TYPOLOGY AND TYPOGRAPHY: BRIDGING THE TYPE/TOKEN/TONE DISTINCTION

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Abstract

Peirce's type/token (and tone) distinction is well known, and has proven useful in many avenues of theoretical and applied thought. This paper argues that, despite the logical dichotomy in which it is expressed, the distinction between what is a type, what is a token, and what is a tone is in fact quite hazy and these terms always require support from an appeal to the communicative context in order to be understood. It is demonstrated how the Semiotic Moment can be employed as an analytical device for negotiating the boundaries.

Keywords

Peirce, semiotics, Semiotic Moment, type, token, typography, font, perception, cognition, context, expression


(Author's note. The title of my paper highlights a problem facing anyone writing about classification schemes and printed characters: they are both known as "types." In order to avoid confusion between the term "type" when it is applied to a categorical class as opposed to its application in typography, I will use the word "font" to indicate a typographic character's style, reserving the word "type" for that which, in Peirce's scheme, stands in relation to token and tone. I'm aware that in typography, the word "font" carries a more restricted, technical interpretation and by adopting this strategy I will be somewhat degrading the richness of the word "font." Typographers, everywhere, forgive me!)

This paper developed as a result of a recent interest in noticing that sometimes dichotomies, despite their apparent opposition, are often bridged by some other element that would seem to fit neither pole and which is often not well defined; or which, while the poles of a dichotomy may seem at first glance to be distinct and clear conceptual objects, upon further inspection become amorphous and permeable – "fuzzy."

Here's an example. We are told by perceptual psychologists that a visible figure cannot be perceived except in contra-relation to, or against, what it is not – its background. An occasion of seeing a thing is an occasion of disjunction of the thing with the not-thing, or *no*thing. The visible entity is figured – while the background drops away (for the moment) and becomes invisible.

Figure 1 is a Spanish word – "si" – and an ellipsis. It might seem patently obvious that the word is a figure against the white page background. The word is legible and has a clear and distinct identity. But there are decisions to be made, or perhaps it is better to say that, in seeing the word "si...", decisions have already been made. One one hand we see the Spanish word, on the other hand, it is possible to see this as an assemblage of various elements – an s, an i, three dots – each figures in their own right against the white paper background. In seeing the word as figure, we have neglected to see the individual letters of the alphabet; in seeing a letter i, we neglect to see the jot over the i.
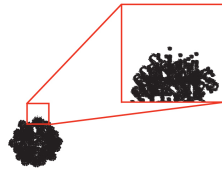
Looking closer, we see that each of these glyphs is composed of small droplets of ink from the ink jet printer (figure 2). But we have disregarded the assemblage of droplets when we have seen the word, when we have seen the s, the i with its jot, and the ellipsis. To press the point yet further, suppose we investigate even closer. With a start, we realize now that the droplets of ink have been composed of small spanish words: si, and if we look very closely at the jot of the i in these micro si's we find yet another collection of dots. Etc.

So here we find that even in such an apparently cut-and-dried case as the perception of a figure, there is already a series of discriminations and decisions being made, including an act of preference, an act of negation and a process of suppression. Perception might seem to be the simple "providing" to cognition of the figure, but this is certainly no brute dyadic process of supplying sense data to conscious awareness; on the contrary, it is already deeply, fully, and triadically, semiotic. It is a process that is fully entwined with us, our intentions, our lives. It is very easy to overlook this intertwinedness when we speak of the perceptual dichotomy of figure against background.

These kinds of issues abound in philosophy and whrerever it pops up one cannot help but wonder if there is a similar "fuzziness" to the two supposedly polar-opposite distinct concepts. Sometimes a philosopher will provide a bridging device to span two dichotomous terms, and other times, as with the figure/ground distinction, the terms are left without a connection, even though, as we have seen, the distinction is not as rigid as it t first appears.

Figure 3 presents some of the philosophical dichotomies (of course, by no means exhaustive) that would seem to have a similar pattern of paradox and some of the named "bridges" that connect the poles:

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Figure 3: Cases of attempts to cross boundaries:
Boundaries and Bridges:

Model	Divide	Bridging Device
Art Fundamentals	Figure and Ground	None
Kant	Intellectual and Sensible	Schema
Peirce	Percept and Cognition	Percipuum, Antecept, etc
Peirce	Type and Token	?
Whitehead	Materiality and Feelings	Actual Occasion
Eco, (Hjelmslev)	Expression and Content	S-code
Physics, Standard Model	Particle and Field	Higgs Boson? Strings?

