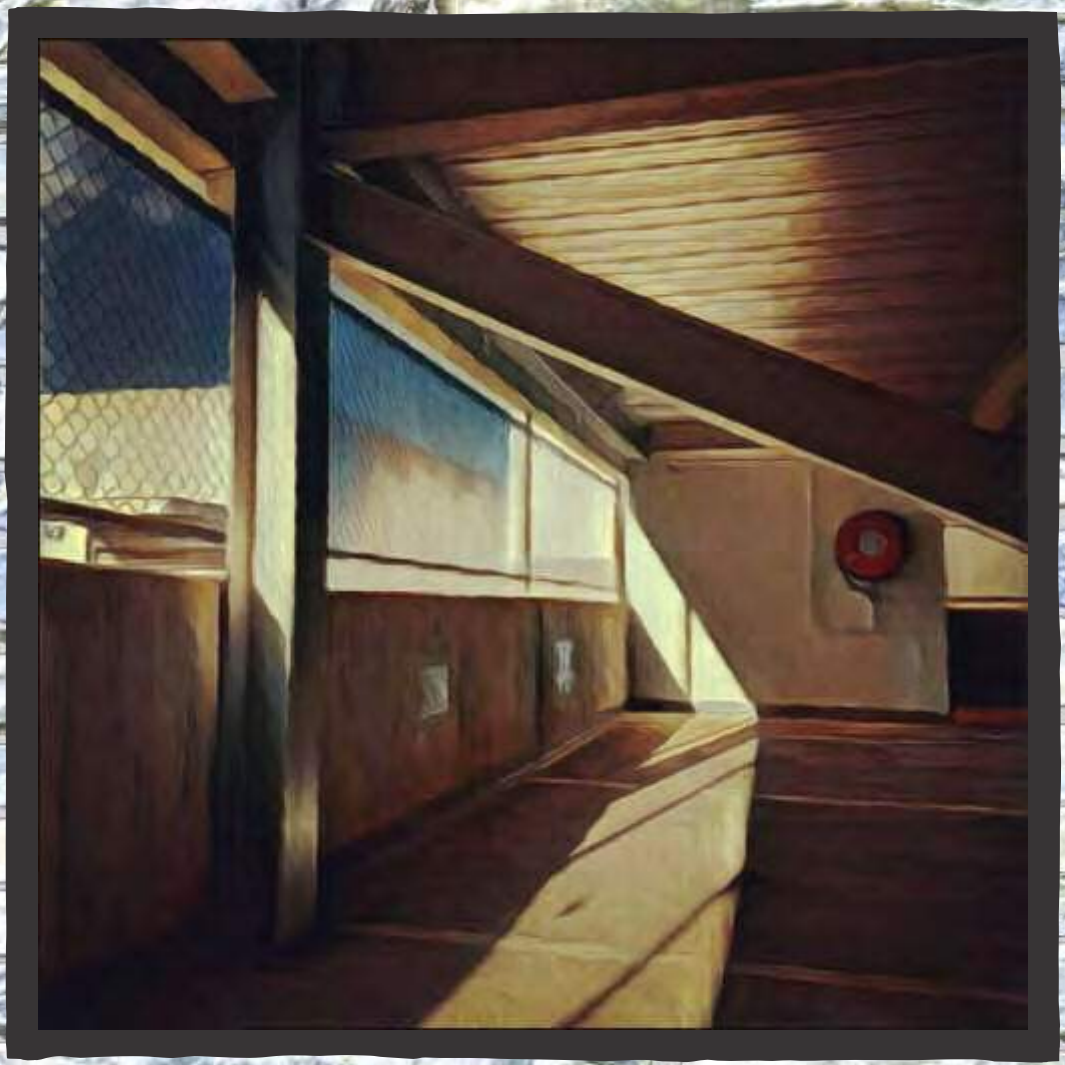

Stonewall Gallery of Art
Watercolor by
Marilyn Grimble

Stonewall Gallery of Art

Saint Nicholas
the Wonder Worker

Photography by
Jase Munn

Stonewall Gallery of Art



Photography by
Jase Munn

