

# Linguistico-Literary Reflections on the Science of Light: Sensory Emergence in Goethe's *Theory of Colors*, and Jakob von Uexküll's Metaphoricity of Semiotic Scaffolding

Lingvistinės-literatūrinės refleksijos apie šviesos mokslą: jutiminiai elementai J. W. Goethes *Theory of Colors* (Spalvų teorijoje) ir Jakobo von Uexkullo metaforiškumo semiotiniai *pastoliai*

SEMIOTICS / SEMIOTIKA

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## Abstract

Johann Wolfgang von Goethe's *Theory of Colors* (Zur Farbenlehre, 1810) and Jakob von Uexküll's publications, such as *Theoretical Biology* (Theoretische Biologie, 1920) and his *A Foray into the Worlds of Animals and Humans* (Streifzüge durch die Umwelten von Tieren und Menschen, Uexküll and Kriszat, 1934, tr. 2010), undertake key semiotic explorations *avant la lettre*. Research into these scientific writings, which significantly also draw on the Humanities, has paid little or no attention to questions of semiotic saliency and linguistic involutions. In contradistinction to received research particularly on Uexküll, the present considerations draw on literarily and artistically inflected vantage points and methods rather than on merely scientifically defined analyses. In its concerns with transmissions and metamorphoses of light, optic semiosis in Goethe and Uexküll – with some reference to the emblematic modernist Georg Trakl and the Beat postmodernist Lawrence Ferlinghetti – occurs at and beyond limits of language and involves extracategorical perception as well as metaphoric elaboration. In the course of Uexküll's considerations on the semiotic workings of light, such as in *Theoretical Biology* (1920, tr. 1926), the concept of *scaffolding* ("Gerüst") appears. In particular, the present article reflects on semiotic turns from sunlight to organismic perception, namely the zone of emergence in which senses begin to come alive before coordinates of scaffolding are in place.

### Key Words:

optic semiosis, postlinguistics, extracategorical perception, biological metaphoricality, semiotic scaffolding, sensory emergence, color theory.

## Introduction

Although Johann Wolfgang von Goethe (1749–1832) is widely known for his literary writings, his scientific work remains persistently noted as well. Among his many productive readers was Jakob von Uexküll (1864–1944) whose path-breaking biosemiotic explorations, among them *Theoretical Biology* (*Theoretische Biologie*, 1920) and *A Foray into the Worlds of Animals and Humans* (*Streifzüge durch die Umwelten von Tieren und Menschen*, Uexküll and Kriszat, 1934) show a strong kinship to Goethe's reflections such as in *On Color* (*Zur Farbenlehre*, 1810). The present article, however, focuses on intellectual concerns in their phenomenological stratifications rather than on questions of influence and reception. Thus transformations of light in its extrahuman agency appear in various forms, including those of poetry and art. The questions that emerge in the following considerations engage both Science and the Humanities in ways that precede and supersede particularized domains of knowledge.

## Theoretical Background

While there is some secondary literature on Uexküll and Goethe, scarce attention has been given to the kinship of their ideas. In particular, the metaphoricality of Uexküll's writings awaits a thorough treatment from literary – and artistic – perspectives. In the course of the present

investigation, a key concept of semiotic research in recent years, semiotic scaffolding (Hoffmeyer, 2007, Kull, 2012; 2014), is traced back to Uexküll's *Theoretical Biology* (1920, tr. 1926) and *A Foray into the Worlds of Animals and Humans* (Uexküll and Kriszat, 1934, tr. 2010). This concept appears in close conjunction

with the dynamics of semiotic turns in both Goethe's *Theory of Colors* (1810) and Uexküll's works. In this transdisciplinary spectrum, beginnings of perception and of a dynamically unfolding life come into view, even and especially when constructs of time and space are falling away.

In the present article, semiotic and literary analysis is used for the interpretation of scientific, poetic, and scientifico-poetic texts, with a strong emphasis on specific linguistic formulations, including their metaphoricity and translational renderings. Goethe's style and linguistic expression as well as Uexküll's imaginative presentations of his biological research thus appear in hitherto unexplored configurations.

[ *All I wanted to do was paint sunlight on the side of a house,'  
said Edward Hopper (or words to that effect), and there have  
been legions of poets and filmmakers obsessed with light,* ]

writes the San Francisco poet Lawrence Ferlinghetti in the prelude to his volume of poetry, *How to Paint Sunlight* (2001). Quoted often in this fragmentary form, the full Hopper quote is preceded by: "Maybe I am not very human" (Levin, 1995, p.139). True enough, Hopper's paintings engage with light and objects, while human beings tend to appear in an all but incidental fashion. Nevertheless, Hopper's singularly focused wish still features his ego in a strongly contoured configuration *vis-à-vis* the wall that marks the presence of a human dwelling. There is a sense of pressure in this configuration. Painting the sunlight as envisioned in Hopper's remark does not make room for the sun to shine in its own manner. Rather, the artist's desire focuses on a civilizational surface turned canvas. Sunlight in its cosmic radiance is to animate the artist's brush in a translational movement beyond compare. But the artist in Hopper's configuration holds on, and intensely so, to the paraphenelia of construction, achievement, and control. The wall that rises as the potential recipient of the artist's ultimate success awaits the marks of achievement, the fruits of obsessive, singularly focused efforts to domesticate a cosmic force: mad efforts in the end, bound to obliterate – melt down – the hand, the pen, the brush in pursuit of such projections. It is no coincidence that the constructs in Hopper's art are all but void of a human touch, in spite and because of the consummate desire to capture the source of light on the wall. An ultimate futility speaks from this sternly constructed world: the subject, syntactically and otherwise, wishes to capture and cast a universal emanation onto the wall of human habitation. But sunlight in its cosmic provenance will not yield to the artist's obsessive preoccupations. As with all obsessions, the fear that lurks behind the ceaseless efforts at construction (Freud, 1894) hardly recedes as time progresses. Not only does Hopper's desire remain unfulfilled, but the very sense of being human comes to be questioned. Rather than providing a canvas for the painter's brush, the wall in Hopper's vision, as the constructs in his paintings, rises starkly. With this wall, said to demarcate the site of a dwelling, hardly an impression of human presence remains.

In its post-pragmatic irony, Ferlinghetti's title *How to Paint Sunlight* signals that there is no canvas that will hold paint containing the sun's emanations. Once

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## Methods

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## Construction, Achievement, Control: Painting Sunlight on the Side of a House

the pragmatics of painting fall away, desire and obsession begin to connect with a sense of infinity. At the same time, the prosaic syntax with its preconstructed relations between subject and object appears less stridently, namely in parenthesis in conjunction with a final cry after which language will cease forever: (“More light!” cried the great novelist, dying.) (Ferlinghetti, 2001, p.IX). “I would side with the irrational visionary romantic”, Ferlinghetti continues in his prelude, “who says light came first, and darkness but a fleeting shadow to be swept away with more light.” For a fleeting moment, darkness yields to the sweep of a brush powered by an abundance of light. At this moment, the painter’s obsession with sunlight to be cast onto a human dwelling ceases and light itself enters into the scene associated with romanticism. It also is an eminently modern scene, if we see that wall crumble, as it must, upon the onset of a cosmic charge. At the next moment, however, Ferlinghetti shrinks away from the force of light, which with the absence of darkness threatens to be blinding: an integrational vein characterizes Ferlinghetti’s passage in its entirety. Desirous activity asserts itself at this side of the wall, with life in play still.

But even in exhilaration, painting and writing at and onto the wall operate in the narrow space before the final transposition and departure. In his final breath and cry for more light, the “great novelist”, Johann Wolfgang von Goethe (1749–1832) exhales language once and for all. Desire culminates and ends all but simultaneously. If enclosed by walls, writing and painting of and in the light pass away before an infinity that awaits inexpressibly beyond the site of final realizations. Interrelationships between a boundless infinity and surfaces that hold the pen and brush at least for a while, characterize a literature that ranges across boundaries and turns toward receiving that which cannot be spoken. Such a receptive turn is but a step away in Ferlinghetti’s invocation of Hopper and Goethe. The artistic obsession with light is driven by an intensity near that breaking point where light all but reveals itself. In dying, the eminent novelist has nothing more to utter than a cry for more light: a potential illumination at the moment of final speechlessness, death.

