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REGULAR ARTICLE

The Primacy of the Social and *Socio*genesis

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Abstract It has become a truism to state that cultural characteristics (knowledge, identity, practices) are "socially constructed." However, critics point out that the social overwhelmingly is understood as a context—a trivial sense of the social—and that the real social nature of human practices tends not to be shown. The Russian social psychologist L. S. Vygotsky assumes in his late work a primacy of the social such that all higher psychological functions *are* social relations between people before they are functions. As a result, human development occurs in and as *socio*genesis. Grounded in an ethnomethodological take on the social, the purpose of this article is to articulate and develop this unrecognized and unheeded, radical aspect of the late Vygotskian theory, thereby going beyond wrote and may have intended.

Keywords Sociogenesis · Epistemology · Ethnomethodology · Practice · Psychological functions

> Every higher psychological function was external; this means that it was social; before becoming a function, it was the social relation between two people. . . In general form: *the relation between higher psychological functions was at one time a physical relation between people*. (Vygotsky 1989, p. 56, original emphasis, underline added)

In the decades following *The Social Construction of Reality* (Berger and Luckmann 1966), there has been a decided "social turn" in many academic fields. Although the associated research literature is massive, there are critics who point out that the "social" in much of today's research is social in a trivial rather than a deep sense, consisting mostly as context to individual activity (e.g., Greiffenhagen and Sharrock 2009; Livingston 2008). But already in the 1920s and early 1930s, Vygotsky, as shown in

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the introductory quotation, worked on developing an integrative psychological science. In this work, the social is not the result of a construction but a condition thereof: there is a *primacy of the social* and human beings develop their specifically human characteristics in a process of *socio*genesis. This study was designed to work out this more radical position on the primacy of the social and on the associated *socio*genesis of anything individual; in so doing, this study goes beyond Vygotsky generally and his earlier work specifically.

It nearly has become a truism to state that (a) knowledge is socially constructed before it is individually constructed, (b) learning occurs in social settings, or (c) learners negotiate social norms and norms of the academic field (e.g., Cobb & Tzou 2009). Scholars making such statements often suggest that something is constructed socially, and the product of this construction then is internalized (internally constructed). But, when attributed to Vygotsky, such takes constitute a misreading, misapprehension, and misinterpretation of his work (Veresov 2005).[1] Vygotsky (1989) actually wrote that a higher function first appears *as* a social relation, which, as a unity/identity, *includes* multiple people. This leads him to state that "*sociogenesis is the one true perspective,* i.e*., mechanisms are created in the environment*" (p. 68, original emphasis). He also recognizes "the individual *as* a social microcosm" (Vygotsky 1997a, p. 317, emphasis added), that is, a unity/identity of the individual and the social.

Vygotsky generally is concerned with the individual; but he also makes statements that attribute primacy to the social. In stating that everything that "*was* for others what today *is* for itself" (Vygotsky 1989, p. 56, emphasis added), he therefore gestures to something much more radical than what is attributed to him: there is a dynamic unity/identity of the external and internal, of intrasubjectivity and intersubjectivity (Mikhailov 2006). In this way, the social relation is the true locus, origin, and intrinsic nature of the higher psychological function. We find in this opening quotation, therefore, a *primacy of the social* that is opposed to the primacy of the individual in constructivist thought from Kant to the present day. In other words, something is social not because it is the result of the construction of individuals who do something together. As has been remarked pointedly, "the [higher] function DOES NOT and *cannot* appear IN the social relations" (Veresov 2005, p. 38, emphasis added); it could not appear (for the child) *in* the relation because it would not have the intellectual capacity prior to the developmental process. Instead, the statement of the primacy of the social says "that the social character of the phenomena comes *first*, that it's essential to what practitioners do, that it's unavoidable and, therein, that it's omnipresent throughout a domain of practice" (Livingston 2008, p. 210). The social (social-ideological) is the prerequisite, condition, and source for anything individuals or collectives do and construct (Vološinov 1930). The concrete social rather than individual life is the primary carrier of human development; but that social life is based on the ensemble of individual lives (Holzkamp 1979). Vygotsky, therefore, has planted a much more radical seed than he is credited for, because in his theory, with respect to specifically human characteristics of the psyche, social relations exist before anything appears in individual consciousness. His early death prevented Vygotsky to work out the program he had started and its problems, that is, the points where we have to disagree with him (Mikhailov 2001).