Photo by
Stan Riha

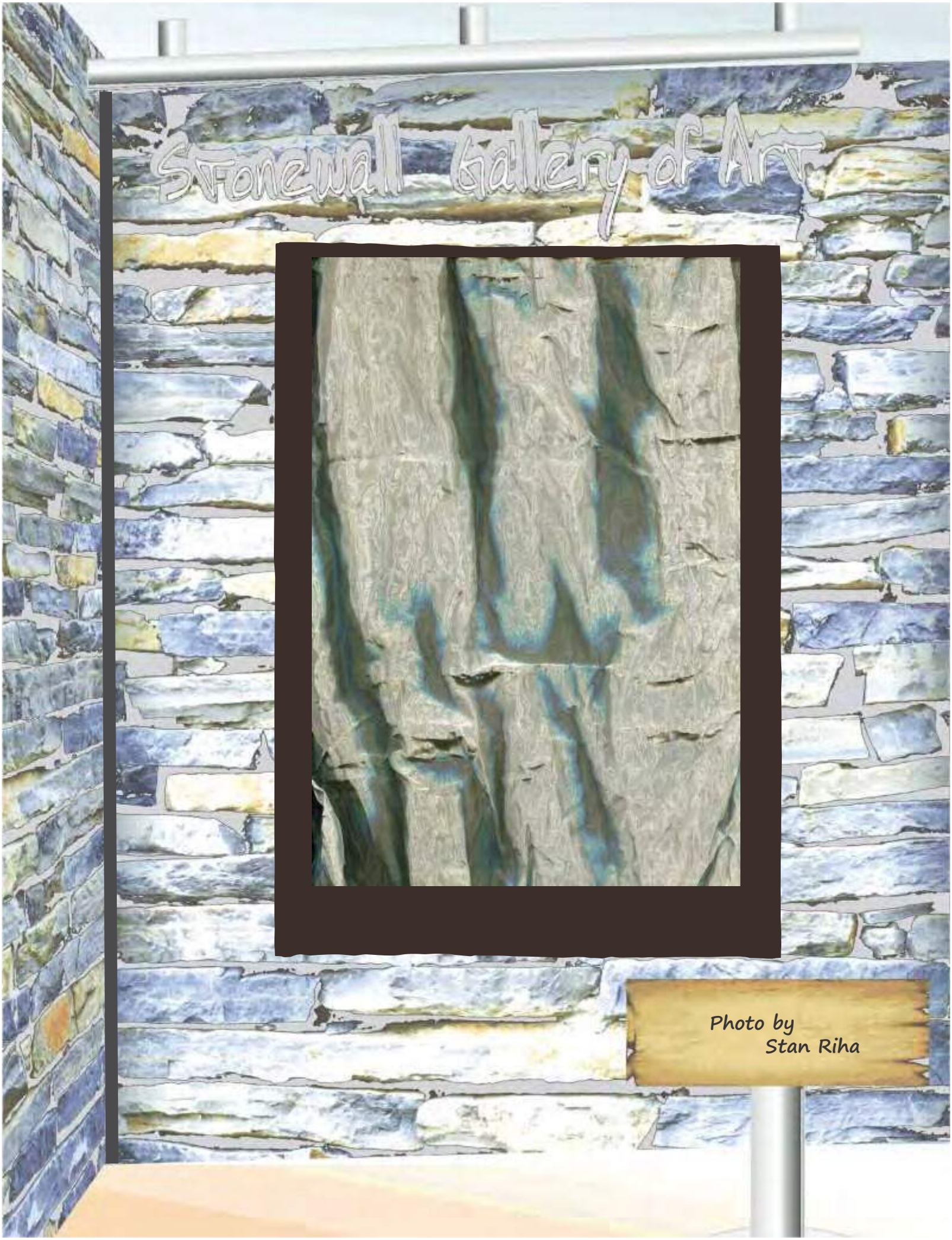


Photo by
Stan Riha

Puzzles, Riddles & Brainteasers

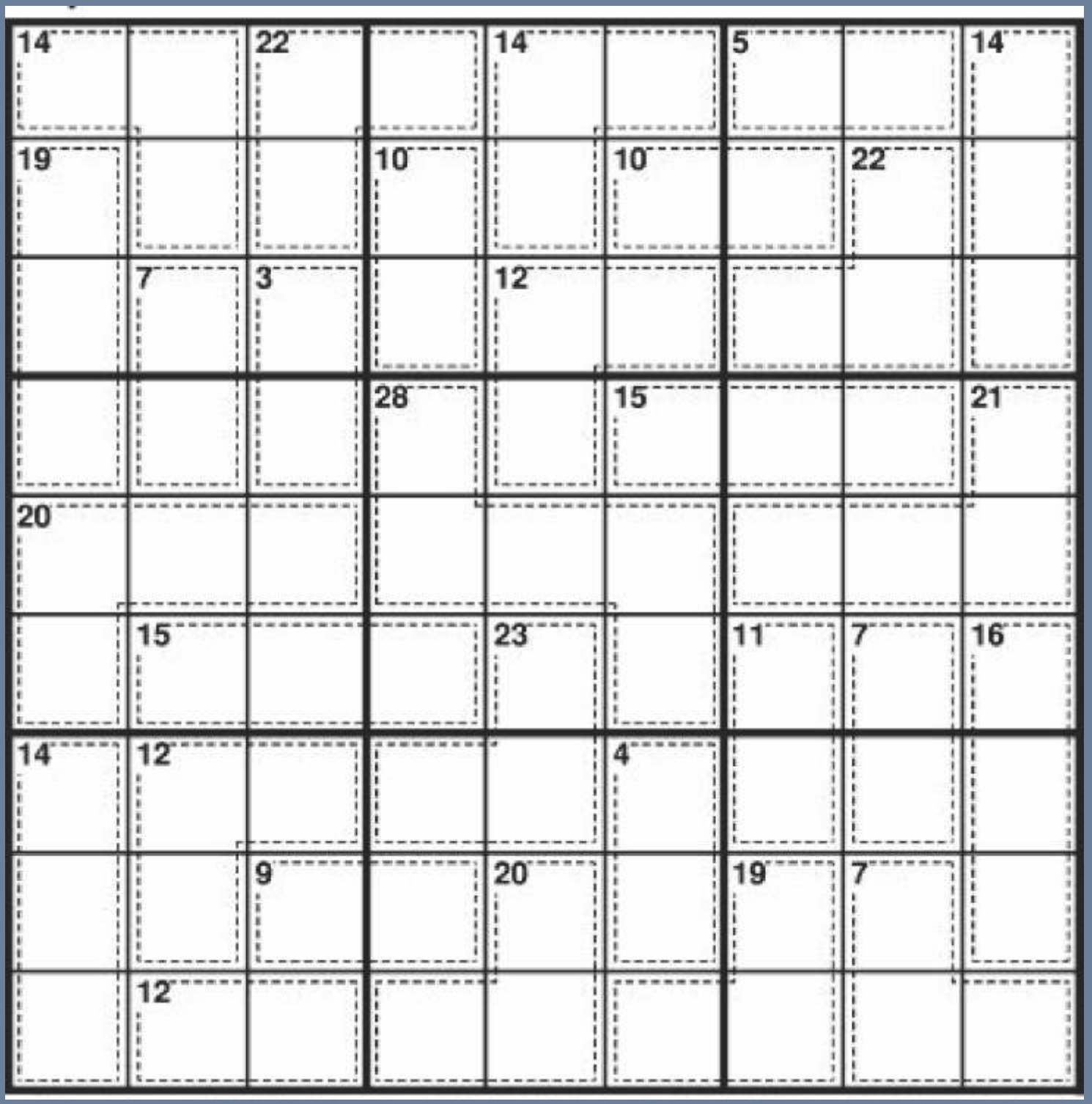
Next three months calendar

Solution of killersudoku from IQN Journal Issue Vol 9 no 4

8 1	3	4	15 5	14 6	8	16 9	7	6 2
22 7	8	6	4	16 9	2	5	3	1
2	18 5	12 9	3	12 1	11 7	20 8	4	23 6
5	7	3	6	2	4	1	9	8
4	2	22 8	15 1	5	9	7	15 6	3
23 6	9	1	9 7	17 8	3	2	5	22 4
8	6	7	2	4	8 5	3	1	9
13 9	1	16 5	8	3	11 6	4	2	7
3	6 4	2	16 9	7	1	19 6	8	5