Engaging a realm beyond speech in the transitory oscillations of his poetic mediumship, the Austrian poet Georg Trakl (1887–1914) – long since recognized as iconically modern (Friedrich, 1956, pp.107, 125, 144, 149) – welcomes the “one who died young” (*Frühverstorbene*): “The hour came”, he writes in 1909, “when that one (“jener”) saw the shadows in the purple sun”,

The shadows of decay in barren branches;

Evening when the blackbird sang at the wall of dusk fading,

The spirit of the one who died young appeared in the chamber silently. (Trakl, 1913; translations of poetry and text mine throughout this article unless noted otherwise.)

(The German stanza reads:

[ *Stunde kam, da jener die Schatten in purpurner Sonne sah,  
Die Schatten der Fäulnis in kahlem Geäst;  
Abend, da an dämmernder Mauer die Amsel sang,  
Der Geist des Frühverstorbenen stille im Zimmer erschien.* ]

## Postlinguistic Transparency: An Eye in the Making in Georg Trakl’s Poetry

“The spirit”, German “Geist” – also meaning “ghost” as well as “mind” – enters into the room silently, in close proximity to the blackbird’s singing at the wall. The silent apparition immediately follows the twilight song. This movement develops and transforms the shadow images at the beginning of the stanza. Whereas Goethe calls for more light, Trakl envisions shadows in the source of light, the sun. In this envisioning, blindness is bound to set in: the shadows to be seen in the sun also spread within the eye. Trakl thus takes the age-old image of the blind seer in a perceptual direction. Rather than reemploying a topos, he develops the received image anew, with subtly sensual touches. The shadowy decay in the branches transcends a merely barren environment. With darkness setting in comes an olfactory sense of decay in the bare branches. Conjoined to the shadows of the sun, the barrenness of these branches turns strangely alive, with the figure of the “stranger” widely present in Trakl’s poetry (Heidegger, 1959, pp.39ff.). The shadows that appear in the sun’s purple glow take this color toward a darker shading that further deepens in the subtly sensual rotting amidst the branches. In their etymological range as well, these branches exude a certain decay: “Geäst” brings up “Aas” and “Äser” with their suggestions of animal cadavers. At first sight merely in a state of late autumnal or wintry lack, these branches, especially in their German – Austrian – manifestation, emit a sense of enigmatically alive decomposition. When “the one who died early” appears in the chamber, boundaries between life and death have become transparent. The chamber has no walls.

The blackbird at the wall immediately precedes the spirit’s appearance within the chamber’s space. As time in its course between birth and death passes away, the one who died young enters into a reality whose coordinates are as elusive as this poetry in which song and silence interrelate intimately. This intertwinement conjoins life with death in a linguistic presence that does not seek to make chrono-topological sense. Rather, the different sense suggested here lives from a poetic singularity no longer defined categorically. The wall in whose proximity the blackbird sang is the last one to appear. That wall has crumbled and the singing has ceased with the evocatively silent appearance of the spirit and ghost. In this appearance across lines and walls between life and death – reminiscent of E. T. A. Hoffmann’s romantico-surrealist experimentations (Hoffmann, 1814) – another kind of light begins to shine in “erschien”, “appeared”, with “schien” meaning “shone”. As dusk changes into darkness, the “shadows of decay” in Trakl’s stanza, first seen in the sun, give way to a silence associated with a new and different kind of light. This illumination animates language from a realm outside of human articulation. It is a bird’s song that crosses the line: nature speaks in this post-linguistically inspired poetry.

Goethe’s call – as attenuated by Ferlinghetti with regard to his own particular context – for more light at the moment of his departure and the shadowy vision of decay in Trakl’s poem at the apparition’s onset complement each other in their evocation of another world. While Ferlinghetti in his take of Goethe’s exclamation and in light of Hopper directs his expressive movements to the wall and the page, Trakl’s lines transition – via the blackbird’s song – toward a received silence, which has an impact on poetic language rather than resounding in the

course of the latter's intervention. When "Geist" in its multivalence between "spirit", "ghost" and "mind" appears in the stanza's final line, it does not reflect a subject's activity, nor does such an entity manifest anywhere else in the poem. With the spirit's appearance in the chamber, the poem enters into a sphere beyond the spatio-temporal configurations in which categorical differences – between subject and object, life and death – matter. In this sphere, color turns bright once again. The purple of the sun in which the shadows of change were seen, now, with the transformations having run their course, finds salient reflections and correspondences. "Golden cloud and time" begins the final stanza, followed by a period immediately. This cloud and time float and speak, but not from within a syntactically elaborated construction. If a certain radiance emanates from the cloud's "golden" color, it is reminiscent of the sun's purple light:

*Golden cloud and time. In the lonely chamber  
 You now and then invite the dead one to visit,  
 Walk down the green river under elms in close talk.  
 (Goldene Wolke und Zeit. In einsamer Kammer  
 Lädst du öfter den Toten zu Gast,  
 Wandelst in traurem Gespräch unter Ulmen den grünen Fluß hinab.)*

Colors now, at the end of this poem's movement through darkness and decay, shine with extraordinary brightness. Death has proven to be but a station on a longer course, and the newly visible light exudes renewed intensity in that scenario. Even time itself takes a fresh turn, with a once irrevocable present now springing to life on occasion. In this postcategorical reality, colors enter into postmythical zones: "Oh, the blood", begins the second to the last stanza,

*that runs from the throat of the one who's sounding,  
 Blue flower; oh the fiery tear  
 Wept into the night.  
 (O, das Blut, das aus der Kehle des Tönenden rinnt,  
 Blaue Blume; o die feurige Träne  
 Geweint in die Nacht.)*

Emancipated from symbolisms and stories that would tie these colors to their age-old correspondences, "golden", "green" and "blue", along with the red implied in the "blood" of song and in the "fiery" tear, derive from the "sun" in whose purple light the shadows appeared. From the onset of this poetic process (Kudszus, 1995) from sunlight through shadow and finally to color in its fourfold manifestation, the cosmic source of light exudes its primary force and radiates on through the dark until colors beyond syntax and history arise. Like "The One Who Departed Early" in the poem's title ("An einen Frühverstorbenen"), these poetically engendered colors depart from their received, frequently – in a wide sense – mythical significations: the "golden cloud", which floats jointly with time in the skies, no longer signals a religiously defined timelessness in the heavens; the "blue flower" does not aspire to the Romantic dream, but adjoins the blood of song; in this flow, the blood from the singer's throat does not poeticize

earthly pain – issuing from death and intimate closeness – as done in poetic song through the ages; and the “fiery tear” at the end of this poetic sequence does not sparkle with unbridled passion. Nor does, on the other end of the spectrum, the “green river” – notwithstanding its reverberations with Hades – spell the end of “close talk” in the proximity of final departure.

Rather, in this poetic process the sun produces the colors language in its received dependencies does not know, but senses in the obscurely fragrant decay and bright illumination of its lyrical presence. Poetic language in Trakl’s ethereal formations suggests an organ in the making rather than an instrument that could be deployed in the service of communication. Such a language performs as it were from the other side of Ferlinghetti’s screen. In Trakl’s poem, the sunlight that will never yield to the artist’s effort to render it on the side of a wall, manifests in a language that in its abysmally inspired silence begins to furnish an organismic screen, an eye in the making. If elements of myth and legend still seem to appear here, they no longer obey their former functions. As it were, these elements now speak toward the poem rather than from a realm within its range.

If Goethe in his final exclamation cried out for more light, it hardly was from the earthly side of the wall, as envisioned by Ferlinghetti. In his scientific investigation *Theory of Colors* (1810), Goethe employs language with a sharp eye for its limitations as an instrument of human reflection and insight. Pursuing the workings of color and light with the scientific rigor of his time, Goethe reflects on the linguistic medium of his communications in a manner that draws on his experience and insight as a writer. Well ahead of the scientific avant-garde around the turn of the century and beyond – such as the biosemiotician Jakob von Uexküll (1864–1944) – he articulates in considerable detail that scientific observations and results are translated and transformed by the means through which they are communicated. At the same time, Goethe – as Uexküll later – opens up his thought to a cosmic dimension and its effects on human sensibilities and scientific cogitation.

Colors cannot be captured directly. It is a futile enterprise to try to express the “essence of a thing” (Goethe, 1810, p.9). Goethe – one of the most prominent critics of Isaac Newton’s objectivistic theory of light (Heisenberg, 1941; 1967) – emphasizes revelation. Rather than speaking about nature and thus contributing to human knowledge in an active linguistic sense, the receptive writer and scientist moves toward mindfulness whenever it happens that nature reveals itself to aspects of human perception. In this scenario, physiological waning enhances meta-physiological vision.

