Marc Champagne*

_____ is necessary for interpreting a proposition

Abstract: In *Natural propositions* (2014), Stjernfelt contends that the interpretation of a proposition or dicisign requires the joint action of two kinds of signs. A proposition must contain a sign that conveys a general quality. This function can be served by a similarity-based icon or code-based symbol. In addition, a proposition must situate or apply this general quality, so that the predication can become liable of being true or false. This function is served by an index. Stjernfelt rightly considers the co-localization of these two parts to be a primitive phenomenon. Although this primitive character would seem to bar any further analysis, I endeavor to clarify the degree of proximity sufficient to enable co-localization. Siding with Pietarinen (2014), who argues that the whole issue should not be construed in metric terms, I conclude that one cannot make sense of propositional co-localization without appealing to some form of first-person perspective.

Keywords: co-localization; dicisigns; predication; primitivity; proximity

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Corresponding author: Marc Champagne, Department of Philosophy, Kwantlen Polytechnic University, Surrey, B.C., Canada, e-mail: marc.champagne@kpu.ca

Co-localization is necessary for interpreting a proposition. This is exemplified by the fact that, to correctly complete this article's title, the missing word must appear nearby — and not, say, at the bottom of some obscure river bed in Xi'an.

Of course, nudging the token sign-vehicle "co-localization" a few lines lower on this page would still have produced the desired interpretive effect. At some point though, things are too far apart to be co-localized. We may ask, therefore, what counts as sufficient proximity.

One thing we can say with confidence is that co-localization is at least a two-place relation. Were something the only thing in the universe, it would have nothing *else* to be in proximity *with*. Numbering in two is thus crucial — which is why C. S. Peirce placed indexicality under the rubric of "Secondness" (CP 2.84). Consider language acquisition. Children learning a language must, among other things, be exposed to paradigmatic instances of word use. A conventional code may glue together linguistic meanings but, at some point,

token sign-vehicles like "oatmeal" must be used *near* token instances of oatmeal. Such proximity is a necessary but not sufficient condition for semiosis. Any brute conjunction of items that makes a difference in our cognitive economy is perforce a three-place relation. Indeed, to grasp (and eventually master) the desired association, the child must add an interpretant atop the mere co-localization of this and that — which is why Peirce placed interpretation under the rubric of "Thirdness" (CP 2.86). The third element could be that the child is served the slow-digesting cereal upon using the term "oatmeal." In normal circumstances, this will develop into a habit tying the word-type and class of things. Yet, even if "much of our knowledge reflects our modes of cognition and is therefore not limited to inductive generalization from experience, let alone any training that we may have received" (Chomsky 1980: 4), the fact remains that the word "oatmeal" is not innate. Hence, parents intuitively know that, for an exercise in naming to work, the thing targeted and word-token spoken must at some point *both* figure in the child's field of awareness. As Peirce would say, Thirdness presupposes Secondness.

Someone wishing to do away with such direct exposure might adduce the following scenario as an objection. Suppose that a person tells one: "Please close the door." As one prepares to grant this request, one notices that there are actually two open doors, each equally distant from one. Given this equal distance, one would have to disambiguate the request by asking the person which object her index was aiming for. This objection is sensible, but it overlooks the fact that such a request for clarification would range over two doors, not fifty. The indexical sign used may be fallible, but it succeeds in shrinking the range of possible objects to those doors that are nearest. Hence, when it comes to fixing reference, the notion of nearness cannot be done away with.

Building on these ideas, Frederik Stjernfelt (2014) contends that propositions require the joint action of two kinds of signs. On the one hand, there must be a sign that conveys a general quality. This function can be served by a similarity-based icon or a code-based symbol. On the other hand, a proposition must contain a sign that situates or applies this general quality. This function is served by an index which "forces the attention to the particular object intended without describing it" (Peirce CP 1.369).

To illustrate, the word or color patch "blue," taken by itself, conveys very little. However, once it is grafted to an index, "Here blue" makes a claim (that is liable of being true or false). On their own, indices only tell us where to look, not what to look for — as evidenced by the possibility of a locution like "I have no clue what this is." But, when indices are combined with icons and/or symbols, they tell us *where* to look and *what* to look for. Following Peirce's terminology,

Stjernfelt calls such claim-like compounds *dicisigns* (from the Latin "to say"). "Dicisigns are signs, to put it bluntly, which say something about something" (Stjernfelt 2014: 51).

To make a claim is to take a stand, and this stand can be correct or incorrect, depending on the context. As Peirce writes, "[t]he readiest characteristic test showing whether a sign is a Dicisign or not is that a Dicisign is either true or false, but does not directly furnish reasons for its being so" (CP 2.310). Staying with the previous example, "Here blue" will be false if the particular object picked out by "here" is not in fact that color, whereas the claim will be true if the thing in question is blue. Naturally, figuring out the truth or falsity of a given dicisign requires (fallible) empirical inquiry. Yet, in order to get off the ground, such an inquiry needs to be oriented toward a region of the world.