[1] Another Russian theoretical psychologist suggests that Vygotsky's "works . . . have been substantially distorted by commentators, disciples, and users to meet their own specific needs" (Mikhailov 2001, p. 10–11).

The purpose of this paper is to exhibit the primacy of the social, in mature practice and in learning events, where it leads to sociogenesis, and then articulate some of these consequences for research and practice. The goal of this paper therefore is not to re/interpret Vygotsky, but to take the seed he had sown at the end of his life and to develop it along lines suggested by (Mikhailov 2001, 2004), which includes abandoning the notion of mediation that had marked his earlier work (Mikhailov 2006) because this notion presupposes an opposition of the individual and the social.

The Primacy of the Social in/of Everyday Reasoning

Reasoning is a human capacity generally attributed to the individual human mind that constructs itself (*auto*poiesis), based on *biological* principles, while interacting with the (social and material) world external to it (e.g., Maturana and Varela 1987; Piaget 1970). However, there are studies that exhibit the irreducibly cultural, that is, *social* nature of reason (Livingston 2008). Thus, ethnomethodological studies in particular are directed towards exhibiting the primacy of the social in mature practices, such as, for example, in the ways in which mathematicians construct a proof of Gödel's theorem (Livingston 1986), the ways in which we read (Livingston 1995), or the ways in which the game of checkers is played (Livingston 2008). Such studies therefore constitute models of how educators and social psychologists might proceed to find the *social* of the social practices of interest—including situations that involving a sole individual. Because Livingston's studies of mathematical reasoning tend to require deep familiarity with the subject matter beyond common practice, examples from the familiar everyday world are used here to illustrate the primacy of the social. One of the case studies Livingston (2008) uses is the behavior of drivers at four-way intersections, traditionally studied in terms of individuals following (or not) social rules (law). These rules, however, do not explain how people get through intersections because, as a recent study showed, only 13.6 % of drivers actually came to a complete stop that the law specifies (Austin et al. 2006). Moreover, the same individuals sometimes do (e.g., with others present in the car) and sometimes do not stop *in the same kind of traffic situation*. On the other hand, drivers of cars approaching lone intersections not only check for the presence of others but also, in so doing, exhibit to and for (absent) others that they are checking: they actively look for and act to maintain a visible social order; and they do so in ways that can be seen to be orienting to the visibility of the social.

Consistent with the cultural-historical recognition that the soci(et)al nature of humans does not reveal itself (easily) when researchers gaze exclusively at individuals (Holzkamp 1979), Livingston (2008) finds that the ways in which drivers cross four-way intersections is difficult (but not impossible) to constitute from observations of intersections when there are only single cars.[2] Any observation of individuals leaves unanswered questions about the social, for example, about how multiple drivers coming from different directions make the crossing orderly and observable (Livingston 2008). On the other hand, observing crowded four-way stop intersections makes intelligible how cars traverse lonely intersections. Observing what drivers do at crowded intersections exhibits their mutual orientation to each other and the ways in

[2] Livingston is unfamiliar with the work of Vygotsky (email, May 2015)

which they exhibit their orientations. A driver, in not taking her turn, provides another with the opportunity to enter the intersection next. And if this opportunity is not taken, she might even wave to incite the other to proceed and, thereby, makes an intention to wait even more explicit and available for anyone else to see. Drivers actively monitor the order in which other cars arrive to determine who has the next turn and when their own turns to enter have arrived. More importantly, they exhibit such monitoring to others and, if a breech has occurred, may make available to others (by means of the horn) that they indeed have monitored the social. When there are no other cars around (e.g., during the wee hours of the morning), drivers may cross the intersection without ever coming to a stop—but not without monitoring the situation, gazing at the other streets before dashing across and exhibiting their gazing to others. That is, precisely because we exhibit for others what is required to drive in ways that maintain an orderly context, some may exploit the situation to enter an intersection before it is their turn; and what we exhibit inherently and necessarily is (the) social. We may summarize this by saying that *automobilists drive in ways that maintain the conditions to drive in these ways*.

