STELLARIUM AND SOLAR FIRE GOLD (SFG)

The Empirical (**Non-Biographical**) Falsifiability of Celestial Partitioning Methods

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I. What is this?

This document serves as a strict technical auditing protocol designed to falsify any method of celestial partitioning through direct empirical confrontation with celestial mechanics. It is an operational guide for the independent researcher seeking to validate the architecture of the local horizon (the exact topocentric position of a house cusp).

This procedure is fundamentally anchored in the premise that every zodiacal degree is, in essence, a solar footprint with a unique **verifiable** trajectory. Consequently, if a model of house division possesses true topocentric integrity, it must be capable of predicting with absolute exactitude the **physical spatial coordinates** (altitude and azimuth) of any given cusp (ecliptic/zodiacal coordinate) within the actual sky.

By utilizing Stellarium and the University of Nebraska simulators as control laboratories, the practitioner can definitively discern whether a system constitutes a faithful representation of topocentric kinematics—measured seamlessly, uninterruptedly **from cusp to cusp**—or remains a geometric construct alienated from the curved reality of our sky.

II. Empirical and Epistemological Foundation

1. The Ecliptic Coordinate as a "Solar Footprint"

Given that the Tropical Zodiac operates as the inherent measuring tape of our ecliptic, every zodiacal degree constitutes, by strict definition, an **ecliptic coordinate**. Consequently, each degree of the zodiac represents a specific date of the solar year; in explicit geometric terms, each ecliptic coordinate is an individual solar footprint possessing its own unique arc and declination. [Note: The almanac and the Swiss Ephemeris utilised by both SFG and Stellarium employ the Equinox of the Current Date].

2. Software Limitations and the Physical Proxy

However, the design of conventional astrological software suffers from a critical technical limitation: it does not provide the topocentric coordinates (*altitude* and *azimuth*) of **pure** ecliptic degrees (e.g., longitude 85º or 25º Gemini), but exclusively those of celestial bodies. Therefore, to determine the exact altitude and azimuth of a zodiacal degree on the local horizon, it is imperative to employ the physical solar body as a **visual proxy**. This requires positioning the Sun precisely on the ecliptic longitude of interest, utilising the exact date when the luminary occupies that spatiotemporal coordinate.

3. The Topocentric Criterion of Falsifiability

Once these topocentric coordinates (altitude and azimuth) are derived, they must be empirically verified in Stellarium—an astronomical environment of exacting rigor. The validation criterion is uncompromising: if the physical solar body occupies the identical topocentric position after the exact same duration has elapsed since its geometric rise—or at the exact same time of day, having previously reconciled civil time with local apparent solar time—the house system is valid. If, conversely, the luminary fails to reach this **spatial coordinate within the stipulated time** (a

timeframe strictly dictated by the Earth's uniform rotation and axial tilt), the system inevitably harbours a structural error in measuring *apparent angular motion*.

- ☼ **Metrological Note on the "Topocentric" System**. It is critical to clarify that the method proposed by WENDEL POLICH in 1976—paradoxically named the "Topocentric" system (discarding both atmospheric refraction and parallax)—fails to execute the exact *trisection* of the diurnal arc. Consequently, it does not yield the exact physical coordinates of the cuspal degree at the required time increment (exactly one-sixth [1/6] of the diurnal arc or one-third [1/3] of the diurnal semiarc), thereby invalidating its author's recurrent claims. This structural failure in measuring apparent angular motion becomes unequivocally demonstrable as geographic latitude increases.

4. The Angular Consensus and the Methodological Fracture

Apparent angular motion (oblique ascension) constitutes the mechanical foundation of every Ascendant (**Asc**) and Midheaven (**MC**), as both represent specific kinetic intersections between the ecliptic and the observer's horizon. Given that all systems of quadrant houses agree unanimously on the **Asc** and the **MC**—and that these align with the physical reality modelled in Stellarium—it is evident that **all systems respect diurnal motion** with respect to the primary cusps.