In the preface to his *Theory of Colors* (1810), Goethe immediately begins to critique linguistic expression in its reliability as an instrument of insight into color. Well before explicit discussions of relationships between Science and the Humanities set in toward the end of the 19th century (cf. Dilthey, 1883), Goethe considers ways and means of language vis-à-vis visual phenomena. In the context of these considerations, Goethe values his scientific efforts in *Theory of Colors* more highly than his activities as a preeminent writer of his Age. The

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**Out of  
Nature:  
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Emergence  
in Goethe’s  
*Theory of  
Colors***



sharpness of Goethe's critique of language surpasses a merely skeptical attitude toward linguistic possibilities. Rather, Goethe operates at the cutting edge of a linguistic awareness that recognizes language as instrumental but never ultimately reliable, let alone absolute. The visual realm and especially colors, however, bring to light salient peripheries of linguistic communication, such that language begins to speak of an otherness it will never govern or even contain in its own domain. In the realm of colors and of linguistic reflections thereof, Science and the Humanities around the time of *Theory of Colors* (1810) constellate in ways that precede and supersede the schism that develops between these widening fields a few decades later (Rickert, 1899).

Distancing his scientific writing from anthropocentric modes of expression, Goethe in *Theory of Colors* poses a "rather natural question" (1810, p.9) to which he provides an answer in the subjunctive. In this movement away from and outside of certainties, which is nevertheless tied to something "natural", Goethe also suggests a departure from an accumulative research model, in which one insight builds on the next in a consecutive and quantitative fashion. While investigating the workings of nature and specifically color may generate new scientific insights, such insights will not necessarily add to a further evolution of received knowledge. The first paragraph of Goethe's preface to *Theory of Colors*, notwithstanding its discursive clarity, proceeds in a subtle balance between linguistic propositions and conceptual indeterminacy:

*Whether one may not have to mention light above all when speaking of colors is indicated, is a rather natural question to which we however will reply but briefly and honestly: since up to now so much and so many a thing has been said of light, it may seem questionable to repeat what has been said or to add to that which has been often repeated.*

*(Ob man nicht, indem von den Farben gesprochen werden soll, vor allen Dingen des Lichtes zu erwähnen habe, ist eine ganz natürliche Frage, auf die wir jedoch nur kurz und aufrichtig erwidern: es scheine bedenklich, da bisher schon so viel und mancherlei von dem Lichte gesagt worden, das Gesagte zu wiederholen oder das oft Wiederholte zu vermehren.)* (Goethe, 1810, p.9)

"[...] es scheine bedenklich" has an even wider resonance than rendered in the translation "it may seem questionable to repeat", since "bedenklich" places reflective questionability within the realm of thought, *Denken*. The question that arises in pursuing the phenomenon of light along the lines of well-established research touches upon thought in its qualitative difference from accumulative research activities. In this, Goethe prefigures Martin Heidegger's considerations in *What Is Called Thinking?* (*Was heißt Denken?* Heidegger, 1952), the latter himself engaged in a project before and beyond schisms between Science and the Humanities.

For Goethe, then, reflecting on light and colors involves a movement – energized by visual phenomena – away from an objectivistic discourse. Far from



comparatively assessing visuality *vis-à-vis* the written word, a certain conceptual weightlessness appears at the horizon of his exploration. This sense of lightness pervades language, its human speakers, and things alike. Goethe's thought does not compartmentalize linguistic and visual occurrences nor the human and material world. In pursuing light and its manifestations, Goethe moves freely across firmly drawn borderlines. In this spirit, the ontological status of things does not yield to linguistic expression. Goethe emphasizes a world of effects, and in the best of circumstances a certain thing's essence – “das Wesen jenes Dinges” – might be circumscribed by “a complete history” (Goethe, 1810, p.9) of its effects.

Such completeness remains utopian in the end. Human “character”, which in Goethe's text appears seamlessly connected with things, will not emerge from a linguistic description but an assemblage of actions, and deeds will yield an “image”, “Bild”. This visual manifestation of a character, however, lacks the gravity of completeness. The image here does not present a complete likeness, but at least to some extent an impression, a mere picture of the greater totality that could be imagined. In his formulations, Goethe proceeds in the proximity of translational movements. As *translare* brings up a movement from one shore to the other, the “stepping toward” – “entgegenreten” – of a character image invokes a movement from the panorama of deeds, actions, and definitions toward the discerning activities of the viewer. “For actually”, Goethe writes in the paragraph that culminates with this view of character manifestation,

*we attempt in vain to express a thing's essence. We perceive effects, and probably a complete history of these effects at best encompasses the essence of that thing. In vain we try to depict a human being's character; if one assembles however human activities and deeds, a character image will emerge for us.*

*(Denn eigentlich unternehmen wir umsonst, das Wesen eines Dinges auszudrücken. Wirkungen werden wir gewahr, und eine vollständige Geschichte dieser Wirkungen umfaßte wohl allenfalls das Wesen jenes Dinges. Vergebens bemühen wir uns, den Charakter eines Menschen zu schildern; man stelle dagegen seine Handlungen, seine Taten zusammen, und ein Bild des Charakters wird uns entgegenreten.)* (Goethe, 1810, p.9)

Light in the immediate sequence to these considerations, which undercut a foundationally linguistic presentation of the human being, appears in the latter's close pragmatic and experiential proximity: “The colors are deeds of light, deeds and sufferings” (Goethe, 1810). Goethe does not introduce the relationship between humans and light via a comparison. Colors are deeds of light and deeds are also performed by human beings. This agency of light is decisive for Goethe's reflections. The writer does not approach light as an object of investigation, but as a subject with its own communicative force that is not enclosed within the confines of human language. An element of revelation that will not be consummated by language comes into play here.

It is striking that Goethe explicitly includes suffering, an experiential dimension in his consideration of light, something he did not do just before in his reference to human character. Light in this instance partakes in a dimension that exceeds human life in the very domain that seems to characterize the latter strongly: that of subjective experience and suffering. In his early poetry, Goethe had celebrated the ability to suffer as a key feature of the human being emancipated from an ultimate authority: “Here I sit”, he writes in his poem *Prometheus* (1773/74) that has become iconic for the breakthrough of a secular humanism (Falk, 2012), “forming humans”.

<p><i>In my image A species to be like me To suffer weep Enjoy and to delight themselves And to not acknowledge you As I.</i></p>	<p><i>(Hier sitz ich forme Menschen Nach meinem Bilde Ein Geschlecht das mir gleich sei Zu leiden weinen Genießen und zu freuen sich, Und dein nicht zu achten Wie ich.)</i> (Goethe, 1790, p.231)</p>
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The “you” challenged and disacknowledged by this Prometheus is Zeus as named earlier in this poem. Decades later in *Theory of Colors* (1810), Goethe’s emphasis falls elsewhere, on an agency of light that includes experiential vulnerability. Light signals a realm from which elucidation may come forth to be formulated, but not authoritatively captured by human scripture nor – as Goethe emphasizes– perception. Such light supersedes human perspectives. It is true, Goethe states, that light and colors relate in such a manner that the latter in summation may cast a comprehensive, “characteristic” (Goethe, 1810, p.9) picture of light. But this “relationship” – “Verhältnis” – between light and colors belongs to “nature” in its entirety. It is this “whole nature” (“ganzen Natur”) which through light and colors may reveal itself to the “sense of the eye”. Following the observation that colors, deeds, and sufferings are all but synonymous, Goethe further writes on colors:

*In this sense we can expect from them insights about light. Colors and light, it is true, relate to each other in the most precise relationship, but we must think of both of them as belonging to nature in its entirety: for it is it (“her”, “sie”, in German) in its entirety that wants to especially reveal itself therewith to the sense of the eye.*

*(In diesem Sinne können wir von denselben Aufschlüsse über das Licht erwarten. Farben und Licht stehen zwar unter einander in dem genauesten Verhältnis, aber wir müssen uns beide als der ganzen Natur angehörig denken: denn sie ist es ganz, die sich dadurch dem Sinne des Auges besonders offenbaren will.)* (Goethe, 1810, p.9)