We may also observe the mutual monitoring of, orienting to, and contributing to the maintenance of the order in situations where pedestrians are involved, such as at crossings that have a flashing signal light that turns on as soon as the button is pushed. Most drivers (in western Canada at least) will slow down once pedestrians have set foot on the pavement—even if the flashing has not been initiated. In slowing, they make visible the intention to let the pedestrians cross. Others may continue at their current speed, perhaps even accelerate a bit. An intention to continue is made visible despite the pedestrian's presence on the crossing; the intention exists objectively, and a pair of pedestrians may even talk about the driver "trying to force his way" (as it happened to me recently). If the pedestrian nevertheless continues crossing the street, the car may slow down (thereby exhibiting attention to the pedestrian's visible intention to continue) or move toward the center of the road while accelerating (thereby manifesting an intention or wish not to stop). The pedestrian, attending to the car, may stop letting the car pass prior to continuing; but the pedestrian may not stop but, in continuing to walk, exhibit the intention to cross the road before the car. As in the example Livingston (2008) provides, the social nature is not (easily) apparent in studying a lonely crossing—were it not, for example, for the often slight head movements of pedestrians prior to entering the street.

Competent members of society *do* monitor what others do and provide everything required for others to witness what they themselves are (intend to be) doing. *They orient to and act for the visibility of the social*. Children, on the other hand, do not yet monitor and therefore sometimes get hit playing on or near a road; and they do not act to manifest that they monitor the situation. Not surprisingly, perhaps, we find around schools (in Canada) special signals set up for cars to slow down or special signs families placed on the (neighborhood) street to indicate children at play. Development is seen when children begin to attend to the visible social order; and they do so by coming to know not only how to act in ways that exhibit this order but also by coming to know how to exhibit that they do orient to the social order. Thus, adolescents playing street soccer or hockey can be found to step aside gaze directed to the oncoming car, thereby making available their orientation to the social in addition to making space for the car to pass. In this case, a process of *socio*genesis has occurred

that is to be studied using a sociogenetic method. I exemplify this approach in the context of a geometry curriculum for second-grade children.

*Socio*genesis of Mathematical Reasoning and Norms

> There is nothing outside us that would not be simultaneously within us.
>
> — Johann Wolfgang Goethe
>
> (in Eckermann 1836, p. 331)

In his elaborations on where Vygotsky was heading with his theory while working on his last manuscripts, Mikhailov (2001, 2004) makes reference to the Goethe aphorism above to underscore the Spinozist underpinnings of this work: the identity/unity of the internal (individual social) and external (collective social). Here, speaking of the *external* means to speak of the visibly social—as opposed to invisible, underlying factors that often enter sociological and social psychological studies and that require special (scientific) methods to detect (Garfinkel 1996). In this section, I show that a form of mathematical reasoning, which eventually is seen in the actions of the child participant, first *exists as* (as opposed to merely *in*) a social relation.

Mathematical reasoning is social through and through. This is so not because people get together and negotiate something, in the ways that social-constructivist studies of "socio-mathematical norms" suggest (e.g., Cobb & Tzou, 2009). Instead, it is because what first is a social relation eventually shows up as a higher function, that is, it shows up *as if* it were individual. This does not mean that every social relation becomes a higher function but instead that a higher function necessarily was a social relation with another person: the social relation is a necessary condition for any higher function. This assertion is exemplified in the following fragment from a second-grade mathematics lesson at the beginning of which the teacher announces that the class would be starting a unit on geometry. In this fragment, mathematical-geometrical practice is instantiated in achieving a tie between a sorting action (classification) and an associated justification (verbal account). In this tie of action and verbal account exists the specifically *social* nature of *mathematics* (Livingston, 1986). Applied to elementary mathematics lessons, classifications are specifically *mathematical* when some *classificatory act* (placing an object with other "like" objects) is tied to an *account* that is typical of mathematics rather than of some other subject (e.g., size in science or color in the fine arts).[3]