The methodological collapse, however, emerges at the intermediate cusps. Only one system maintains **identical** measurement mechanics throughout the **entire horizon** at a given moment. The others incur a fatal epistemological fracture: they either resort to linear reference frames utterly alien to apparent diurnal motion (such as the prime vertical in Campanus or the celestial equator in Regiomontanus), or they artificially extrapolate the time of culmination of a single point (the Asc in Alcabitius or the MC in Koch) onto the remaining cusps. Strictly speaking, these systems force two contradictory methodologies into the same astrography: a **kinetic (non-linear)** metric for the angles, and a **static (linear)** metric for the intermediate houses.

5. The Kinetic Consistency of the Ptolemaic-Placidian Model

To assert that the proportional method of Ptolemy/Placidus preserves the mathematical identity of the Asc and the MC at the intermediate cusps is to acknowledge that it applies a **unified**, **unbroken criterion** from beginning to end. This system respects the specific *time of arrival* (the diurnal or apparent angular motion) of each cuspal degree with absolute independence. It thereby recognises the unique **topocentric coordinates** that each solar footprint achieves upon completing the proportional fraction of **its own** specific arc (i.e., exactly 1/6, 2/6, or 3/6 of its diurnal or nocturnal journey).

6. The Historical Computational Barrier

The historical bypass of this methodological consistency was not born of the philosophical rejection of a specific postulate, but of mathematical limitation. Unlike the horizon and the local meridian, which offer visually undeniable physical frames to mark an intersection, the proportional times of arrival in the intermediate space lack a **tangible** visual marker in the sky. Their individual mathematical derivation demanded a trigonometric effort so monumental that it proved practically unattainable for the vast majority of astrologers prior to the 17th century—a computational barrier that was only definitively overcome following the invention of **logarithms** by **JOHN NAPIER** in 1614. (See §3.5 to understand **WILLIAM LILLY**'s difficulty in his own words.)

III. Technical Procedure (*Stellarium*)

1. Reproducing the 'Animate' Function of Solar Fire Gold (SFG)

To replicate the "Animate" function of Solar Fire Gold (SFG)—a feature essential for operating with highly specific time increments—within Stellarium the practitioner must bypass the standard fast-forward mechanism and utilise the Scripts Console (**F12**). By opening the console and entering the following exact code into the editor, the user commands the software to advance the celestial vault by a **mathematically pure fraction**.

This specific example calculates a temporal increment of exactly **10,636 seconds** or **177.2666667 minutes**, representing precisely two diurnal seasonal hours (one-sixth of the diurnal arc) for **λ 85º 52'** or 25º 52' Gemini (the 12th House cusp) in Kodiak, Alaska:

$$core.setJDay(core.getJDay() + 10636/86400)$$

Once entered, one need only execute the script (via the Play button within the F12 window) to advance the sky by that exact temporal increment.

2. Practical Application Example

Consider the ecliptic coordinate 85º 52' (25º 52' Gemini) from the topocentric perspective of an observer in Kodiak, Alaska. If this specific coordinate rests exactly upon the eastern horizon (geometric rise of the mathematical centre of the solar disc), executing the script six (6) consecutive times will advance the coordinate flawlessly to its exact setting on the western horizon. This empirical procedure seamlessly demonstrates and validates the total length of the diurnal arc for **λ 85º 52'** or 25º 52' Gemini: **17 hours, 43 minutes, and 36 seconds** (10,636 s x 6 = 63,816 s or 1,063.6 m).

3. Spatiotemporal Fixity vs. Ephemeris Drift (The Proxy Problem)

A pure ecliptic coordinate constitutes a frozen point in (classical) spacetime; its right ascension (RA) and declination remain absolutely static. The physical Sun, conversely, is dynamic. Should one attempt to use the physical solar body as a visual proxy for the coordinate (by selecting the date the Sun occupies that exact degree), a **slight visual discrepancy** will manifest.

This lag, though negligible for standard purposes, is the result of ephemeris drift—defined in astrophysics as the Sun's *proper motion*. Over the course of a 14-hour diurnal arc, the Sun does not remain stationary; during its transit from rising to setting, it advances approximately 50 arcminutes along the ecliptic (reaching nearly **86º 35'** by the time it sets).