In humans, this activity of joining an icon or symbol with an index usually results in the production of a sentence. However, Stjernfelt's account shows how making claims is not the sole purview of human minds. For instance, male fireflies in search of a mate will emit a flash at a specific time and place. "Translated into human language, then, the Dicisign in question will be the equivalent to 'Here is a male *Photinus* looking for girls'" (Stjernfelt 2014: 149). A flash by itself is not sufficient to attract a mate, so a male cannot activate its bioluminescent abdomen in an isolated location if it seeks to generate the proper (female) response. Humans making claims usually suffer social consequences when they fail to tell the truth (Brandom 1994). But, even with non-human animals, claim-making requires taking responsibility for what one "says," since the repercussions of an erroneous dicisign can include failing to find a mate, experiencing starvation, being caught by a predator, and so on (for examples related to bioluminescence, see Bennett 2014). The indexicality captured by "here" in Stjernfelt's firefly reconstruction is thus crucial in securing the right kind of interpretation(s).

This raises an interesting question: In a natural proposition like "Here is a male *Photinus* looking for girls," what is the scope of "here"? Presumably, the index could mean in the meadow, in the bush, in this exact spot, and so on. Of course, once a female firefly shows up, we get a pragmatic confirmation that the sign-action has produced the desired interpretation. Even so, it is natural to wonder what degree of proximity is sufficient.

In his *Philosophical investigations*, Ludwig Wittgenstein (1953: §71) considered the example of a person who commands another person to stand in a spot indicated by a hand gesture. Given the vagueness of the gesture, someone following this command could deviate from an ideal center and stand in any number of spots. Yet, even though it is unlikely that anyone could draw a

sharp line, there is a distance beyond which we would normally consider a person to be standing too far afield. Distance thus constrains interpretation.

Stjernfelt gives a nice illustration of what is at stake: "The example of painting-with-legend may make the idea (maybe deceptively) clear: the small plate with the title of the painting should be on the frame, on the back side or otherwise near to the painting in order to be recognized as indicating the subject relevant for the painted surface" (2015: 159). Clearly, when deciding where to put the small plate, museum curators have some spatial leeway. Yet, equally clearly, they cannot place the plate and painting too far apart. Hence, for the particular and general parts of a propositional sign-vehicle to trigger the desired interpretation, it is imperative that "[i]n some sense, the two should be co-localized" (Stjernfelt 2015: 159).

Reviewing Stjernfelt's work, Ahti-Veikko Pietarinen wonders "how far co-localization alone can take us [...]" (2014: 301). Pietarinen is right that "it cannot merely be a metric kind of co-localization or proximity because [...] those are topologically void [...]" (Pietarinen 2014: 301). Topology (from the Greek words "place" and "study"), a field pioneered by Peirce (NEM 2.165), investigates spatial relations while leaving size and magnitude unspecified. As Pietarinen observes, "the power of symbolized propositions lies precisely in that they may succeed in denoting indefinitely remote objects" (2014: 301). For instance, to interpret the proposition "The galaxy farthest from Earth is a lenticular galaxy," one need not visit or even view the galaxy in question. In this respect, Pietarinen is right that proximity is irrelevant. Stjernfelt's work nevertheless calls attention to another relation where proximity does matter. Clearly, the predicate "...is a lenticular galaxy" will mean little until and unless that sign-vehicle is grafted to another sign-vehicle, in this case "The galaxy farthest from Earth..."

This distinction is crucial. As Stjernfelt explains, "it is not the sign and its object which are or should be co-localized, it is the Subject and the Predicate parts or aspects of the proposition sign itself" (2015: 159). There is an indexicality that runs cross-wise within a proposition, so even if a suitably-arranged dicisign is able to pick out indefinitely remote objects, the two parts of this compound sign cannot be indefinitely remote from one another.

Consider someone who would want to explain the joining of "The galaxy farthest from Earth..." and "...is a lenticular galaxy" solely by appealing to the rules of grammar. To be sure, once those sign-vehicles are visually conjoined, grammar can (and must) kick in. Established linguistic habits might even allow one to surmise which predicate best fits the grammatical subject "The galaxy farthest from Earth...." Even so, other predicates can complete this claim, most notably the negation "...is not a lenticular galaxy." So, *the only way to find out*

what completes a proposition is to find out — and this requires that the sign-vehicles actually appear together in experience. Consider this my first claim (I will put my key findings in italics and summarize them at the end).