At a later point in his treatise, Goethe takes the prevalence of light even further: the eye “owes its existence to light”. In its animal preformations, he contends, the eye was inconsequential in its status among “mere auxiliary animal organs”, “gleichgültigen tierischen Hilfsorganen” (Goethe, 1810, p.20), with *gleichgültig* carrying a connotation of “uncaring”, unresponsiveness. Light in its creation of the human eye, then, not only generates a major organ but also imbues it with a certain feeling. This resonates with the “deeds and sufferings” (Goethe, 1810, p.9) of light manifesting in color. Light thus attains an interiority, turns into an “inner light” (Goethe, 1810, p.20) that is able to step toward, *entgegengetreten* (Goethe, 1810, p.20), the outer light— in a verbatim reverberation of the character image’s “entgegengetreten”, its movement toward the observer of various human activities (Goethe, 1810, p.9). The paragraph in its entirety reads:

*The eye owes its existence to light. From mere auxiliary animal organs, light develops for itself an organ to become like itself; and thus the eye develops at the light for the light so that the inner light may move toward the outer one.*

*(Das Auge hat sein Dasein dem Licht zu danken. Aus gleichgültigen tierischen Hilfsorganen ruft sich das Licht ein Organ hervor, das seinesgleichen werde; und so bildet sich das Auge am Lichte fürs Licht, damit das innere Licht dem äußeren entgegengetrete.)* (Goethe, 1810, p.20)

If fleetingly, in this process the outer light acts like a canvas or page, offering the resistance necessary so that the inner eye can develop “at” (German “am”), i.e., in the immediate proximity of and contact with light. In this salient moment at which the eye begins to morph toward more differentiated shapes, Goethe’s formulation “bildet sich” (“develops”) activates a pictorial imagination, for “Bild” means “image” and the verbal form “sich bilden” suggests an activity on the eye’s part. In this scenario, the fleeting impression of the canvas acquires some solidity: the eye undertakes a pictorial task in and—in the lightest sense of this preposition – *against* the light’s zone of resistance. This artistically active eye performs “at” and “for” the light, in a novel conjunction of human activity and extrahuman perceptiveness.

If Ferlinghetti with Hopper desires to paint and write light on the side of walls and surfaces, Goethe thus – long before their labors – envisions a material resistance of light itself. At such a moment in Goethe’s writing, light is not to be painted. Rather it is already there for the painter’s and writer’s eye to be recognized in the course of its own refinement. The imaginary brush and pen are guided by light rather than in pursuit of its realization – and capture– on the canvas or page. In this dynamic, Trakl’s writing occurs closer to Goethe’s than to Ferlinghetti’s: distinctly independent from the coordinates of chronological linearity and historical sequence, light as presented by Goethe and poetically transformed by Trakl fosters a dialogue across centuries.

As seen by Goethe, light in its prevalence and primary force belongs to – a pan-

theistically conceived (Klauck, 2003, p.3ff.) – nature as a most general and incomparably effective denominator. In a translinguistic sense, nature speaks. Reaching far beyond visual phenomena and engaging such phenomena in a vast multisensory spectrum, this all-encompassing nature pervades and creates senses known and unknown. Goethe alerts his readers to a most extensive perceptual register:

*Likewise nature in its entirety reveals itself to another sense. Close your eyes, and open, sharpen your ears, and from the most gentle breeze to the wildest noise, from the most simple sound to the highest harmony, from the most intense, passionate scream to the most tender words of reason, it is only nature that speaks and that reveals its existence, its strength, its life and its circumstances so that someone who is blind, who has been excluded from that which is infinitely visible can grasp an infinite liveliness in that which can be heard.*

*(Eben so entdeckt sich die ganze Natur einem anderen Sinne. Man schlieÙe das Auge, man öffne, man schärfe das Ohr, und vom leisesten Hauch bis zum wildesten Geräusch, vom einfachsten Klang bis zur höchsten Zusammenstimmung, von dem heftigsten leidenschaftlichen Schrei bis zum sanftesten Worte der Vernunft ist es nur die Natur, die spricht, ihr Dasein, ihre Kraft, ihr Leben und ihre Verhältnisse offenbart, so daß ein Blinder, dem das unendlich Sichtbare versagt ist, im Hörbaren ein unendlich Lebendiges fassen kann.) (Goethe, 1810, p.9)*

Via the consideration of light, Goethe enters into an overall discussion of nature and indicates that the visual sense is paradigmatic for the sense of hearing and beyond, as he will also indicate for a multisensory universe. In the course of Goethe's considerations, again a subtle, but consequential turn occurs in which nature activates a sense that then develops toward its organismic refinement. In its semiotic depth, language in Goethe's wording partakes in this turn. The one who is blind is kept from perceiving the horizon which Jakob von Uexküll – who highly esteemed Goethe's research and writing and especially the *Theory of Colors* (Uexküll, 1920, p.30 f.; Kull, 2001, p.10) – will cast more precisely as an horizon delineating the onset of space beyond objects (Uexküll, 1920, p.34). To the blind one it is "versagt" (italics mine) – said prohibitively – to utilize eyesight for the perception of this outermost horizon.

In its linguistic reverberation, Goethe's formulation suggests that the powerful sense of hearing, developing as it does with eyes shut, takes off beyond the grasp, the *sagen*, speaking of language. This grasp no longer takes its impetus from an instrumentalized activity such as trying to paint the sun with brush in hand. Rather the activity of the blind one "can" or "may" ("kann") take place. It is a metaphorized activity that does not actually aspire to apprehending an infinite kind of liveliness. Goethe's "someone who is blind" is akin to Trakl's "One Who Departed". For the blind and departed ones, reality is not synonymous with objectifiable

spaces in which things are available to be taken. Both of these figures live and re-live in a world without walls. The “One Who Departed” moves freely through the chamber’s demarcations, and the one who is blind does not even see what he well may “grasp”. Both of these figures have a sense of an infinity which may appear in the course of their developing sensory capabilities. Again, an outer range – of imagination – constellates at which a newly developed organicity may find its resistance and novel realization. Like Trakl’s “One Who Departed” moves about beyond categorical divisions and meets his counterpart – the “one who stayed behind” – in a strangely conversational space beyond time and objectivity, Goethe’s blind one whose ears are turned toward infinity may grasp and experience something else, someone other on the very far horizon. In this ultraextensive scenario visual and auditory phenomena will not attain singular significance, although visuality provides the focus for Goethe’s considerations throughout his *Theory of Colors*. Again, as the scope of Goethe’s analysis widens at the beginning of his treatise, the momentous turn occurs in which cosmic forces of nature, at first directed toward human perception, transform into a virtual screen at which newly developing sensory capabilities are beginning to be formed. In the following passage of his preface to *Theory of Colors*, Goethe speaks of a multitude of senses – some “known”, others “misunderstood”, still others “unknown” – and again of a resistant material that holds the promise of novel perceptions and furthermore, in this case, of a vastly encompassing awareness:

*Thus nature speaks downwards to other senses, to known, misunderstood, unknown senses; thus it speaks to itself and to us through a thousand appearances. For the attentive one it is nowhere dead nor mute; even to the rigid body of the earth it has added a trusted one, a metal by whose smallest parts we should become aware of what happens in the entire mass.*

*(So spricht die Natur hinabwärts zu andern Sinnen, zu bekannten, verkannten, unbekanntem Sinnen; so spricht sie mit sich selbst und zu uns durch tausend Erscheinungen. Dem Aufmerksamen ist sie nirgends tot noch stumm; ja dem starren Erdkörper hat sie einen Vertrauten zugegeben, ein Metall, an dessen kleinsten Teilen wir dasjenige, was in der ganzen Masse vorgeht, gewahrt werden sollten.) (Goethe, 1810, p.9 f.)*

This metal, probably iron whose magnetism provides an indication of the entire planet earth (cf. Schmidt, 1989, p.1076), fosters a sensory awareness of a vast phenomenon to which none of the “known [...] senses” in their physiological definitions will respond. Goethe arrives at that metal via a primary linguistic activity of nature, which speaks to senses known and unknown. Human attentiveness, *aufmerksamkeit*, picks up on this rich activity, which is furthered by close confidants of nature’s communicative emissions such as a particular metal. In interacting with this metal, the human being in a dynamic of heightening awareness develops toward a sensory perception – and ultimately even a sense – of magnetism and planetary mass.