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We will focus the rest of this article on just one of them: Peirce's type/token distinction. The best known passage in which he introduces the distinction occurs in a single long paragraph.

"A common mode of estimating the amount of matter in a MS. or printed book is to count the number of words.†P1 There will ordinarily be about twenty *the's* on a page, and of course they count as twenty words. In another sense of the word "word," however, there is but one word "the" in the English language; and it is impossible that this word should lie visibly on a page or be heard in any voice, for the reason that it is not a Single thing or Single event. It does not exist; it only determines things that do exist. Such a **definitely significant Form**, I propose to term a *Type*." (CP 4.537) {*emphasis in this and the next two related passages is mine*}

According to his categories, the type is a legisign, a principle, law or habit that functions in a significatory capacity.

He continues,

"A Single event which happens once and whose identity is limited to that one happening or a Single object or thing which is in some **single place at any one instant of time**, such event or thing being significant only as occurring just when and where it does, such as this or that word on a single line of a single page of a single copy of a book, I will venture to call a *Token."* (CP 4.537)

Hence, the token is a sinsign, an actual occurrence in the world of things and events, a particular "happening" of the type. Or as Linda Wetzel, who has done a good bit of work on type/token problem puts it, a token is a "concrete particular" having a unique "spatio/temporal location." (Wetzel, 2011)

But Peirce adds a third element:

"An **indefinite significant character** such as a tone of voice can neither be called a Type nor a Token. I propose to call such a Sign a *Tone*" (CP 4.537)

The questions I raise are these: firstly, do we find the concepts of type, token and tone to be truly distinct, or do we find upon closer inspection that they too, like figure and ground, become blurred and compromised in their "purity"? Secondly, if they are indistinct, do they contain a bridge-concept which will be a discrete entity? And lastly, if they do involve a bridge, what would be such a bridge's semiotic character?

Tonality

The concepts of token and type are defined as relations dependent upon each other, a distinction which places each condition in relation to the other and this makes them logically separate. We'll return to them soon. But Peirce's third concept—tone—seems much more fuzzy and is a good place to begin. Our question then is this: Is tone a distinctive, separate entity or is simply a gradation or bridge concept along the spectrum between type and token?

If it is to be fuzzy and indistinct, tone might be considered so in two ways, depending on how you interpret Peirce's phrase "indefinite significant character." A bit of disentanglement is necessary here. It could be that something has an "indefinite significant character" simply because the sign could, indeed, be vague or indeterminant in its power to represent. Suppose I point to someone in the distance in the past "is that John?" You might look up and see a person in the distance, but if your eyesight is as poor as mine you may reply "Sorry, I cannot discern if it is John or not." The character of the sign that is pertinent to recognition, is "indefinitely significant," i.e. the identity-interpretant remains undefined. But it's not that the sign has a "character" that is indefinite; indeed, the sign (the "seen figure in the distance") possesses quite disctintive characteristics: it is hazy, blurry, grayish, moving slowly, and so on. It is, precisely and narrowly, the "John-ishness" of the sign that is indistinct.

But is it that narrow reading that Peirce was referring to when he used the phrase "indefinite significant character,**"**? I think it is more likely that Peirce is saying that whatever the characters the sign possesses they are simply irrelevant

to the primary semiotic exchange that is otherwise occurring – that is, those characters are contextually non-salient or non-pertinent. For example, If I were to ask someone for directions and was told to go down to the corner and turn right, then *in that situational context*, whether the voice telling me directions happens to be deep or high, nasal or sonorous, gravelly or smooth etc, such are irrelevant characteristics to my intentions for the communication. If I am asking whether the figure in the distance is John, then the haziness, grayness and other attributes of the vague figure are simply insufficient for the requested interpretation at hand.

However, because the determination of irrelevance requires the framing of intentions, context, or the determination of a kind of "thematic direction" to a broader semiosis, one cannot say categorically – that is, absent this context – that something like pitch, timbre, or other quality of voice is a tone. Tonality remains fuzzily provisional. If, as Wetzel says, token requires a unique spatio/temporal location, then tone would seem to not only require the same, but also to demand a determination of relevance – or more specifically, *ir*relevance – given the context of the sign exchange at hand; otherwise, there is no clear division between tone and token. We can now arrive at a more precise definition of tonality: tone includes all qualities and characteristics of the sign that are irrelevant to the thematic direction of the semiosis at a given Semiotic Moment.