Conceding as much, Stjernfelt makes it clear that "the existence of the Dicisign presupposes relational realism" (2014: 91). In fact, Stjernfelt goes so far as to contend that "co-localization is the candidate of a Peircean primitive" (2015: 160). I agree with Stjernfelt that, being primitive, co-localization is a phenomenon that explains but cannot be explained. This nevertheless leaves much to be clarified.

In keeping with relational realism, it is not up to us what appears jointly in experience. As Peirce writes, the "index is physically connected with its object [...] but the interpreting mind has nothing to do with this connection, except remarking it, after it is established" (CP 2.299). Failure to appreciate this can give rise to sterile research programs. It can be tempting, for instance, to think that the parts of the dicisign are glued together by an act of inference. Consider the basic inference known as "adjunction":

    1. P   (premise)
    2. Q   (premise)
    Therefore,
    3. P&Q   (1, 2, adjunction)

It is natural to assume that an inferring agent is fully responsible for the conclusion 3. Alas, this would give rational thought too great a role. To witness the primitivity of co-localization, imagine that one were asked to perform the same adjunction inference using only the following material:

    1. G   (premise)

What should G be conjoined with? Clearly, for one to perform an adjunction inference, one must be given another premise. Importantly, this other premise is a content that no deductive argument can generate. Deductively, the only free-ride we get is the conclusion G&G, since everything is an icon of itself (see Champagne 2015: 542). But, beyond that, new contents must enter into awareness. Thus, without input from the world, all inferential powers (except sheer guessing) must remain on stand-by.

Of course, as soon as another premise, say K, comes into view, then a conclusion can be safely drawn, in this case G&K. But the point is that the relata must actually come into view. Hence, anyone wishing to gloss indexicality as a

mere pairing would smuggle in proximity without ever really acknowledging it, since only proximity reveals what is paired.

It is true that, in Peirce's diagrammatic logic, we can imagine the underlying "sheet to be very large; and the interpreter may move it so as to carry what is written upon it far beyond the field of vision. This will mirror his putting the propositions away from his attention" (Peirce LF: 691; I am quoting from a private pre-publication copy, so final pagination may differ). However, that distance (and inattention) cannot be too great, since an item that could not be co-localized with the rest would become unavailable for diagrammatic manipulation and thereby vanish, practically speaking (until and unless it was somehow reintroduced). So, while the sheet of assertion beneath Peirce's Existential Graphs does not have a boundary, it is nevertheless framed by ignorance. If one can wonder whether to relate "X and __," then the second relatum is not near enough. As a result, we might say that *the question of two items' minimum proximity is answered as soon as it can be posed*.

In a recent semiotic inquiry, I remarked that "scattering apart the linguistic sign-vehicles of the Rosetta Stone so that they never meet would have been a sure-fire way to foreclose all the novel inferences made on their basis" (Champagne 2016: 32). Here, I am essentially exploring the underlying principles that make this so.

Interestingly, in the graphical logic developed by Peirce, the visual juxtaposition of two or more conjuncts suffices to express a conjunction (Roberts 1973: 33). An inference rule like adjunction could not even be expressed in Existential Graphs. Write the premises P and Q and you thereby write the conclusion P&Q. Peirce's logic thus takes conjunction to be literally non-inferential. So, from an exegetic standpoint, Stjernfelt is undoubtedly correct to say that "co-localization is the candidate of a Peircean primitive" (2015: 160).

Simpler signs like subject and predicate must be side by side for a more complex sign like a proposition to do its referential work, but how close must those parts be? Since metric distance cannot tell us what counts as sufficient proximity, I submit that *there is no way to make sense of such indexical proximity without appealing to the notion of a field of awareness, broadly and un-psychologistically construed*. Reaching the same conclusion, Stjernfelt writes that the relata of a dicisign are "synthesized because they are aspects of the same topological section of the cognitive process; to put it psychologically, they may be perceived in one glance" (2015: 159). Of course, if we need to countenance a field of awareness, then we need to countenance all that this field includes. Iconic, indexical, and symbolic relations tend to blend, so a

faithful description of what is going on would likely be messy. Even so, appealing to a field of awareness seems indispensable.

Entry into a field of awareness — which we might gloss as the gradual or sudden passage from ignorance to (bare) knowledge — is a pervasive phenomenon. It holds in time as well as in space. To appreciate this, imagine that one hears "This apple is..." followed by a long silence. How long can one wait for this proposition to resume? The pause that sunders the dicisign might vary a great deal, depending on one's lifespan (and/or attention span). Yet, it is clear that, until and unless a predicate portion appears within an auditory field of awareness, what we have is not really a dicisign, since the sign has not yet managed to "say" anything.