Once again a decisive turn is in the making. Initially in Goethe's discourse, it is nature that speaks to and toward an abundance of senses apparent, hidden, and misapprehended. But nature's confidant provides a more specific counterpart for the sensory apparatus human beings might develop. By virtue of this specificity, human awareness, a sense for a highly significant phenomenon is potentially beginning to form. The tentative tone of Goethe's statement – "should become aware" – indicates the enormity of what might be achieved: new senses do not develop on a predictable trajectory, if they develop at all. But at the outer horizon of Goethe's explorations, formed here by a hard, resistant metal, a new realization, literally an in-sight may appear "by" or "on" smallest parts as on a screen or – in an artistic configuration – on a canvas.

In the linguistic body of Goethe's language, the enormity of such a realization resonates in "gewahr werden", to "become aware" in the range of that which is true, *wahr*. Potential sensory development as well as awareness, and ultimately a dynamic of in-sight in the proximity of truth appear as markers on an – for the moment – imaginary path to a new sense in response to nature's speech. In this turn, the language of nature, humanly received, engenders a sense and a response borne out but not created by human beings. The screen and canvas that appears at and as a horizon in this process waits to be seen, and truthfully so, but not as an object of or material for a singularly human process.

At the core of his preface to *Theory of Colors* (1810), Goethe envisions the activation of a language of nature through the development of new sensory abilities. Through nature's tutelage, new senses will grow. In speaking, nature fosters the development of senses that do not yet exist or do so only in a rudimentary fashion. In the linguistic actualizations of his writing, Goethe creates movements that undercut specific statements in most challenging ways: elements appear that are not beholden to even the primary categories of time and space. The language of nature thus stimulates human perception in ways whose outcome is radically unknown, and at the same time most promising in its possibilities. In this zone of revelatory onsets, time and space transition back toward their earliest manifestations and appear *in statu nascendi*. In Goethe's poetically inspired prose, there are movements reminiscent of the cradles of infancy, with time and space at their beginnings. Regarding the language of nature, Goethe writes:

*As manifold, as entangled and incomprehensible this language may often seem to us, its elements however always remain the same. With its soft weight and counterweight, nature sways back and forth, and thus a here and there is developing, an up and down, a before and after, whereby all the appearances are constellated that come toward us in space and time.*

*(So mannigfaltig, so verwickelt und unverstündlich uns oft diese Sprache scheinen mag, so bleiben doch ihre Elemente immer dieselbigen. Mit leisem Gewicht und Gegengewicht wägt sich die Natur hin und her, und so entsteht ein Hüben und Drüben, ein Oben und Unten, ein Zuvor und Hernach, wodurch alle die Erscheinungen bedingt werden, die uns im Raum und in der Zeit entgegentreten.)* (Goethe, 1810, p.10)

While acknowledging the incomprehensibility of nature's language, Goethe nevertheless writes of "elements" that characterize this language consistently. These elements, however, are not isolated in a substantialist manner. Rather they are constantly moving in spectra between poles that may seem to indicate dualisms at first sight, but actually supersede any bipolarities through their incessant activity and change. These elements never rest in themselves, and their dynamic without beginning or end creates the vast array of appearances that move toward perceptive organs in space and time. In this elementary vision of nature's language, Goethe suggests a realm before and beyond the fundamental categories and coordinates through which reality is perceived in its established forms. Although proceeding within the range of linguistic means at his disposal, Goethe ventures into the zone of a language of nature.

In this zone where human space and time do not rule, but may begin to move into appearances to be perceived in a human fashion at some point, spatio-temporal phenomena appear in the cradle so to speak: Goethe evokes the rocking movements that calm and begin to orient the freshly emergent human being. Tellingly, Goethe notes "appearances", "Erscheinungen", which enter into human realization within the categories of space and time. In its German form, this visual inflection brings up a line between "reality" and "illusion", "real" *Sein* and "illusionary" *Schein*. In the zone in which appearances gain the contours – and "weight" – of "reality", neither the latter nor illusionary phenomena are firmly set in space and time. Appearances that move toward humans in this fluid spatio-temporal context much reflect the rocking motions in a more elementary realm. In their confluence with apparitions, these appearances occur in a spatio-temporal framework without which human beings would not be able to see at all: such fragile appearances are as conditional as constitutive for a sense of reality that always already incorporates illusion, *Schein*. With *Schein* in German also referring to the shining of light, Goethe's considerations of the language of nature connect even more strongly with his overall considerations of light in *Theory of Colors*.

In this scenario, the movement of "stepping toward", "entgegentreten" (Goethe, 1810, p.10), is of particular significance. Like the "engegentreten" of the "character image" (Goethe, 1810, p.9) after a large number of human activities and deeds have been observed and assembled, the "entgegentreten" of the appearances in a spatio-temporal world also involves an activity on the part of a visually inclined human being: the "image" of a character also evolves from the human effort of "putting together", *zusammenstellen* (Goethe, 1810, p.9); and the "appearances" (Goethe, 1810, p.10) that step forth in space and time indicate beginnings of an emergence from the cradle of earliest childhood, if not yet a toddler's successful steps.

In this dynamic where the language of nature moves far into human domains and where, most tentatively, a sense of human initiative stirs in suggestions of imagery and of appearances that are seen spatio-temporally rather than merely being received out of a vast transcategorical realm. Introducing a semiotic register *avant la lettre*, Goethe further enters into the linguistics of nature in its relationship to far reaches of human language. Again conveying back and forth movements reminiscent of the cradle, he assigns a more active stance to human



language. In an ethereal range where language cuts loose from signifiatory focal points, Goethe connects “universal significations” (“universellen Bezeichnungen”) of “nature’s language” (“Natursprache” [Goethe, 1810, p.10]) with a theory of colors that fosters a relational linguistics at outer edges of human verbal communication and visual perception. Writing of most general movements of existence and life – cosmically conceived –, Goethe approaches a conception of human linguistics in its potential proximities to the language of nature: “However by believing in finding that weight and counterweight of unequal effect, one has also attempted to signify this interrelationship” between in-depth movements of nature. “Everywhere one has noticed and named”, Goethe continues,

*a more and less, an effectuating a counteracting, a doing a suffering, an advancing a holding back, a violence a restraining, a masculine a feminine; and thus a language, a symbolism develops, which one may apply to or use with similar cases as a metaphor, as a closely related expression, as an immediately fitting word.*

(The German passage in its entirety reads:

*Indem man aber jenes Gewicht und Gegengewicht von ungleicher Wirkung zu finden glaubt, so hat man auch dieses Verhältnis zu bezeichnen versucht. Man hat ein Mehr und Weniger, ein Wirken [sic] ein Widerstreben, ein Tun [sic] ein Leiden, ein Vordringendes [sic] ein Zurückhaltendes, ein Heftiges [sic] ein Mäßigendes, ein Männliches [sic] ein Weibliches überall bemerkt und genannt; und so entsteht eine Sprache, eine Symbolik, die man auf ähnliche Fälle als Gleichnis, als nahverwandten Ausdruck, als unmittelbar passendes Wort anwenden und benutzen mag.) (Goethe, 1810, p.10)*

Following this cosmically imbued back and forth in which punctuation marks fall away, Goethe continues with his prefatorial considerations:

*It was the major intention of the present work to apply these universal significations, this language of nature also to the theory of colors, and to enrich and enhance this language through the theory of colors and through the manifoldness of its appearances, and thus to facilitate the communication of higher perceptions among the friends of nature.*

*(Diese universellen Bezeichnungen, diese Natursprache auch auf die Farbenlehre anzuwenden, diese Sprache durch die Farbenlehre, durch die Mannigfaltigkeit ihrer Erscheinungen zu bereichern, zu erweitern und so die Mitteilung höherer Anschauungen unter den Freunden der Natur zu erleichtern, war die Hauptabsicht des gegenwärtigen Werkes.) (Goethe, 1810, p.10)*

Significantly, Goethe in this passage assigns considerable significance to human observation of colors, such that the language of nature, whose universal reach far surpasses human linguistic activity, may be enriched. The human turn that indicated itself most tentatively around the formations of character images and of spatio-temporal perceptions of earthly appearances, here – in semiotic prefigurations – takes on a more discernable shape.