In the lesson fragment, Sylvia, following the teacher's (Mrs. Winter) invitation to "come, pick one out . . . and decide, 'Does it go with one of those [mats with objects] or does it get a new category?'," is taking an object from a black plastic bag, gazes at it, and then places it on a mat where there is a cylinder (turn 02). She has already retreated

[3] In other practices, such as fish hatcheries, sorting may be done without verbally stated rules for distinguishing one category of fish from another; and yet workers know when a fish is not in the right category and will correct placement (Roth 2005).

to her seat, when Mrs. Winter offers up an invitation / instruction to Sylvia to tell the reason for the categorization (turn 04). After a pause, Sylvia accepts the invitation by saying that both objects on the mat (cylinders) have a circular shape at their ends (turn 06). Mrs. Winter uses the interjection "okay" expressing assent even before Sylvia finished her statement (turn 07); and she then offers up the opportunity for others to add (turn 09). In so doing, she de facto accepts what Sylvia has said, for, as other situations in the same lesson show, Mrs. Winter would ask a student to reconsider the placement or the reason until (a) the object has found what will have been its final place on the floor and (b) the reason includes something about shape (rather than the size or color many children volunteered).

Fragment 1

01 W: Sylvia (0.6) come and pick one out (0.5) come and pick one out (1.7) °b'don't peek° (1.6) and you decIDE does it go with ONE of those ((*points to existing groups*)) or does it get a new category.

→ 02 S: (9.0) ((*comes forward, takes an object from the plastic bag, a blue cylinder. Places it on the orange paper next to the yellow cylinder*)) →

03 (0.8)

→ 04 W: and tell us why you chose that category.

05 (0.6)

→ 06 S: because (0.6) um (0.5) THEY = are the same (1.1) because .hh this ONE (0.4) has (0.4) it's like a circle ((*cups the cylinder around and places her hand over the top of the cylinder*)) (0.4) and it has (0.4) the same way

07 W: okay

08 S: of that one [((*moves her hand over the top of each cylinder*))

09 (1.4)

10 W: anybody else want to add something to that,

Here, the tie between classificatory action (i.e., placement one of the mats that already has another object) and the verbal account (justification) exist in the sequentially ordered turns at talk. First the child classifies (turn 02). Then, following a pause, Mrs. Winter requests a reason (turn 04). In the very fact that she requests a reason, she also marks the preceding action as insufficient: the "and" (turn 04) followed by a pause, a designedly open statement typical of teacher-student relations (Koshik 2002; Roth and Thom 2009), both accepts what has been done and marks something else that has to be added, which is specified by the remainder of the phrase. It is not that Mrs. Winter has some private wish for the child to add but instead, the invitation to add exists as social fact (in the sense of Durkheim 1919). The child accepts the invitation and provides a justification (turn 06). Finally, Mrs. Winter accepts in inviting others to state whether they have anything to *add* (turn 07, turn 10). She then selects the next student to have his turn. There is more for Sylvia and her peers to find out: by the very fact that the classification and its justification are left without challenge, the appropriateness of both is made

visible. In other instances, for example when a child said that one object is larger than another, a revision was produced after Mrs. Winter (a) reiterated that in this task, they were not sorting by size or color and (b) invited the student to try again.

Here, the mathematical reasoning—classification + verbal account (justification)—existed *as* a social relation. One week later, Sylvia was exhibiting the same classification associated with mathematical reasoning on her own but again in public and again directed towards others. The event was recorded during a task that asked children to build a plasticine model of an object hidden from view in a shoebox, which, having a veil over its opening, allowed the children only to touch but not see the mystery object. In Sylvia's group, a divergence emerged. Melissa had shaped a cubical model, whereas Jane and Sylvia had rectangular solids. Sylvia told Melissa that it could not be a cube because of how the object felt like, which she exhibited in a Catholic prayer-like folding of the hands (Fig. 1a); and she added that when held in the other direction it felt narrow, which she made visible by means of another, caliper-like hand gesture (Fig. 1b). In this situation, the classification of the object was associated with an account in the form of gestures. A search for the origin of this tie between a classificatory action and account, mathematical reasoning, would lead us to the situation weeks before, where it existed as social relation. Now again, it was exhibited in the visibility of reason made available to Melissa and Jane (as well as researchers). It is not just that Sylvie produces the tie because it is part of her psychological structure; instead, the tie is again produced as a social fact. It would be a social fact even if she were making this tie in her private notebook (Vygotsky 1989).