To test this understanding of tone – that it is irrelevant to the pertinence of the thematic direction at hand – all you have to do is imagine the example I have just given of the person giving directions. Suppose that by the vociferousness and loudness of his voice you understand that he is angry that you have interrupted his afternoon to ask directions. The communication takes on the aspect of conflict and perhaps even potential conflict. The loud gruff voice he is using is no longer tone, but is definitely a token of the type "shouting indicates anger" and it is very pertinent to expressing that emotion, which is now an important theme of the communication.

Type and token

But it is not only the definiteness of tonality that is questionable. Consider the six examples of the word "the" in figure 4:

the THE the **the** *the the*

Are these to be considered six tokens of a single type, or are they each a single token of six different types?

Of course, it's a trick question: the answer rests on whether the type *is considered to be* the "English definite article" or if the type *is considered to be* a kind of geometric drawing or physical dimensional set of traits. Therefore, the question quickly is resolved by rephrasing– "Where is the token of the typeface Helvetica?" or "Where are the tokens of the english definite article"?

Actually, what we have here is a collection of types: "a word", "English", "definite article" etc... depending upon a person's experiences and knowledge, all of which find instantiation in the visible word on the page. It is more correct to say that the printed glyph is actually *a set of tokens*, one for each type (figure 5).
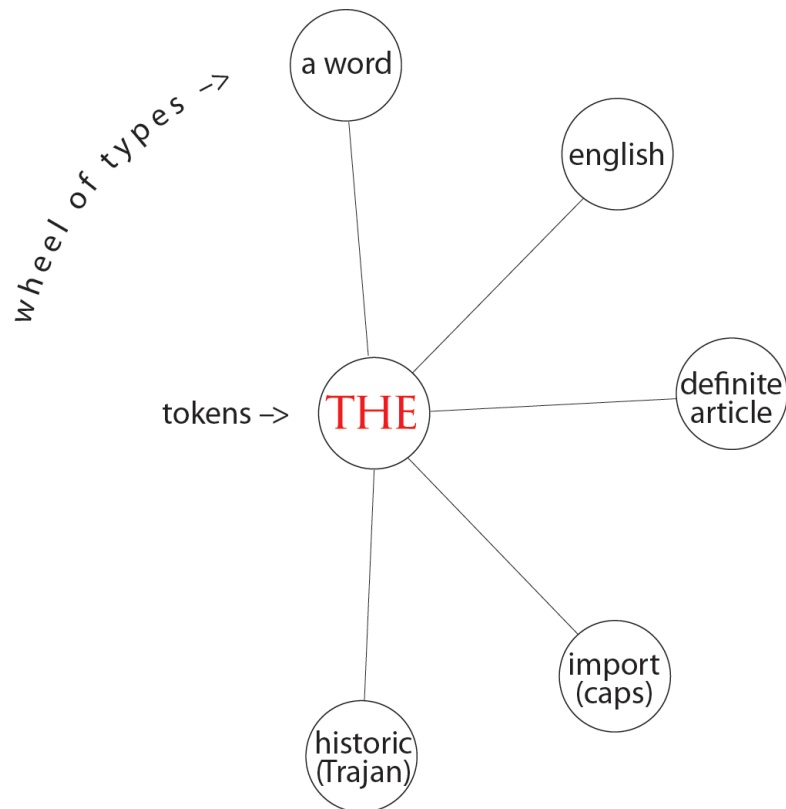
For any given reader, at any given moment of time, the set of types the printed glyph instantiates is likely to be different. (For example in the illustration, how many of you would have seen in the second "the" a token for Classicism due to the font being that found on the inscription of the Trajan Column in Rome)? That is why the qualifiers a few sentences ago – "is considered to be" – is crucial. Tokens are always "considered to be's"... "taken as"... bracketings of experience.

This re-introduces a new kind of provisionality, one I will return to it in a direct way in a moment. But let me pause here to mention that there are estimated to be over 100,000 fonts available on the market today. Why do we create a new one? There certainly is no need to create a new font in order to be more denotatively legible. Each typeface is intended to create a particular mood. While it is difficult to put the flavor of each expression into words (which suggests its own kind of indefiniteness), there is without question a difference in "feel" between the fonts Helvetica and Garamond.