The “universal significations” in nature’s emergent language, although aligned with “symbolism”, do not apply to the “cases” of human perception directly. The movements before the onset of spatio-temporal phenomena translate into “similar” scenarios via applications and usages that may come close to nature’s language, but are not identical with it. Similarity and “closely related expression”, particularly the language of the “metaphor”, may be imbued with the movements of the language of nature and even yield “an immediately fitting word”, but not present the immediacy of the universally valid “significations” of nature’s primary communications. Conjunctions may fall by the wayside in cradle-like movements of human linguistics so that “an advancing a holding back, a violence a restraining” and everything else that may turn up in and around the cradle can happen with heightened immediacy. But such immediacies will not break through to the language of nature itself. In its connections with nature’s language, the metaphoricity of human linguistic utterances may yield “a closely related expression”, but not become part and parcel of nature’s expressive repertoire itself (Goethe, 1810, p.10).

In ways that still await a full exploration in science and the humanities, the bio-semiotician *avant la lettre* Jakob von Uexküll (1864–1944), born in Estonia, analyzes and linguistically casts—at decisive moments via metaphor—spaces and phenomena akin to those in Goethe’s discussions of color and in the sensory emergences in his language as well as in Georg Trakl’s entry into postlinguistic spheres. In Uexküll’s novel conceptions of a theoretical biology, time and space change their shapes and even all but disappear in different environments, human and otherwise, depending on the particular “Umwelt”, a term roughly translatable as “environment”, “surrounding world” or, with regard to the innumerable individually existing *umwelten*, “self-worlds”. Although Uexküll focuses on various perceptual worlds as apparent in sensory and motor manifestations of different organisms, in its wide semantic range German *umwelt* also touches upon “Weltanschauung”, a deeply set and significantly formative way of regarding (“anschauen”) the “world” (“Welt”).

“There can be no living subject without time”, Uexküll writes in *A Foray into the Worlds of Animals and Humans* (Uexküll, 2010), the title in its prevalent English-language translation, which significantly departs from the German wording that contains a plurality of *Forays*, and the richly meaningful *Umwelten* rather than the commonplace “worlds”: *Streifzüge durch die Umwelten von Tieren und Menschen* (Uexküll and Kriszat, 1934). In a decisive reversal that relativizes time far beyond the hermeneutic interpretations of Wilhelm Dilthey’s considerations in *Experience and Poetry* (*Das Erlebnis und die Dichtung*, 1905) and Henri Bergson’s thoughts on the subjective dimensions of experience (Bergson, 1889),

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**Before  
Scaffolding:  
Optic  
Semiosis in  
Uexküll’s  
A Foray into  
the World of  
Animals and  
Humans:  
with A  
Theory of  
Meaning**

Uexküll writes: “Without a living subject, there can be no time” (1934, p.52). He continues: “We shall see in the next chapter that the same is true of space: Without a living subject, there can be neither space nor time.”

The “living subject” in Uexküll prominently includes zoological worlds. The bird in Trakl’s “To One Who Departed Early” appears more sharply in this context. Translated as “blackbird”, German *Amsel* – the latter being connected with blackness in its Indogermanic roots (cf. Kroonen, 2013, p.25f.) as well – in this poem invokes a realm in which the lines between life and death, human words and avian song turn porous (cf. Adorno, 1973, p.105). The color black in this occurrence – as colors throughout Trakl’s work (cf. Kirschner, 1995) – resists interpretation in symbolical directions. No particular take on this bird’s color will define its own enigmatic range. In Goethe’s *Theory of Colors* and Uexküll’s explorations of various kinds of *umwelt*, preset judgments and orientations evaporate as the bird’s singing at the darkening wall meets with human perceptions. The waning light, while mysteriously evocative, is akin to the impending blindness that characterizes the but human organ before the purple source of light. Once you look into the sun, nothing remains as is.

The shadows that appear in the sun indicate a decomposition of the human eye and, at the same time, the onset of a perceptual reconstitution in the abundance of light. If there is a beginning in this shadowy decay, it does not originate in humankind. In these shadows, an organ of sight begins to appear *responsively* – as envisioned by Goethe in his *Theory of Colors*, and as Uexküll cites it for example in his reference to Johannes Müller who points out the reactive versatility of the optic nerve which transforms “waves in the ether, pressure, or electric currents” into “the sensation of light [...]” (Uexküll and Kriszat, 1934, p.47).

Already in *Theoretical Biology* (1920, tr.1926), Uexküll further relativizes the notion of an independent subject, with consequences for the concepts of time and space. Not only are time and space malleable such that they do not provide an objective orientation for the subject that shapes them to begin with, but these seemingly fundamental coordinates are always already “merely forms of our human intuition” (Uexküll, 1920, tr. Uexküll, 1926, p.52). In his discussion of the place and significance of space and time for the orientation of living beings, each within a singular *umwelt*, Uexküll introduces the metaphor of *scaffolding*, “Gerüst”: a key semiotic, more specifically semiotic concept whose path-breaking appearance in Uexküll (1920; 1934) awaits wider acknowledgment (cf. Kudzus, 2015). Space and time, Uexküll develops, are not absolutes but orientational coordinates through which the numerous characteristics in various realities can be structured meaningfully. Spatio-temporal scaffoldings, as erected in the worlds of different living entities, provide a most necessary orientation without which perception would turn chaotic. In the end, however, such a *gerüst* in its different manifestations is merely a construction. Space and time as constituent ingredients of the *gerüst* will fade away and vanish once this construction ceases to exist.

In *A Foray into the Worlds of Animals and Humans* (1934, tr. 2010), Uexküll further emphasizes the interdependence of space and time with *103 scaffolding*, “Gerüst”:

*Space and time are of no immediate use for the subject. They gain in significance only when numerous cue-carriers need to be distinguished that would collapse without the temporal and spatial scaffolding of the Umwelt. But such a scaffolding is not necessary with very simple environments that harbor a single cue-carrier.*

(Uexküll's German reads:

*Raum und Zeit sind von keinem unmittelbaren Nutzen für das Subjekt. Sie gewinnen erst dann Bedeutung, wenn zahlreiche Merkmale unterschieden werden müssen, die ohne das zeitliche und räumliche Gerüst der Umwelt zusammenfallen würden. Ein solches Gerüst ist aber bei ganz einfachen Umwelten, die ein einziges Merkmal beherbergen, nicht vonnöten.)* (Uexküll and Kriszat, 1934, p.48)

Uexküll here illuminates, if somewhat inconspicuously, a realm outside of the perimeters of human perception. Beings with a very simple *Umwelt* can exist without a spatio-temporal *gerüst*. The German range of semantic associations in “Gerüst” contributes to Uexküll’s probing of the difference between *Umwelten* that are spatio-temporal and those that exist without such a system of coordinates. In *gerüst* there is a resonance of “Rüstung”, armor: the spatio-temporal *gerüst* protects from the perceptual chaos that lurks away from time and space. In its historical dimensions, *gerüst* as well as scaffolding also calls executions to mind, such as by guillotine. In its peaceful uses, *gerüst*, scaffolding appears on the side of houses to be restored or painted. In the immediate proximity of this metaphorization of space and time via *gerüst*, Ferlinghetti/ Hopper’s ultimate desire appears, namely that of painting sunlight on the side of houses. In this desire, the workings and deployments of light coalesce with the space and the time in which art and writing strive to take their course.

As an ultimate desire, which touches upon the very conditions under which – not only – human life may unfold, painting sunlight onto the surface that demarcates a human dwelling also brings about inklings of death. When Goethe cries out for more light in his last moments, it is apparent, especially with regard to *Theory of Colors* (1810), that in the end light eludes the human grasp: there will never be enough light, especially not for the artist and writer who tries to give it shape on a wall, canvas, or any other material offering a surface to the movement of the brush or the pen.

In Goethe’s *Theory of Colors*, light creates the organs that perceive it, which then, in decisive turns that characterize human and other earthly activities may guide efforts to form the cosmic influx from spatio-temporal vantage points. In the face of death and the utter simplicity it brings, with light hardly seen any more and at the same time with another light beginning to be perceived away from the coordinates – off the *gerüst* as it were – Goethe’s exclamation may well reflect as much a final wish as an astonishment at the glimpse of a world

outside of the constraints of space and time. Similarly, Ferlinghetti's – and Hopper's – light to be painted on the side of a house, were it ever to appear on this domestic surface, would spell the end of painting.