The classificatory act and its (verbal) account together constitute a pair. Here, it initially is not the single student producing (constructing) the pair. Instead it exists in the form of an exchange relation with five turns. The ordered sequence has three teacher (*T*) slots and two student slots (*S*): T-S-T-S-T. In this sequence, there are four connected pairs of turns: (a) an invitation | acceptance to categorize (turn 01 | turn 02); (b) a student categorization | acknowledgement that the categorization was done but insufficient ("and") (turn 02 | turn 04); (c) an invitation to state the reason, which further functions as an evaluation that the classification alone does not suffice | acceptance of the invitation (turn 04 | turn 06); and (d) a statement of reason | evaluation thereof (turn 06 | turns 07 and 10). The verbal exchange *is* the (reciprocal) relation between speaker and recipient, each acting/speaking *for* the other—who is monitoring and who is known to be monitoring the action—using communicative resources that have come to both from the generalized other.

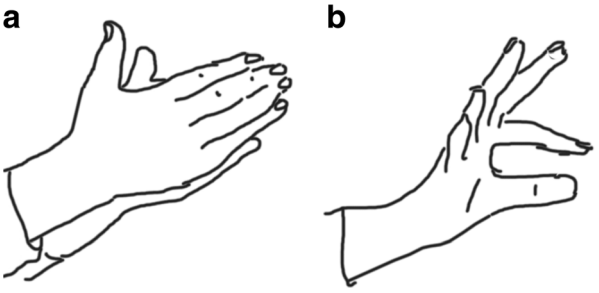

Fig. 1 Two hand gestures provide images of the flat surface (a) and narrow thickness (b) of a rectangular sold (slab) in support of the contention that the mystery object cannot be of cubical form

In the preceding paragraphs, I analyze a conversation. The turn pair is taken as the smallest *unit* of a conversation (social relation) that retains all the *dialogical* characteristics of a conversation. Each turn pair is irreducible and constitutes a unit of joint (social) work that cannot be broken down without loosing the function of single turn: the *individual* statement is a *sociological* phenomenon (Vološinov 1930) because it returns language that has come *from* the other *to* and *for* the other (Derrida 1996). It is only when we take into account the recipients that the word is a reality for two (Vološinov 1930; Vygotsky 1987), as apparent from the following more complete partial transcription of Fragment 1 that takes into account the active reception (grey):

Fragment 2

04 W: [and tell us why you chose that category.]
→ 06 S: [and tell us why you chose that category.] (0.6) because (0.6) um (0.5) THEY=are the same (1.1) because .hh this ONE (0.4) has (0.4) it's like a circle

We cannot understand why Sylvie says what she says unless we take into account what she has heard (grey); and a short hand for transcribing a conversation is by attributing what she heard to the speaking of another person. This is the reason for analyzing pair of turns—each turn is both a psychological and sociological fact (Roth 2014a; Vološinov 1930). I elaborate on this aspect in the following.