Solar Fire calculates the kinetic arc of a fixed mathematical point. Tracking the physical Sun in Stellarium, however, equates to tracking a **moving target**. Therefore, to achieve perfect metrological congruity and mathematical purity between the two programs, it is strictly necessary to track the **fixed ecliptic coordinate**. Nevertheless, because ecliptic coordinates (the degrees of the tropical zodiac) are fundamentally solar footprints, employing the physical body as a visual proxy will still yield a robust, near-exact empirical result.

4. The Historical Burden: Ptolemy (2nd century) and William Lilly (17th century)

The empirical confirmation of the entire celestial vault (each cuspal degree) demands that we replicate the procedure for all cusps. This necessitates calculating the exact length of the diurnal arc for every **individual coordinate (cusp)**—an exercise that the renowned seventeenth-century English astrologer, WILLIAM LILLY, alongside his contemporaries, deemed exceedingly **"laborious" (2005/1647, III, p. 651)** and even "obscure" (difficult to comprehend). Nevertheless, LILLY conceded that this "was the only method [the natural one] that Ptolemy left [us]," precisely because it adheres strictly to the very phenomenon responsible for producing the Ascendant itself: diurnal motion.

Essentially, every intermediate cusp functions as a subsequent Ascendant. It designates the exact topocentric coordinate where the currently rising degree will find itself exactly two seasonal or oblique hours (h_t) *after its ascent*. Conversely, the degree currently occupying the 12th House cusp represents what **was** the Ascendant exactly two seasonal hours (h_t) prior—meaning it has now seamlessly fulfilled the first one-sixth (1/6) **of its own** unique diurnal arc.

In strict **kinematic** terms: once the celestial sphere has been mathematically frozen to isolate the Ascendant (representing 0/6 of its diurnal arc, or the absolute completion of its nocturnal arc, 6/6) and the Midheaven (representing exactly 3/6 of its diurnal arc), the Ptolemaic/Placidian model demands a precise metrological **discovery**. We must determine which specific ecliptic coordinates (zodiacal degrees) currently correspond exactly to 1/6 (the 12th House cusp), 2/6 (the 11th), 4/6 (the 9th), and 5/6 (the 8th) of their individual diurnal arcs.

To **empirically** validate this kinematic framework, the following section executes this exact metrological **discovery** upon a specific test coordinate (25º 05' Gemini). By tracking its complete diurnal transit—from geometric rise (1st House) through the intermediate fractions (12th, 11th, 10th, 9th, and 8th) to its setting (7th House)—we demonstrate the methodology required to empirically verify a truly topocentric cusp.

5. Empirical Data Table: Real-World Kinematic Journey (Kodiak, Alaska)

Before presenting the empirical data, the strict mathematical baselines of the **topocentric audit** must be established. To guarantee a 1:1 empirical cross-examination, both Stellarium and Solar Fire Gold (SFG) must be standardised to share the exact same definitions of geometric rise and ecliptic longitude. This alignment ensures both engines are measuring the **identical physical phenomenon**. Failure to synchronise these parameters will result in artificial discrepancies stemming purely from mismatched software defaults, rather than from any inherent flaw in the kinematics or the forensic exercise.

a) The True Equinox of Date

To achieve absolute fidelity within the Stellarium environment, the software user must observe the true equinox of date (i.e., "on date," not standard epoch "J2000.0"). This ensures that 0º Aries is mathematically anchored to the living, current intersection of the celestial equator and the ecliptic, accounting for the accumulated precession of the equinoxes (SFG enforces the true equinox of date by default). Consequently, the absolute ecliptic longitude (e.g., λ 85º 05') and its corresponding tropical coordinate (e.g., 25º 05' Gemini) remain in perfect, dynamic synchronisation. This astronomical parameter proves why the tropical zodiac is not merely a static symbolic construct; it functions as a measuring tape laid upon the ecliptic and, as such, perfectly reflects apparent solar motion.

b) On Configurational Variances: The Auditor's Protocol

In the event of apparent temporal discrepancies between the rise and set times in **Solar Fire Gold** (SFG) and **Stellarium**, the auditor must immediately check for two primary configurational variances:

- **Atmospheric Refraction**: Unless atmospheric refraction is uniformly suppressed across both platforms, deviations of approximately ten minutes will emerge. A rigorous forensic audit mandates a purely mathematical horizon, entirely devoid of atmospheric distortion.