Rules

As in regular sudoku, every cell in each row, column, and nonet must contain a unique digit. In other words, each row, column, and nonet must contain all the digits from one to nine.
The values of the cells a cage must sum up to the total for that cage.
The values of the cells in a cage must be unique.

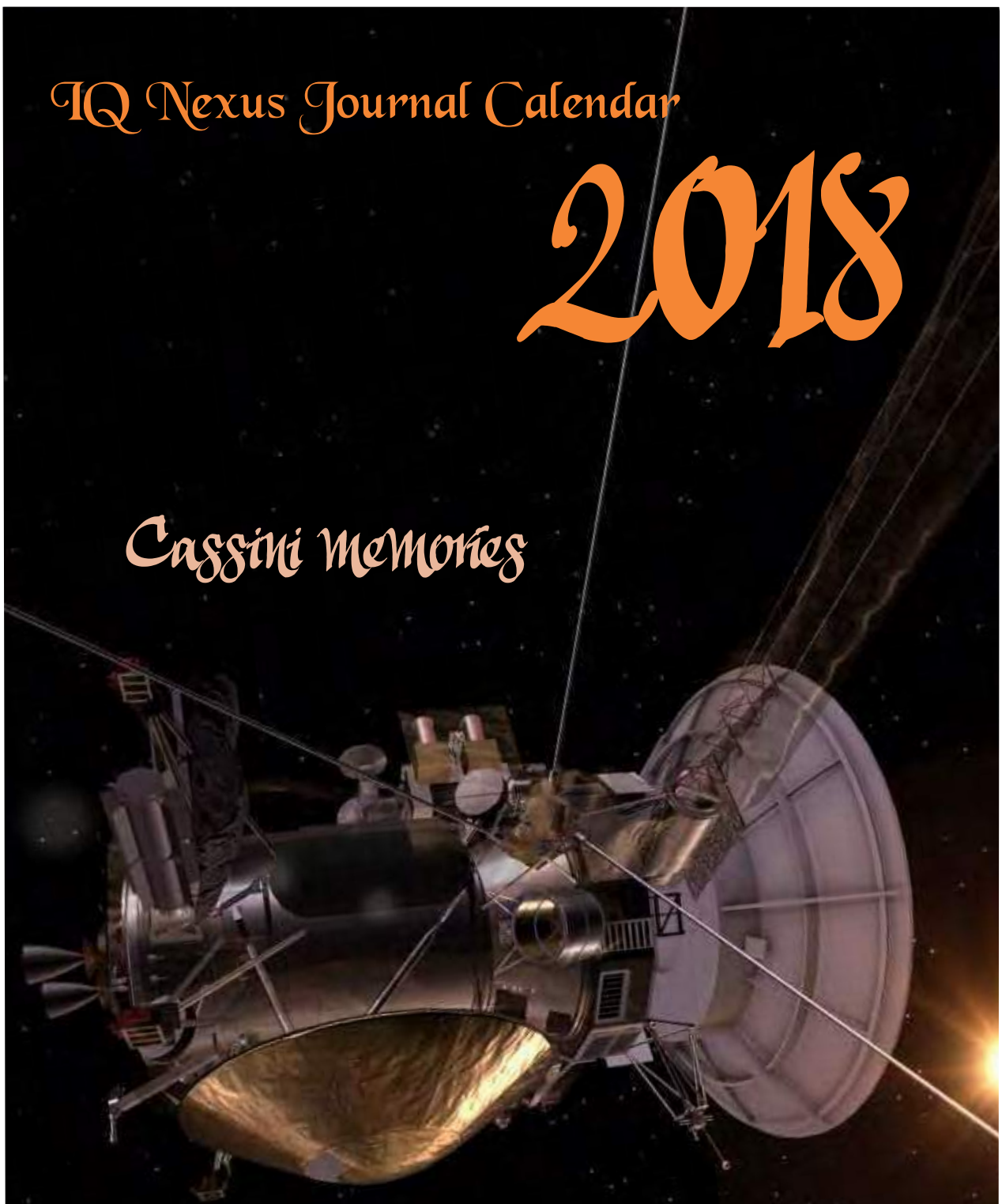


Solution to this puzzle will be published in the next issue of the IQ Nexus Journal

