IS LANGUAGE GOVERNED BY NEWTON'S LAWS OF MOTION?

BY

© K.B. Kiingi, PhD

kibuukakiingi@yahoo.com

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Although I am certainly hesitant to pinpoint its alethic status, I am nonetheless intriguingly occasioned to believe that there is a link between predicate classes[*] and Newton's laws of motion. Hence, in this article, I sketch the putative connection.

In my domainal role theory, I posit twelve predicate classes as shown in (1).

(1)	[Z]	[B]	(absolute)
	[Zχ]	[Bχ]	(relative)
	[TA]	[NA]	(contactive)
	CE[Z]	CE[B]	(causative absolute)
	CE[Zχ]	CE[Bχ]	(causative relative)
	CE[TA]	CE[NA]	(causative contractive)

In summarizing Newton's laws in Table 1, it will promote intuition if I adopt R from (2) and **F** to represent force.

(2) χ = R, D, J, S, M, G, Q, K, W, U, I, L

As a consequence, the predicate classes [Zχ], [Bχ], CE[Zχ] and CE[Bχ] will read as [ZR], [BR], CE[ZR], and CE[BR] respectively.

Table 1: Statement of Newton's laws of motion

	Statically:	Dynamically:	Type of Situation
Newton I	$\mathbf{F}_z = \mathbf{0}$ $\mathbf{1}_z = \mathbf{0}$	$\mathbf{F} = \mathbf{0}$ $\mathbf{1}_B > 0$ $\ddot{\mathbf{1}}_B = 0$	Absolute
Newton I	$\mathbf{F}_z = \mathbf{0}$ $\mathbf{1}_{zR}$ = constant	$\mathbf{F}_B = \mathbf{0}$ $\mathbf{1}_{BR} > \mathbf{0}$ $\ddot{\mathbf{1}}_B = \mathbf{0}$	Relative
Newton III	$\mathbf{F}_{TA} + \mathbf{F}_{AT} = \mathbf{0}$	$\mathbf{F}_{NA} + \mathbf{F}_{AN} = \mathbf{0}$	Contactive
Newton II	$\mathbf{F} \neq \mathbf{0}$ $\mathbf{F} = \frac{d(m\dot{\mathbf{1}})}{dt}$ for m = constant , $\mathbf{F} = m\ddot{\mathbf{1}}$		Causative

[*] See my papers "A Classification of Language Signs", and "Predicate Grammar or Grammar without Nouns and Verbs" accessible at http://www.luganda.com

For the absolute situation Newton's first law of motion (or, Newton I, for short) states that if the external resultant force on the particle Z is zero, then the displacement vector is also zero [statically]; but if the external resultant force on the particle B is zero, then the displacement vector of B is greater than zero and the acceleration of B is zero [dynamically].

For the relative situation Newton I states that if the external resultant force on Z is zero, then the displacement vector from Z to R is constant [statically]; but if the external resultant force on particle B is zero, then the displacement vector from B to R is greater than zero and the acceleration of B is zero [dynamically].

For the contactive situation Newton III states that the resultant force exerted by particle T on A and the resultant force exerted by particle A on T is zero [statically]; and similarly, *mutatis mutandis* for N and A [dynamically]

Finally, Newton II states that if the external resultant force on a system of particles is not zero, then the force varies directly as the time derivative of the momentum of the system.

It is noted that the semantic role types C, Z, B, T, A , N and the argument types ℓ, t and m have been used in order to state Newton I, III and II. I now turn to the link between Newton's laws of motion and the predicate classes; I am inclined to non-committaly dub it as a link of analogy.

Table 2: Analogization of predicate classes with Newton's laws of motion

	Statically	Dynamically	Type of Situation
Newton I	[Z]	[B]	Absolute
Newton I	[Zχ]	[Bχ]	Relative
Newton III	[TA]	[NA]	Contactive
Newton II	CE[Z]	CE[B]	Causative Absolute
Newton II	CE[[Zχ]	CE[Bχ]	Causative Relative
Newton II	CE[TA]	CE[NA]	Causative Contactive

The predicate classes in Table 2 are easy to exemplify by dint of the isomorphism between semantic role and syntactic role patterns as recapitulated in Table 3.

Table 3: Semanticosyntactic isomorphism

[Σ]	≅	<S*V> , where Σ = Z, B
[Σχ]	≅	<S*V X>
[ψA]	≅	<S*V O^1> , where ψ = T , N
CE[Σ]	≅	<S*V O^2 >
CE[Σχ]	≅	<S*V O X>
CE[ψA]	≅	<S*V O O>

I conclude this article by posing the question whether the link between the twelve predicate classes and Newton's three laws of motion is merely analogic or in fact nomic. For my part, I believe that it is nomic. With $\mathbf{F}_{\eta}$, $\mathbf{F}_{\eta 1 \eta 2}$, and **F** representing the external resultant force on particle η, the force exerted on η_1 by η_2 , and the external resultant force on a system respectively, I would state the nomic connection as follows:

If [$\mathbf{F}_{\eta} = \mathbf{0}$], then the predicate class is [Σ].

If [$\mathbf{F}_{\eta 1 \eta 2} = \mathbf{0}$], then the predicate class is [Σχ].

If [**F** = **0**], then the predicate class is [ψA].

If [**F** ≠ **0**], then the predicate class is CE[Φ], where Φ = [Σ], [Σχ] , [ψA].

After disposing of the question I posed at the beginning of this article, it is now opportune for me to direct my attention to the next question: Does or does not the Newtonian-linguistic connection reignite the fundamental debate over the origin of language 100,000 years ago?