How does a font's style come to express a specific feeling? How does a designer of a font, merely by changing a few geometric details, manage to consistently impart that expression? I cannot explain this except by returning to the notion of habitual recurrence: that within a culture, there are of particular links between certain formal relations and expressive feelings. As a font designer, when I am drawing a font, I choose to muster and cajole the form of each letter in such a way that it begins to focus on, or bring forth, a particular expression. When I do this, I draw upon patterns of formal relations that are, in some sense, already present through history and within society, although albeit never put together in exactly this particular way. These formal-emotional connections are formal tropes, largely unconsciously absorbed, and it is the job of a designer to bring what has been unconscious into conscious awareness (for the designer at least), and to manipulate it. When I design a new font, I do not expect that the reading public to be conscious of this process, but I trust that if the formal pattern expresses a certain "coloration" to me, then it will also "color" in a similar way for someone else within my culture who, like me, has been expressively preconditioned (figure 6).
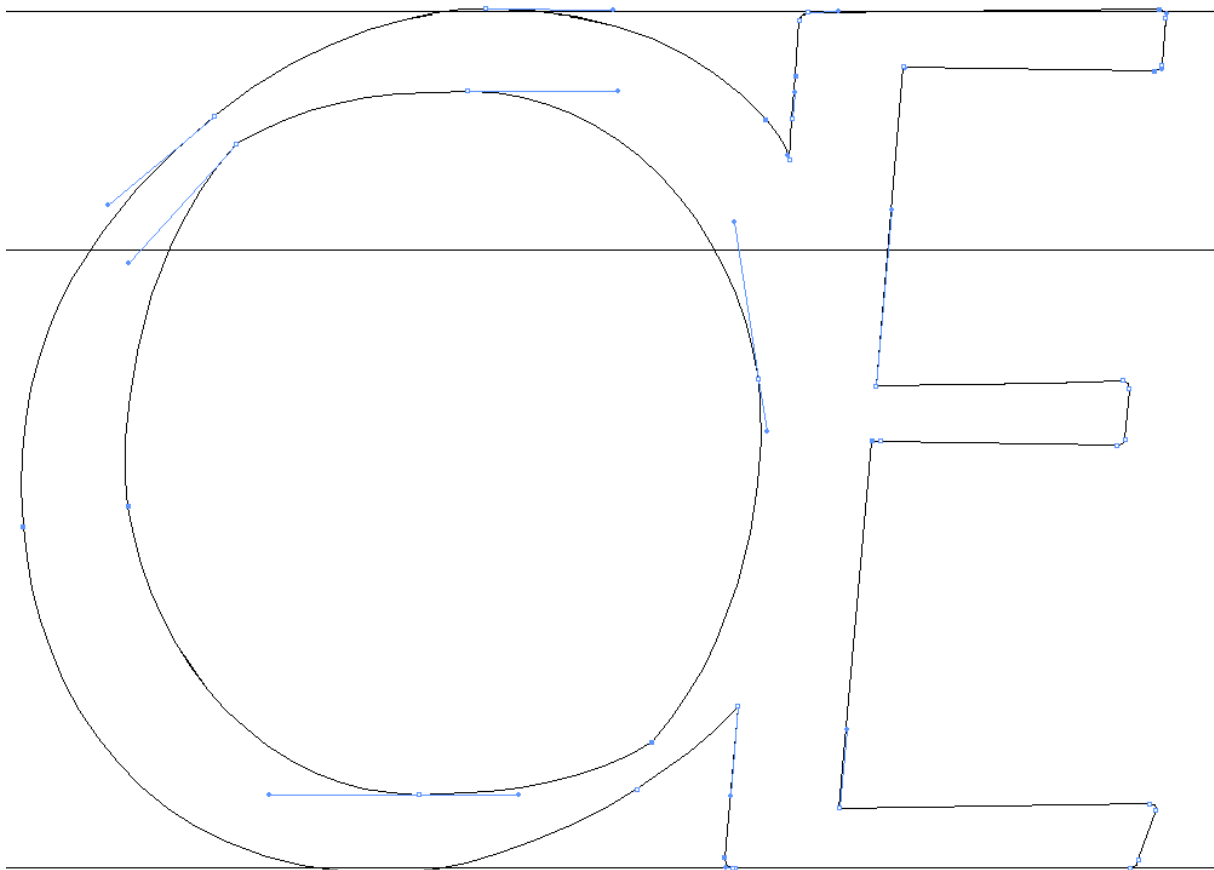
With this in mind, we return to the issue of provisionality of tokens and types. The token/type pairings in the "wheel of types" in figure 5 demonstrate that even in token and type, there is indeterminancy-except-within-the-consideration-at-hand. So what is the reader's intent? If you are reading strictly for the verbal information carried by the English language, then the typeface can be any legible typeface and carry the same type-token pairing, its expressive aspects functioning as tone. However, if you are attuned to the emotional sensation of the reading-as-viewing experience, then each font will foster a different expressive experience, and this expression cannot be considered only a Peircean tone (which as we have seen demands irrelevance to the communicative flow) but must involve also a type and token.