IQ Nexus Journal Calendar

2018

Cassini memories



IQNexus Forum

Online Calendar of IIS, ePiq & ISI-S Societies, members of WIN

March

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April

May

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	*Saturday*
		1	2	3	4	5
6	7	8 Mother's Day	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23 Victoria Day	24	25	26
27	28	29	30	31		

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19 Father's Day	20	21	22	23
24 St. Jean Baptiste Day	25	26	27	28	29	30

Representative products and gifts for the IIS, ePiq, IQ Nexus and ISI-S members and friends.

http://www.cafepress.ca/IISIQ
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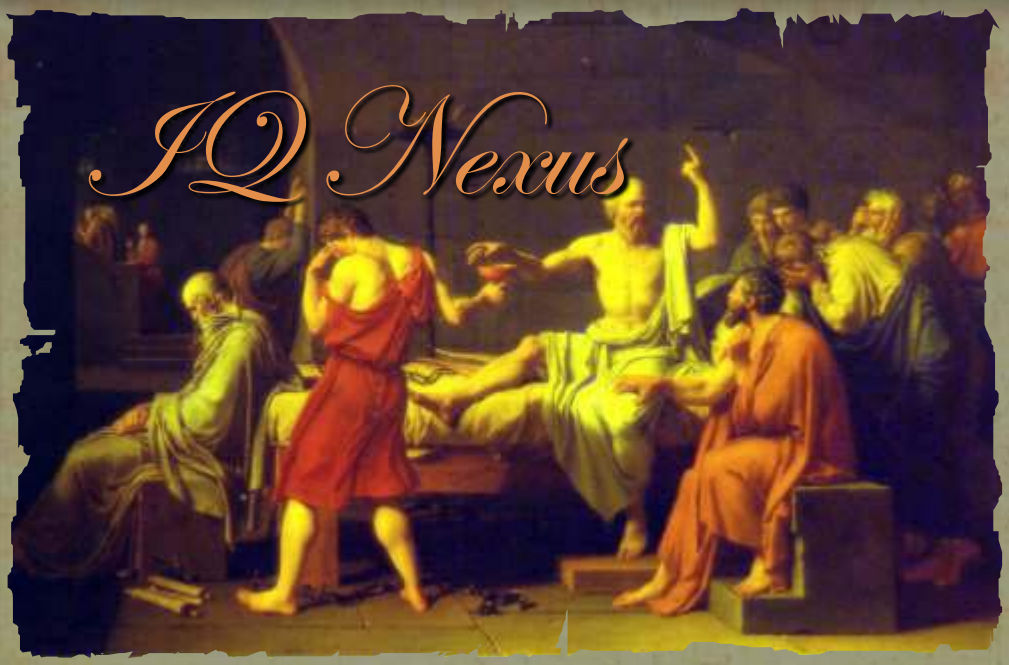

IQ Nexus

Forum of ePiq, IIS & IISI-S societies
presents award of excellence in arts and science
for contribution to
IQ Nexus Journal Vol. 10, No. 1/2018
to

Vernon M Neppe

Louis Sauter

Xavier Jouve

Edward R. Close

Jaromír Mira Červenka

Alena Plíšťilová

John Mc Guire

Mark van Vuuren

Ashraya Ananthanarayanan

Jason Munn

Kit O'Saoraidhe

Marilyn Grimble

T.G. "Torq" Hadley

Stan Riha

Publisher / Graphic Editor - Stan Riha; English Editor - Jacqueline Slade; Web master - Owen Cosby