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Modeling A Traffic Light With Signs

In this essay, we'll attempt to use our ontological dyadic sign model to model 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 yellow 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 find areas where the model can be extended.

The current model

Recall the current model for dyadic signs that correlate across ontological realms.

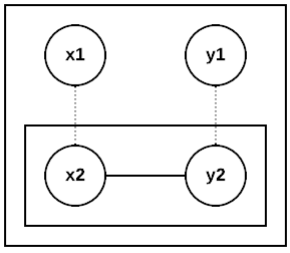

Figure 1: a dyadic sign with ontological consideration

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, but we also saw the red light would that mean go? It would probably mean something outside the conventional semantics of the traffic light's semiotic system. It could mean that the traffic light is broken. Green means "go" only in the absence of yellow and red.

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 yellow light mean you should "slow"? It's clear that context and interpretation are critical to meaning-making and that they are currently excluded from the model. Nonetheless, let us continue under the impression of "no context" and a conventional obedient interpreter.

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 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.

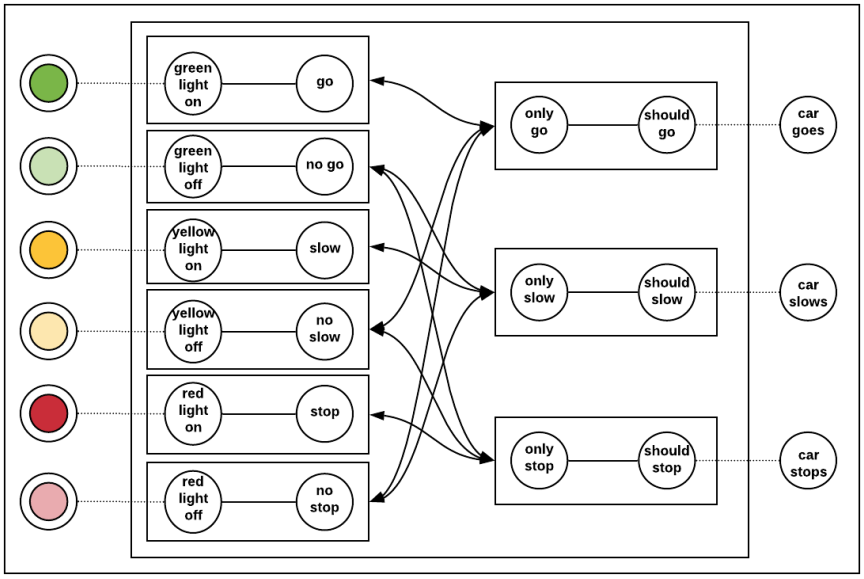

Figure 2: semiotic system of a traffic light

An example of physical signifiers that evoke the car to go would be as followed:

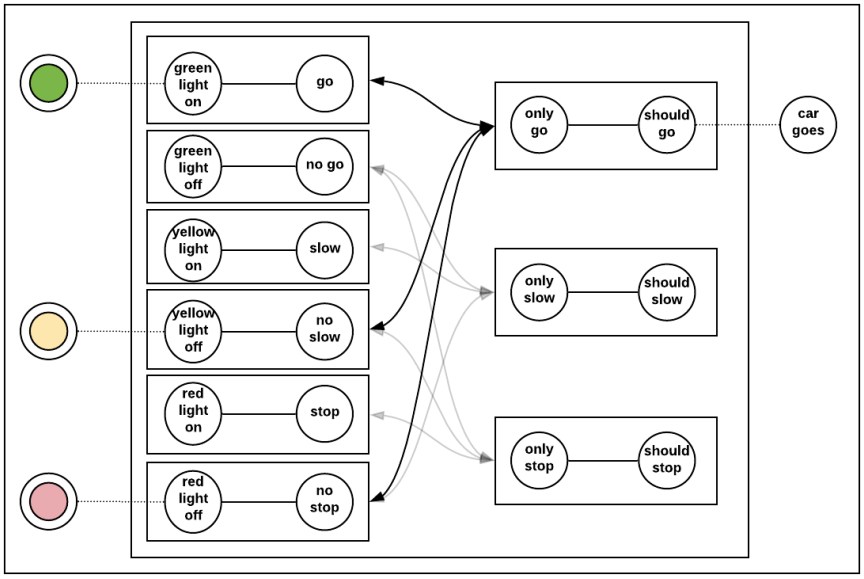

Figure 3: signifiers evoking “go”

Going forward