- **Solar Disc Reference**: A temporal variance of roughly three minutes will manifest depending on which specific locus of the celestial body is designated to mark horizon **contact**. Whereas Stellarium frequently defaults to the upper limb (the apparent visual edge), SFG relies exclusively on the mathematical centre of the solar disc to define geometric rise.

To guarantee that Stellarium measures the diurnal arc of a specific ecliptic coordinate identically to **Solar Fire Gold**, atmospheric refraction must be completely suppressed within the configuration menu and the practitioner must enforce the strict definition of geometric rise: the

exact moment the centre of the object intersects the **mathematical horizon** plane at a true topocentric altitude of **0º 00'**.

c) Manual Validation Protocol

To guarantee that Stellarium flawlessly replicates the geometric rise computed by SFG, the researcher must manually calibrate the solar position until the mathematical horizon exactly **bisects** the solar disc. Upon this exact bisection, the required geometric coincidence is achieved—even if the altitude readout in the software interface fails to display absolute 0º 00' **00"** due to UI's specific definition of geometric rise. This procedural calibration is the singular reliable method for empirically measuring the diurnal arc of a **pure** ecliptic coordinate (the "solar footprint"), thereby irrefragably validating the kinematic architecture of the Placidian/Ptolemaic model.

KODIAK, ALASKA

16 June 2024 | 08:14:26 AM Local Time (YDT +8:00, *Daylight Saving Observed*) or 16:14:26 UT

Coordinate of interest: 25º ♊ 52' (12th House Cusp)

House	Coordinate	Equivalent Tropical Zodiac Coordinate	Kinetic Stage	Journey	Location	Azimuth	Altitude	2 h_t Increment	SFG Time	Stellarium Time
1/Asc	λ 85º 52'	25º ♊ 52'	0/6	0%	*Horizon*	041º 53'	00º 00'	10,636 s	05:17:10	05:17:10
12	λ 85º 52'	25º ♊ 52'	1/6	16.66%	*Intermediate*	077º 48'	20º 07'	10,636 s	08:14:26	08:14:26
11	λ 85º 52'	25º ♊ 52'	2/6	33.33%	*Intermediate*	117º 47'	43º 06'	10,636 s	11:11:42	11:11:42
10/MC	λ 85º 52'	25º ♊ 52'	3/6	50%	*Meridian*	179º 21'	55º 35'	10,636 s	14:08:58	14:08:58
9	λ 85º 52'	25º ♊ 52'	4/6	66.66%	*Intermediate*	241º 20'	43º 29'	10,636 s	17:06:14	17:06:14
8	λ 85º 52'	25º ♊ 52'	5/6	83.33%	*Intermediate*	281º 33'	20º 33'	10,636 s	20:03:30	20:03:30
7	λ 85º 52'	25º ♊ 52'	6/6	100%	*Horizon*	317º 26'	0º 00'	10,636 s	23:00:46	23:00:46

NOTE: The time increment (10,636 s) is the **independent variable**. Observe how the ecliptic coordinate remains structurally intact across its entire diurnal journey. The coordinate (25º 52' Gemini) never changes. That exact same coordinate intersects every single physical milestone (16.66%, 33.33%, etc.) perfectly in sync with Stellarium.

d) Metrological Conclusion: The Exclusive Survival of the Placidian Model

It is imperative to clarify the empirical significance of the preceding table. The kinematic congruity demonstrated herein—where the software's predicted cuspal coordinate perfectly matches the physical topocentric position in Stellarium after the exact amount of time has elapsed since rise—is mathematically exclusive to the Ptolemaic/Placidian method. If one attempts to subject the cuspal coordinates generated by linear systems (e.g., Regiomontanus, Campanus, Alcabitius, Koch, Polich) to this exact same Solar Footprint Test, the result is a kinematic failure; the physical coordinate (cuspal degree) will categorically fail to reach the required spatial position at the stipulated **moment** in time (e.g. when an astrologer 'freezes' the horizon in order to obtain the natal celestial chart).