Sylvia's response includes an active reception (grey) and the actual reply. As a whole, therefore, the response includes two voices. These two voices, visible in the representation as part of the same turn 06, are available in the (normal) shorthand transcription of Fragment 1 across two turns. That same turn includes a part that has come from Mr. Winter and a part that is produced *for* Mrs. Winter and the present societal context, which shapes semantics, syntax, and phonetics of the reply part (e.g., Roth 2014b). What Mrs. Winter says and Sylvia hears is not something that can be attributed solely to the former because she specifically speaks for the latter, to be heard and comprehended, so that the latter can reply. That phrase *does not mediate* between the two subjects in the way Vygotsky (1989) suggests using triangles but is part of an immediate, inherently shared (semantic, sense-giving) speech field (El'konin 1994; Mikhailov 2001).[4] That is, communicative work is social *not* because individuals do something together, one individual action sequentially placed next to another. Two actions do not inherently form a sequence. Instead, communicative (dialogical) work is social because each turn constitutes a social relation with parts that mutually determine each other and that are irreducible to logical or semantic signifier–signified relations (Bakhtin 1984). From the perspective of the communicative exchange a single speaking turn means nothing; instead, a question is a question because there is a reply, and a reply is a reply because there is a question. This dialogical relation exists between the speakers (turn pairs) and within each speaker, as the response that consists of what is heard and what is said.

If we were presented with a single speaking turn only, we would be unable to state what its function in the conversation is—e.g., "pick one out" may be a command,

[4] "In the late Vygotsky, the sign, as a strictly mental (intimately subjective) organ . . . has once and for always lost the role of mediator between subject and object, response and stimulus" (Mikhailov 2001, p. 18).

invitation, question, statement, or reply, depending on intonation and situation, grammatically in part marked by means of punctuation. That is, the function of a statement in a verbal exchange is a *sociological* fact; and it cannot be derived from the linguistic properties of the statement (Vološinov, 1930). Fragment 2 makes visible why the turn pair has to be taken as the minimum unit of analysis, because what Sylvia hears has to be taken into account to make her statement intelligible. One proxy for what she hears exists in the statement Mrs. Winter makes; the other proxy exists in what Sylvia says.

Mrs. Winter's intervention (turn 04) occurs between, but is irremediably tied to, Sylvia's first (turn 02) and second turns (turn 06); their relationship exists *as* this ordered sequence of communicative turns. If different speakers were to say the same words in the same sequence, then a very different event would be observed: The slots in the ordered turn sequence also constitute a social order between participants. When Sylvia later classifies and provides justification in the exchange with her group mates, the middle turn has become invisible. But the relations of the social order "remain quasi-social" (Vygotsky 1989, p. 59), that is, quasi-external; in the traffic situation, even if there is a lone car, drivers to orient to (looking and acting for) the social (Livingston, 2008). If for one or another reason Sylvia were not providing an account in the future, anyone could challenge here and ask for her reason—as was reported from a group of scientists engaged in the classification of retinal cells for the purpose of selecting those to be used in data collection (Roth 2004). The articulation of a justificatory account (reason) without the intervention of another person simply means that the request no longer has to be explicitly stated; in providing a justification, the speaker orients to fulfilling the request even before it needs to be stated.

The provision of accounts is one of the ways in which the intra-intersubjectivity of the common speech field is maintained, because individual reasons for acting always and already are concrete realizations of reasoning possibilities in the collectivity (Holzkamp 1983). The general structure of the work is "I do X *because* Y." No individual needs the second part—i.e., "because Y"—for herself. Instead, this second part of the structure always is for others. It constitutes a way of externalizing "*individual consciousness*," which indeed "*is a social-ideological fact*" (Vološinov 1930, p. 17, original emphasis, underline added). But it is an externalization for the Other, which, because it is for the *other*, already has to be intelligible and, thereby, makes a connection that the recipient also could have made. This is so because I could not justify an action to myself if I could not already justify it to others to whom I am an Other (Holzkamp 1983). Justifications (Ger. *Begründungen*) for action always are intrasubjective and intersubjective simultaneously. They therefore transcend the very dichotomy of inner (*self*) and outer (*other*), which are the residues of "the single process of their mutual generation" (Mikhailov 2001, p. 21).

We can see in this episode an order characteristic in human development (Vygotsky 1989). What is observed as ordered sequence of action, *as* an instance of Sylvia's mathematical reasoning, first was a means of acting on another before it is an action on oneself. In the fragment with Sylvia and Mrs. Winter, constituting a reason to account for an action first exists for others (Mrs. Winter and her classmates) before it existed for Sylvia herself (in subsequent lessons). What we observe is not a *construction*; instead, we observe an order of turns, each associated with a particular action directed towards the other. Sylvia already acts and provides a verbal account, though the latter is requested by and produced for Mrs. Winter.