This means that not only is tonality a fuzzy concept, but so is type and token. To see why this is so, recall that the expression of the typeface (when it is read for English language information) is tonality. But now we have seen that the entire procedure of designing for expression is one of adopting a cultural habit, principle, or a systemic rule-based enterprise (even if one which, like expression, is very difficult to specify in language). That habituality is the hallmark of a legisign, making a font's expressivity a *type* and its instantiation a token! What seems to be tonality from one perspective, becomes type from a different perspective. But if the ink-jet printed appearance on this page of that expressive font is a token of the expressive-form type... well, we have one such token, right here:

<div align="center">si....</div>

We have already seen that a token's requisite "having a unique spatio-temporal location" is greatly compromised, indeed determined, by how it is considered, what it is considered, and where and for how long it is considered. It is high time to look into the important problem of "being considered."

"Being considered": the Semiotic Moment

Several years ago I introduced the notion of the Semiotic Moment. It is an extention of Peirce, utilizing insights by David Savan (Savan 1989). It's really a quite simple idea (figure 7a, b, c):

A full argument for, and discussion of, this model is too ambitious for the purposes of this paper, but I will sketch an outline of the concept, before offering some concluding thoughts about how it can be employed in the type/token/tone problem.

The Semiotic Moment (I will refer to it as the "Moment") is simply a formulation of Peirce's triad. Just as a disk is the most elemental visual form, the Moment can be thought of as an unbreakable primal disk. It is comprised of three elements: sign, referent, and interpretant. The Moment is the fundamental unit of semiotic analysis. In a semiotic analysis, while you may pause to consider traits of an individual element, or relationships between pairs of these elements, you must remain cognizant of the fact of all three elements as essential players in lived experience.
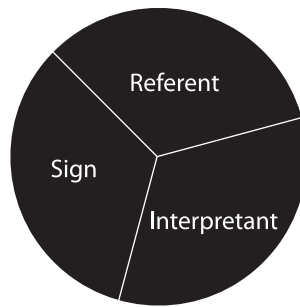
The elements of the Moment – sign, referent, and interpretant – each have contexts which function as their constraints. [†]The contexts are the set of available candidates for the sign, referent, and interpretant, respectively.
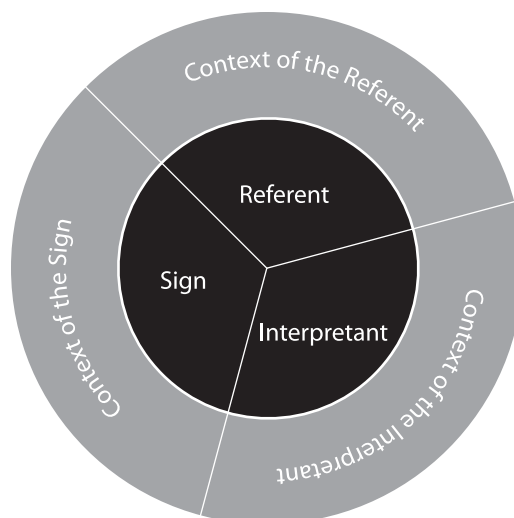

The Moment is recursive in two ways. Firstly, it is artifice, a phenomenological bracketing technique, a way of making sense of, or analyzing experience, even as it is presumed to be the real cognizing device *of* experience. [2] The second recursion has to do with the Moment's ability to make sense of sign action by transactions between Moments – transactions which themselves involve Moments of a different scale or order.

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[1] I take these contextual constraints on the Moment to be roughly equivalent to what Peirce called the Dynamic Object.

[2] In Whiteheadian terms, think of the Moment as the mechanism for prehension.