Therefore, this table does not merely demonstrate general software behavior; it represents the empirical survival of only **one** system under topocentric scrutiny, and explicitly confirms the postulate of the 17th-century mathematician, astronomer, and astrologer, Morin de Villefranche (2008, p. 69): "There is a unique mode of nature for acting, and therefore there can only be a unique natural system of dividing the Caelum into houses" (trans. Holden, AFA), "on which alone the true principles of this science depends."

e) The Mechanics of Falsification: Coordinate Mutation vs. Temporal Fracture

To fully grasp the failure of linear systems (Regiomontanus, Polich, etc.), one must understand how this kinematic failure physically manifests in the data. Because these systems do not track the organic diurnal arc of a single point, they suffer from what we can term a «**coordinate mutation**»:

- If we force the **time increments to remain constant**—as the physical laws of diurnal motion dictate—the linear software is forced to substitute a completely different ecliptic coordinate at each subsequent cusp to maintain its spatial, linear grid. Conversely,

- If we force the **ecliptic coordinate to remain constant** and attempt to track its individual journey, the temporal increments *shatter*, failing to align with the required unequal hours (i.e., failing to respect the length of the arc).

Therefore, a linear system cannot preserve both the physical coordinate and the physical time; it must inevitably sacrifice one to hallucinate the other. The quantitative demonstration of this kinematic collapse—specifically, the fracture of the REGIOMONTANIAN and POLICHIAN calculations when subjected to strict spatiotemporal parameters—has been fully tabulated and is the subject of a forthcoming formal academic publication.

f) A Verification Paradox: The Illusion of Spatial Accuracy

It is vital to preempt a common methodological error: the false-positive spatial verification. If an observer extracts the altitude and azimuth provided by a linear system (e.g., Regiomontanus) for a mutated coordinate—such as 02º 52' Cancer—and inputs those exact spatial parameters into Stellarium, the simulator will naturally display 02º 52' Cancer at that precise location. This can create the optical illusion that the linear system is correct. However, this spatial match is geometrically meaningless because it ignores the kinematic reality of the sky's rotation.

The failure is not the topocentric position of 02º 52' Cancer (the Regiomontanian 12th cusp) or of 24º 15' Gemini (the Polichian 12th cusp), but rather the precise **moment** in time at which **each** occupies **that** specific *altitude* and *azimuth*. That is, **neither** 02º 52' Cancer **nor** 24º 15' Gemini has completed one-sixth (1/6) of its own diurnal arc. Furthermore, if we reverse the clock by the requisite 10,636 seconds, **neither** 02º 52' Cancer **nor** 24º 15' Gemini **returns** to the Ascendant; instead, 25º 52' Gemini does (i.e., under their own methodology). This proves that neither system is tracking the continuous or uninterrupted kinematic journey of a single coordinate. Their cusps are the result of an arbitrary linear calculation.

The time increments (unequal hours) elapsed after the rising of a coordinate are the fundamental metric of celestial **partitioning**, as they **alone** determine **when** a tropical zodiacal

degree reaches a specific **topocentric** location. The amount of time that must elapse after the coordinate's rise to reach a specific cusp is an **immutable kinematic law**; linear systems abandon this law in favor of static, Euclidean grids.

g) A Corollary on Circumpolar Latitudes and Software Limitations

The Latitudinal Stress Test executed in this audit was deliberately capped at 57º N (Kodiak). This limit was chosen not due to a kinematic boundary in the sky, but to accommodate the **epistemological** limitations hardcoded into commercial astrological software (such as Solar Fire Gold). At extreme polar latitudes, commercial algorithms **erroneously** conflate the astrophysical reality of circumpolar arcs with a mathematical "failure," abruptly defaulting to the houses of Porphyry or to Equal Houses, thereby completely erasing topocentricity from the celestial chart. This developer hard-stop prevents the software from generating the data necessary for a 1:1 cross-examination of spatial versus kinetic systems at polar extremes.

It must be explicitly noted that Placidus (uninterrupted diurnal/nocturnal kinematics) functions flawlessly at the poles, as any independent continuous observation in Stellarium will confirm. The failure at the Arctic Circle lies entirely in the software's coding—and/or in the linear pretension of continuing to employ great circles within the polar regions—not in the geometry of the sky.