Now, imagine that, in a million years, the sentence finally finishes with "...a nutritious fruit." If this sign-vehicle is experienced, it can be meaningfully conjoined with the earlier portion. Clearly, without temporal co-localization, familiar linguistic (and musical) devices like anaphora would become inoperative. Although we rarely encounter a pause so long that it prevents all interpretations, contemplating that possibility lets us appreciate the transition from ignorance to non-ignorance that occurs when more relata get related.

No organism, organ, or instrument can circumvent the fact that a proposition interrupted in time or in space must resume in order to be properly interpreted. Yet, given that indexicality's range is experiential, it follows that *the scope of indexicality will vary according to who/what you are*. Presumably, if a very powerful (or very large) creature were able to co-localize "in one glance" (Stjernfelt 2015: 159) both this article's incomplete title and the missing word in Xi'an, that situation might count as near enough to produce the correct interpretant(s). By contrast, what counts as proximity for a firefly may be quite close. As a result, "[t]he relevant maximum Universe of Discourse probably varies [...] depending upon [...] what Uexküll addressed as the *Umwelt* of that species" (Stjernfelt 2014: 132). Experimental testing might allow researchers to find out, with great precision, that a given organism can only co-localize objects appearing within a certain metric distance. However, such a quantitative result would merely confirm that a given field of awareness is finite. Animals vary wildly in their powers, but no one is aware of everything.

The foregoing suggests that, by tracking where/when ignorance converts into awareness, we can track the bounds of co-localization. Despite being primitive, there is no reason to suppose that this transition from ignorance to co-localized awareness is spooky. For instance, if a teacher tells students that they will fail a class unless they correctly name the letter following ___ in the alphabet, the students' gazes will anxiously converge on the empty spot. The teacher's instructions supply them with an index ("look there"), but even the

most enthusiastic student will have to wait for an actual letter to appear before co-localizing it with the teacher's instructions. Until then, the unfilled spot will be like a slot machine wheel spinning 26 alphabetical possibilities in an undecided blur. Only the appearance of a determinate letter can end this uncertainty and trigger correct interpretants.

Now, suppose that the letter "V" is shown. Given the naming task, "W" suddenly becomes the correct answer. If most or all students converge on this same response, we have relational realism to thank. Importantly though, the response times of a task can be fast, but those *response times cannot be faster than the deliverances of experience, since an interpretant produced before an object appears would hardly count as a "response."* We can consider this a law — an epistemological ceiling akin to the physical tenet that nothing in the universe can outrun the speed of light. It is nicely expressed in the Peircean recognition that, from an ordinal standpoint, Thirdness comes after Secondness.

Stjernfelt suggests that co-localization "may prove to form the entrance-gate to a whole range of deep issues" (2015: 159). He is right. Although I have not exhaustively charted all the issues, I would identify the following conclusions as worth keeping:

1) Short of conjecture, the only way to find out what completes an incomplete dicisign is to find out, and this requires that the general and particular sign-vehicles actually appear together.
2) Metric distance sheds only accidental light on the conditions of (1), since the proximity that is essential to indexicality must involve some distance but can involve any distance.
3) Given (2), there is no way to make sense of (1) without appealing to the notion of a field of awareness, broadly and un-psychologistically construed.
4) The range of the field of awareness in (3) is species-specific.
5) Despite the variability of (4), the question of two items' minimum proximity is answered as soon as the relata at hand can be identified.
6) The identification in (5) cannot be faster than the deliverances of experience.

This article's title is gerrymandered to show that co-localization is necessary for interpreting a proposition. Pushing this further, I have tried to show that, since a minimum of proximity is needed for co-localization to occur, *proximity* is in turn necessary for interpreting a proposition. Pietarinen (2014) insists, quite rightly, that a tenable analysis must construe such proximity in topological, not metric, terms. The take-away message of my investigation is that one cannot

conduct a topological analysis without appealing to some first-person perspective — as impersonal as it may be.

If the joint appearance of sufficiently close sign-vehicles is indeed a primitive phenomenon, there is not much we can do to change or justify it. I nevertheless think that the interlocking tenets I have listed capture "what *must be* the characters of all signs used by a 'scientific' intelligence, that is to say, by an intelligence capable of learning by experience" (Peirce CP 2.227; emphasis in original).

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Bionote

Marc Champagne
Marc Champagne (b. 1976) is an instructor of Philosophy at Kwantlen Polytechnic University. His research interests include semiotics, philosophy of mind, epistemology, and the history of ideas. His publications include *Consciousness and the philosophy of signs* (2018), "Diagrams and alien ways of thinking" (in press), as well as the authoritative entry on "Semiotics" for Oxford University Press's online *Bibliographies in philosophy* (2014).