Of these transactions by which the available potentialities within the contexts are actualized in a particular Moment, we may speak of three kinds: selection, translation and nesting.[3]
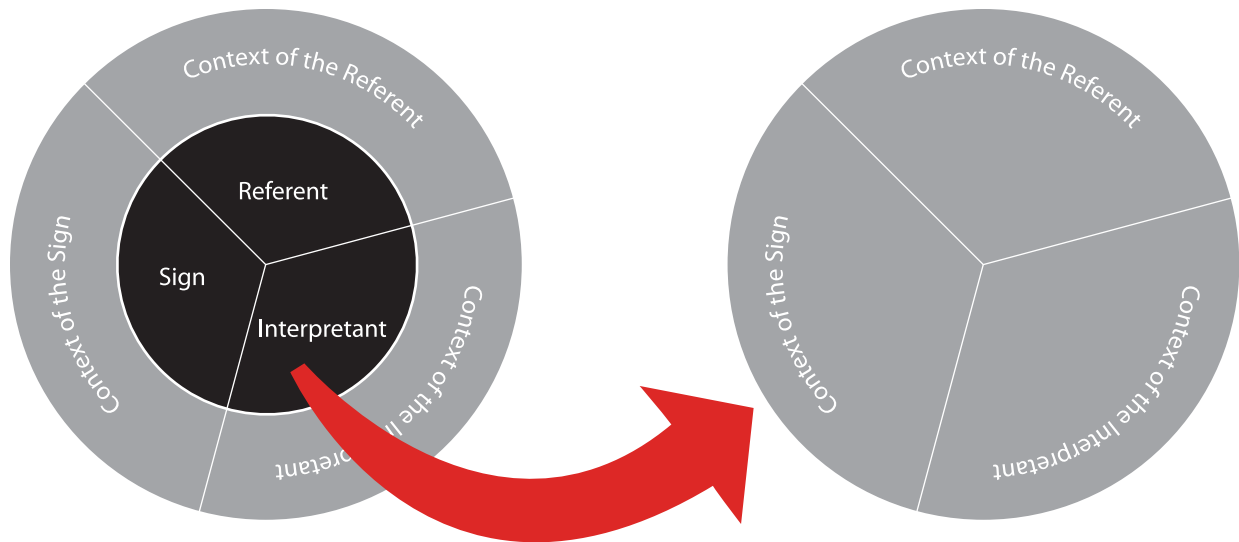
This is but a brief outline of the Semiotic Moment concept, but I do want to conclude by showing how the Moment, with its transactions serving as bridges, clarifies the tone/type/token problem.

Moment as bridge and the salience of salience

In the "si" example, each one of the examples, which are essentially the beholding of the visual object from different perspectival distances, is the framing of a Moment. To put it even more precisely, if two people were to regard the "si" on the page, not only would each have their own Moment – each would have their own Moment at each scale of their beholding of si, s, i, jot, etc. Not only is the interpretant "si" a kind of negotiated judgment within a single consciousness, but this recursive, meta-, negotiation is simultaneously happening for groups of beholders. In both the individual's judgment process, and in the group's consensual process, there would be a continual exchange of sign action, the process of transactions of and between Moments.

Determining the relevance toward the flow of the communication is something that comes not from the sign itself nor its referent, nor, strictly speaking, its interpretant. It is something that is being drawn from the context of the interpretant. It is drawn into the Moment (i.e., made functive element) through a transaction that must induce what had been considered to be superfluous or tangential to become foregrounded. A production of a sign (an indexical mark) of relevance which then supersedes the former flow acts to interrupt the semiotic process, changes the "what's it all about" focus, and takes the experience in a completely new direction. This is the source of the

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[3] One may speak of two kinds of nesting, cluster and sequential, so sometimes it is said there are four transactions instead of three. But clustering and sequence are both essentially nesting functions.

transformational that bridges the disjunction between si and i and jot of the i; this is the source of the bridge between tone and token and type.

Token, type and tone are therefore malleable aspects of sign behavior, but what gives them identity is the consideration of relevance, salience, pertinence, that they achieve within discrete Semiotic Moments. Without a framing device of the Semiotic Moment with its contexts and its transactions, token, type and tone tend to be seen as some sort of "permanent" or constant markers. Even Peirce fell into that trap when he categorically called a tone of voice neither a type or a token. It is neither, and both, depending on the framing of the Moment.

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