In these echoes, associations, and interrelations, the ever-elusive workings of a cosmically conceived light beyond the various perceptions of light in living entities enter, if obscurely in their metaphysical range, into linguistic and artistic formations. Probed with Uexküll's invocational sensibilities beyond a narrowly abstract language in mind, Goethe's *Theory of Colors* and Ferlinghetti's ever-desirous reflection on painting sunlight gain a resonance that, in a most arresting turn, touches upon a transitional zone between life in very simple forms and humano-animalistic complexities, the former in its all but unimaginable receptiveness for emanations of light, the latter in its activist inclinations toward a light that eludes being captivated on the canvas or the wall, or in the legendary final exclamation. When Uexküll brings up very simple environments, the *gerüst* as scaffolding, armor, auxiliary construction falls away, and another kind of brush comes forth. "This possibility", Uexküll writes with regard to employing a spatio-temporal *gerüst* for orientation,

*does not exist for the sea urchin. Its cue-carriers, which consist of graded pressure stimuli and chemical stimuli, form entirely isolated factors.*

*Some sea urchins respond to each darkening of the horizon with a sting movement which, as can be seen in fig. 19a and b, adversely and in an equal manner affects a cloud, a ship, and the real enemy, namely the fish. However this representation of the environment is not sufficiently simplified yet. There is no mention of the sea urchin transferring the darkness cue-carrier into space, since the sea urchin does not possess an optic space, rather the shadow only registers like a slight movement of a cotton ball across the light-sensitive skin. To represent this was technically impossible.*

*(Diese Möglichkeit besteht für den Seeigel nicht. Seine Merkmale, die sich aus abgestuften Druckreizen und chemischen Reizen zusammensetzen, bilden völlig isolierte Größen.*

*Manche Seeigel beantworten jede Verdunkelung des Horizontes mit einer Stachelbewegung, die sich, wie Abb. 19a und b zeigen, in gleicher Weise gegen eine Wolke, ein Schiff und gegen den wirklichen Feind, nämlich den Fisch, auswirkt. Nur ist die Darstellung der Umwelt noch nicht genügend vereinfacht. Es ist nicht die Rede davon, daß das Dunkelmerkmal vom Seeigel in den Raum hinausverlegt wird, da der Seeigel keinen Sehraum besitzt, sondern der Schatten nur wie ein leichtes Dahinfahren mit einem Wattebausch über die lichtempfindliche Haut sich auswirkt. Dies darzustellen war technisch unmöglich.)*  
(Uexküll and Kriszat, 1934, p.52)

With this vision of the cotton ball registering on light-sensitive skin—akin to a brush moving across a canvas or a wall—human endeavor gives way to an animalistic sensibility both primitive and transcendent. Representational and technical possibilities do not reach into realms beyond or before the range of relatively complex living organisms. While the latter live in their various *umwelten*, very simple entities like the sea urchin exist in vast spaces in which phenomena like light and shadow reach them more directly, without perceptual editing or translating into each and every specific system. The sea urchin in its unmediated, non-buffered sensitivity thus forms a kind of canvas for the workings of light before they are subjected to human or animal editing or translation. More specifically, the urchin's canvas consists of skin. Once this skin is touched by a certain modulation of light, with the horizon turning darker, a response occurs via a sharply pointed movement: the canvas turns alive in an activity of its own, a secondary act that is conditional on the preceding registration of light. Rather than moving toward a canvas in an instrumentalized fashion so that light might appear on a surface once blank, the sea urchin's sting movement issues from the skin that has been activated by the sun. No longer is there a dichotomy between a surface and an activity like painting through which light would be rendered to be seen henceforth.

In an immediate manner, without any translational delay or perspectival work from the standpoints of a *gerüst*, light now casts itself on a sensitive terrain. Uexküll refers to the receptive nature of the sea urchin's skin, which in its exquisite sensibility and primary significance is reminiscent of the very young human's skin ego (Anzieu, 1985). The infant's rich dermatic life and the urchin's sensitivity to light and shadow register and respond to a small set of cue-carriers, and in the case of the sea urchin to just one such *merkmal*. In the latter case, while there is receptivity reaching high into the skies, Uexküll registers but one response, but this response occurs at a ground zero of signification that furthermore resonates with Goethe's reflections on the eye's turn outward once it has received the influx of the light of nature. Strikingly even in a literal zoological sense, Uexküll's sea urchin performs the crucial turn toward an active entry into its *umwelt* by performing an outward movement, a "sting movement" triggered by the shadowy brush, within a wide horizon: the shadow may issue from a cloud

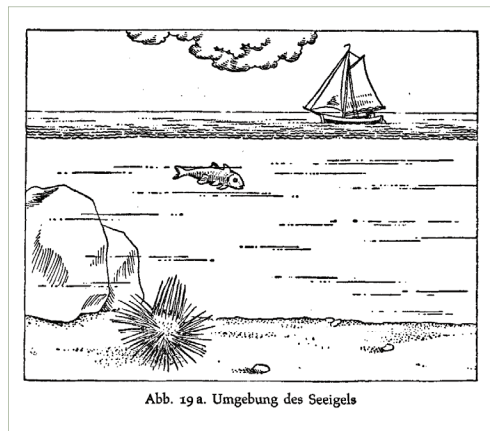


Fig. 1.  
(19a). Environment  
of the Sea Urchin.

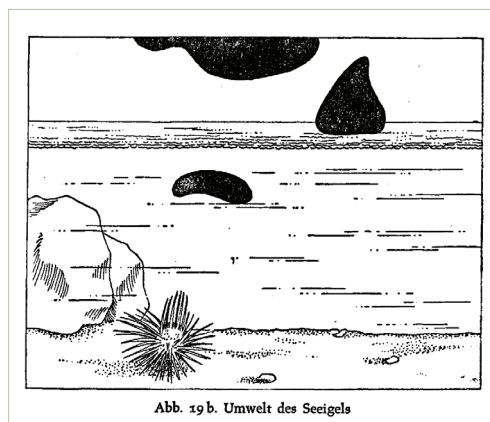


Fig. 2.  
(19b). Umwelt of  
the Sea Urchin.

or a ship or a fish. Thus the sea urchin's response to its one and only cue relates not only to the rudimentary development of the optical organ in Goethe's *Theory of Colors*, but also to the shadow seen in Trakl's "purple sun" (1909) from which a realm past life and death, reality and illusion emerges, with walls evaporating and thus no longer available for the willfully guided brush and pen. In this semiotic realm, techniques no longer matter. As Uexküll writes, it is "technically impossible" to pictorially "represent" the sea urchin's response to the optical events in its wide horizon (Uexküll and Kriszat, 1934, p.52).

In its response to the shadow's – metaphorical – brush, Uexküll's sea urchin, then, brings modulations of light to its *umwelt* by way of its now pointed stings. This sea urchin, itself a canvas-like surface for the shadow brush, which depends on the workings of light, thus motions toward its own horizon and canvas, the surface that somewhere delineates the environmental "bubble" (Uexküll and Kriszat, 1934, p.46) in which its life occurs. In a most initiary, semiotic sense this urchin out of its waters displays the instruments that turn – resonating with Goethe – the light of nature around such that one day it could be imagined on a canvas or even a wall marking a human's habitat. The toddlers, who in Daniel Stern's account (1990) utter their own enigmatic words as they see the sunlight on the floor, are not as far away from Uexküll's sea urchin as the adults who correct these early utterances so that they may fit into human dictionaries. Human linguistics in its departure from the seemingly amorphous sea of early expression also foregoes the chance to paint sunlight on its walls, which in their stationary definition are bound to stand apart from nature.

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**Invisible  
Atmosphere:  
Uexküll's  
Theoretical  
Biology**

In Uexküll's pioneering *Theoretical Biology* (*Theoretische Biologie*, 1920), the metaphor of the canvas in its connection to both art and biology occurs in a key fashion. Not unlike Goethe in *Theory of Colors* (1810), Uexküll combines scientific acumen and artistic sensibilities. With the canvas metaphor, the latter furthermore prefigures the architectural canvas manifest in the wall of human habitation as it appears in Ferlinghetti and Hopper. A pivotal passage in *Theoretical Biology* provides insights on human and extrahuman perception. This passage also stimulates additional reflections on the relativity and even interchangeability of reality and illusion in postcategorical contexts:

*The extended forms, as it were, the invisible canvas on which the panorama of the world surrounding each one of us is painted, by giving bearing and form to the local signs underlying the colors. Vis-à-vis the world panorama there is no other standpoint than that of our own subject, because the subject as observer is at the same time the builder of his world. An objective picture of the world, which should do justice to all subjects, must necessarily remain a phantom. (Uexküll, 1926, p.40 [tr. modified])*



*(Das Ausgedehnte bildet gleichsam die unsichtbare Leinwand, auf die das Weltpanorama, das jeden von uns umgibt, gemalt ist, indem es den die Farben tragenden Lokalzeichen Haltung und Form verleiht. Einen anderen Standpunkt gegenüber dem Weltpanorama als den unseres Subjekts gibt es nicht, weil das Subjekt als Beschauer zugleich der Erbauer seiner Welt ist. Ein objektives Weltbild, das allen Subjekten gerecht werden soll, muß notwendig ein Phantom bleiben.)* (Uexküll, 1920, p.36f.)

