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Modeling A Traffic Light With Signs

In this essay, we'll attempt to use our ontological dyadic sign model to illustrate the semiotic system of a traffic light. For simplicity, let's consider a traffic light with three physical signifiers whose representation comes in the form of three signaling lights. These lights will be the green light (signaling "go"), the amber light (signaling "slow"), and the red light (signaling "stop"). In doing this exercise, we hope to gain experience on how the model is used and then find areas where the model can be extended.

The current model

Recall the current model for dyadic signs that correlate across ontological realms. X is the signifier. Y is the signified. The realm depth is indicated by the relata number. The dotted lines are an optional connection across realms. The solid line forms the sign. The meaning of each signs is defined through all relations among the signs. The inner box groups the two relata of the sign. The signs can be related to various other signs in the sign system designated within the interpretation realm. The signifiers and signifieds may correlate to physical objects in the physical realm.

Green does not mean go

Since the holistic meaning of a sign can only be determined in relation to all other signs, we must not say that green means go. Instead, we say that the green light is a signifier whose signified forms the concept of go. Whether or not this means we should go, would require an analysis of all other signs within the sign system. For example, if we saw the green light and the red light, would that still mean go? It would probably mean something outside the conventional semantics of the traffic light's semiotic system. It might mean that the traffic light is broken which might mean we should proceed through the intersection more slowly with caution. Green only means "go" in accordance to the absence of amber (no "slow") and red (no "go").

Meaning outside the lights

The traffic light functions as a conventionalized semiotic system understood culturally in order to give sign users the confidence that they are arriving at similar meanings. This analysis will not consider meanings outside the conventionalized system, however we will briefly acknowledge that semiotic systems must interact with one another in relation to an interpreter. If the traffic light was only red, but there was a construction worker waving you through, would the interpretation still be "stop"? If you were an emergency vehicle rushing to the hospital, would the amber light mean you should "slow"? It's clear that context and interpretation are critical to meaning-making and that they are currently excluded from our model. Nonetheless, we can continue under the assumption of a conventional, obedient, and contextually-bounded interpreter whom exists outside the model.

Calculations

A light has 2 physical signifiers (on/off).

- O
- X

There are 3 physical lights.

- R
- Y
- G

Therefore, there are 6 physical signifiers.

- RO
- RX
- YO
- YX
- GO
- GX

There are 8 physically possible combinations.

- RX,YX,GX
- RO,YX,GX
- RX,YO,GX
- RX,YX,GO
- RO,YO,GX
- RO,YX,GO
- RX,YO,GO
- RO,YO,GO

3/8 combinations are conventional. 5/8 combinations are nonconventional.

- RX,YX,GX = nonconventional
- RO,YX,GX = stop
- RX,YO,GX = slow
- RX,YX,GO = go
- RO,YO,GX = nonconventional
- RO,YX,GO = nonconventional
- RX,YO,GO = nonconventional
- RO,YO,GO = nonconventional

Using the model

We specify 6 physical signifiers in the physical realm. These correlate to 6 sign signifiers in the interpretation realm. These signs are related to the 3 conventional sign combinations (forming 3 new signs). The signified concepts of these conventional signs may eventually correlate to what the interpreter does in the physical realm.
An example of physical signifiers that evoke the car to go would be as followed: An important observation is that when an observer witnesses a green light and understands the conventionalized system they can narrow down the possible signs to a single conventional sign of "go". This may be a key insight in optimizing semiosis through relevance.

Going forward

Not quite a state machine. Not quite a neural network. There is of course a formal logic underling our diagram. Before comparing our model to other models and formalisms, we have yet to show why signifiers and signifieds relate together in the first place. We do not express the existence of the interpreter nor their performance of semiosis as individualized events.