IV. Implications for the Astrological Practice

1. The Primacy of Celestial Anatomy

Just as biology is governed by anatomy rather than the physician, topocentric coordinates are dictated by terrestrial rotation (diurnal motion) and axial tilt (declination), not by the astrologer. **Consider the logical extension of this analogy**: physicians may employ various therapeutic approaches, but they cannot retrospectively reorganise a patient's internal organs to explain a pathology they otherwise failed to diagnose. Any valid clinical diagnosis must be grounded in the objective reality of the anatomical structure. Consequently, attempting to alter the anatomy (celestial positions) to justify or explain a human pathology (biographical event) constitutes not just an epistemological error but also a **structural violation of the discipline**.

In the same way that a medical diagnosis cannot survive the absence of a physical body, the astrological symbol cannot survive the death of the physical phenomenon it purports to represent. It is inadmissible to define astrology as the study of celestial correlations whilst simultaneously excusing a failure to measure the heavens accurately. The professional is to deploy the correct spherical trigonometry in order to faithfully reflect the topocentric celestial kinematics; only then—never before—should the interpretive process commence. **The interpretation of the symbol requires its location**.

Astrological interpretation is not an independent artistic exercise suspended in a *vacuum*; it is strictly *derivative*. It constitutes the hermeneutic translation of a physical reality. The most prominent astrologers in history were astronomers first, astrologers second; for them, the symbol was inextricably bound to celestial mechanics. The contemporary inclination to sever this indissoluble bond, far from honouring tradition, constitutes an absolute **abandonment** of it.

2. The Variance of Event Manifestation vs. Metrological Exactitude

a) Biological Complexity and the Fallacy of Exactitude

As corroborated by medical science, genetics, and developmental psychology, human events (including the definition of death) are complex *biological* and *sociological* processes wherein celestial and environmental variables converge; that is, they do not constitute singular or univocal mathematical points (including death, a process of systemic degradation with multiple biological definitions). Consequently, irrespective of the mathematical reliability of a predictive technique, a specific physical event will not necessarily manifest at the exact moment that a geometric arc is produced or completes (e.g. exact time of arrival of the *promissor*). The failure to account for this biological variance—a conflation present in numerous statistical exercises—frequently renders results of statistical regression necessarily spurious, that is, characterised by biographical confirmation biases.

b) Historical Precedent for Temporal Variance: The Morin-Gansten Notice

It is precisely to address this *natural variance* that MARTIN GANSTEN invokes (*Primary Directions*, 2009, p. 75) the reasoning of MORIN DE VILLEFRANCHE (*Astrologia Gallica*, Book XXII, 1661/2005, p. 64, trans. Holden):

> […] and experience proves that […] the accident (the event) sometimes happens before the precise time of the direction [i.e., time of arrival], while at other times it happens after it; not merely by a day or a month, but even by several […] because ther**e is no nativity in which the effects of all the directions correspond exactly to the time [of arrival] of their arcs**, and it frequently happens that if in a given nativity two or three such directions are confirmed [i.e., events signified by the times of arrival], the rest will tend to occur a little **before** or a little **after** [the time of arrival], more or less.

c) The Myth of Divergent Temporal Predictions

The above lends itself to a certain confusion. Therefore, the following must be clarified. If a practitioner's astronomical construction is spatially or temporally false, the subsequent interpretation—even if seemingly accurate in its descriptive outcome—is **deciphering a**

fictitious construct, not the cosmos. If two astrologers yield two disparate dates using the exact **same** celestial object (e.g., the Sun) and the **same** predictive technique (e.g., primary directions), either both are mistaken, or only one is correct. **There are no two Suns**. Therefore, there cannot be two distinct dates if these are derived from the same time of arrival of the same *promissor*. A *correct* **interpretation** built or based upon an *incorrect* **celestial position** yields a spurious confirmation; all the more if the professional has incurred the epistemological error described in **a)**.

- ☼ **Metrological Corollary on Non-Angular Directions**. It is critical to specify that these contradictory temporal discrepancies manifest exclusively during intermediate (non-angular) directions. Because all quadrant systems unanimously agree on the kinetic, oblique, or non-linear derivation of the angles, directions to the Ascendant or Midheaven remain mathematically identical. The epistemological fracture occurs only in the *intermediate* space-time, precisely where partitioning systems abandon the metric of diurnal motion (oblique ascension) in favour of **linear** geometry (frames of reference alien to oblique ascension).