In Uexküll's terms, "the extended" is the space beyond in which there are no more cue-carriers ("Merkmale") "by which we can measure its magnitude, let alone divide it up into parts" (Uexküll, 1920, p.35). It is an ultimate outer space where a certain nothingness reigns. In assigning the formation of an "invisible canvas" ("unsichtbare Leinwand") to the extended, Uexküll thinks of the eye's spatial workings that depend on discernible features and their interrelationships. The extended, then, creates an outermost horizon for the eye's perceptual abilities.

As to be expected in the relational contexts of his research and thought, Uexküll does not cast this horizon and canvas in or as a firmly set framework. Rather this horizontal canvas resembles a membrane through which some properties travel without being perceived by human eyes. The nothingness of the extended "corresponds rather", Uexküll states, to a Buddhist's Nirvana by being always present as "background for all form and all motion" (Uexküll, 1920, p.34). Although invisible, the extended thus has, as Uexküll puts it, a "strong atmospheric value":

*The objectless, completely motionless, extended is not nothingness, which has extension among its lacks, but it rather corresponds to the Buddhist Nirvana. It is invisible, non-apprehensible and yet of necessity always present, and it possesses a strong atmospheric value, since for all form and all motion, it serves as a background toward which the seeking eye must ceaselessly strive.* (Uexküll, 1926, p.37 [tr. strongly modified])

*Das Gegenstandslose, völlig Ruhende, Ausgedehnte ist nicht das Nichts, dem auch die Ausdehnung mangelt, sondern entspricht eher dem buddhistischen Nirwana. Es ist unsichtbar, unfaßbar und doch mit Notwendigkeit immer vorhanden und besitzt einen starken Stimmungswert, weil es aller Form, aller Bewegung als Hintergrund dient, dem das suchende Auge stets zustreben muß.* (Uexküll, 1920, p.34)

Uexküll's notion of an "atmospheric value" blends with that of a pervasive "mood", *Stimmung*, and intensifies the artistic resonance in his metaphor of a cosmic canvas. Being both "non-apprehensible" – literally "ungraspable" ("unfaßbar") – and of infinite value, the strongly valuable atmosphere and mood

leaves or rather creates room for a viewer's activity in its relation to that which is beyond perception, but nevertheless enters into such an activity in consequential ways.

Most saliently, this atmosphere and mood in its membranous interface with both the realms of the observable and of the extended is decidedly multidirectional. Emanating from the extended, but also perceived from the subject's finite viewpoint, such an atmosphere involves both the finite and the infinite, and does so in the zone of the canvas. In this constellation and dynamic, the Ferlinghettian vexation falls on the merely earthly side without much of a connection to the cosmic nature of the sunlight desired for artistic capture. To the painter on his *gerüst*, the walls onto which the sunlight would be cast are human artefacts: walls of houses. In this painter's keenest visions, the sunlight itself is on its way to these architectural surfaces, canvases of a kind – but such an occurrence remains forever elusive.

In Ferlinghetti's scenario, there is no atmospheric osmosis between an extended outer space and earthly horizons. Light in his world does not foster a sensory organicity in response to the transperceptual nature of horizons in their juxtaposition with the extended. The osmotic indeterminacy and ever-changing, atmospherically potent fusion between cosmic and earthly expanse is all but absent in a world in which the artist's hand follows the mind to which it is physiologically attached. The Uexküllian atmosphere through which light could transmit an impetus and turn toward the canvas from an earthly, yet transhorizontally inspired realm, in the end does not pervade Ferlinghetti's world. In his scenario, Goethe's last cry resounds on earth, in some discordance with the otherworldly hope of that exclamation. Goethe himself in his *Theory of Colors* (1810), on the other hand, has earthly organs developed and charged with nature's primary light: heard with *Theory of Colors*, the writer's final exclamation for more light takes its hopeful impetus from a realm that does not respond directly to human desire.

The notion of atmosphere in Uexküll strongly accentuates his difference from what both he and Goethe describe as a Newtonian world in which material objectivity reigns. In his argumentation against a world view that overlooks the role of a both formative and – in terms of *umwelten* – singularly limited subject in the shaping of realities, Uexküll in his *Theoretical Biology* cites Goethe's considerations of light in *Theory of Colors* in firm agreement (Uexküll, 1920, p.30 f.). Uexküll, however, in his own way struggles with tensions between the science of his age and creative pursuits, scientific beliefs in facts and causes, and a dedication to compositional, specifically musicological elements (Uexküll and Kriszat, 1934, pp.131–153). Uexküll's explorations between science and subjectivities in their various *umwelten* reflect the growing schism between science and the humanities in the 19th century. But in significant conjunction with Goethe again, Uexküll pursues both experimental and transcendental dimensions of his work with a care and passion whose double allegiances have largely been overlooked with regard to their close intertwinement.

In the phenomenologically oriented juxtapositions of Goethe's and Uexküll's semiotic investigations of light, numerous commonalities emerged, foremost among them the semiotic turn in which sunlight generates a receptive and also an outwardly directed movement in which a perceptual organicity is beginning to stir. Goethe's reflections on the human eye and Uexküll's observations on the sea urchin share a circular dynamic in which individual *umwelten* come to life. Uexküll's significantly metaphorical discussion of the sea urchin and of cosmic extendedness includes the notions of canvas and scaffolding. Well before its generally acknowledged entry into semiotic discussions, Uexküll in *Theoretical Biology* (1920) deploys the concept of scaffolding, with some connection to its artistic and cosmic dimensions in the image of the canvas. The latter surface unfolds in a wider spectrum of metaphoricity and signification as well as in connection with art and lyric poetry (Trakl, 1913, Ferlinghetti, 2001). In this context, the present article explores phenomenological and discursive relations of Uexküll's and Goethe's work with literary linguistics and the Humanities.

## Conclusions

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## Santrauka

### Winfried Kudzus. Lingvistinės-literatūrinės refleksijos apie šviesos mokslą: jutiminiai elementai J. W. Goethes *Theory of Colors (Spalvų teorijoje)* ir Jakobo von Uexkullo metaforiškumo semiotiniai pastoriai

Johanno Wolfgango Goethes Theory of Colors (1810) ir Jakobo von Uexkullo darbuose *Theoretical Biology* (1920) ir *A Foray into the Worlds of Animals and Humans* (Uexkull and Kriszat, 1934, vert. 2010), atliekami pamatiniai semiotiniai tyrinėjimai *avant la lettre*. Šių mokslinių publikacijų tyrime, kuriame pastebimai naudojamosi humanitariniais mokslais, mažai arba visai nekreipiama dėmesio į semiotinius ženklus ir lingvistinius sudėtingumus. Priešingai nei gauti Uexkullo darbų tyrimo rezultatai, šio straipsnio teiginiai remiasi literatūriškai ir meniškai moduluotais

požiūrio bruožais ir metodais, o ne mokslo apibrėžtais analizės būdais. Savo sąlyčiu su šviesos transmisija ir jos keitimusi Goethes ir Uexkullo darbuose – su tam tikromis užuominomis apie modernistą simbolistą Georgą Traklą ir postmodernistinį „bitniką“ Lawrenčą Ferlinghettį – prie ir už kalbos ribų atsiranda optinė semiozė ir reiškia ekstrakategorišką suvokimą, taip pat ir metaforišką išdailą. Tokiuose Uexkullo samprotavimuose, kaip *Theoretical Biology* (1920, vert. 1926), apie semiotinį šviesos veikimą, atsiranda *pastolij* („Gerüst“) sąvoka. Šis straipsnis ypač atspindi semiotinius posūkius nuo saulės šviesos link organizminio suvokimo, ir tai būtent ta zona, kurioje pojūčiai pradeda „busti“ dar prieš pastatant *pastolius*.

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