On the Primacy of the Social

In the preceding section, we see how an ordered sequence of (classificatory and speaking) actions and speaking turns—a social relation—involving multiple persons later can be observed in the practical actions of an individual. The tie between action and its account, which constitutes a form of mathematical reasoning, exists *as* a social relation first. When I speak of the social, it originally (phylogenetically, ontogenetically) exists as an unmediated Being-with or simply *with* that is the condition of finding oneself as Being-there [*Dasein*] (Nancy 2008). The social refers us to "*a relation generative of man [that] is nothing other than the affective, sense-giving relation of our animal forebears, in the first instance, toward one another*" (Mikhailov 2001, p. 26). The social therefore precedes the distinction of self and other, individual and collective; it is the condition rather than the result of signs and sign use.

The preceding examples from everyday life (four-way intersection, pedestrian crossing) exhibit the primacy of the social, whereas the classroom example shows how and why mathematical reasoning emerges in *socio*genesis (a social relation becomes a characteristic of the individual). Sociogenesis and the primacy of the social mutually imply each other. This framing is rather different from the ways in which going social constructivist and sociocultural constitute the issue; but it is consistent with the primacy of the social. In the following subsections I elaborate on both of these points. A third subsection articulates some findings that are consistent with, and require, the primacy of the social.

Takes on the Social to be Overcome

It is common to read claims about the role of the social in terms of *socialization* or *internalization* of the socially constructed, neither of which represents the primacy of the social (Mikhailov 2004). Thus, scholars write that (a) the "Mind is intrapersonally constructed on the basis of interpersonal problem-solving" (Yingling 1994, p. 124); (b) "Vygotsky's philosophy includes an interpersonal psychology that involves *learning* from other members of society while engaging in social interactions" (Burkholder and Peláez 2000, p. 7); or (c) "a thread that runs through all of Vygotsky's . . . writings is the role of the social environment in the learning process. He continually stresses, from his earliest to his most recent work, that learning occurs in a social setting" (Rogan 2006, p. 445). Such research studies might describe what happens in Fragment 1 above as the social construction of mathematical practice. But readers can see that nothing like a construction was occurring. To construct anything, reasoning or socio-mathematical norms, Sylvia and her classmates would have had to have something like a plan, which they could not because this special form of mathematical reasoning and norms were theirs only after some time.

One of two scenarios tends to be used to describe the development of the individual (ontogenesis) (Mikhailov 2001). In the first, there are natural laws of development that are mediated by the social environment. Sylvia's development would have been described in terms of *adaptation* and *socialization,* two key terms of an untenable (biological, Piagetian) version of ontogenesis (Vygotsky 1987). We find this idea in various forms of constructivism, based on the idea of the self-construction (autopoiesis)

of the individual, which, to bring culture into play, is influenced by processes in the social environment. Thus, researchers might claim that Mrs. Winter scaffolded *Sylvia's* construction of this form of reasoning; here, Sylvia would have done the construction and Mrs. Winter only assisted. In the second scenario, natural processes of development are only a substrate; development occurs through the *internalization* of initially alien cultural stereotypes (Mikhailov 2001). Research might suggest that Sylvia internalized what somehow existed outside and independent of her. But something alien cannot ever be internalized (Waldenfels 2006); the *socio*genesis appears to be a better alternative. As a result of these two scenarios, development tends to be viewed as the coming together of two very different principles (orders), one biological, and the other cultural. In the Spinozist approach, both aspects are manifestations "of *one and the same* principle" (Mikhailov 2001, p. 14, original emphasis). As a result, "[man] is part of nature, his behavior is a natural process, and controlling it forms like all control of nature. . . . Not in vain does Bacon place control of nature and control of intellect in *one order*" (Vygotsky 1999, p. 218, emphasis added).

Other common applications of either scenario exist in the research literature, where authors, for example, write about the social construction of (a) identity (e.g., Wong 2015), (b) science culture (e.g., Inan et al. 2010), or (c) conceptual understanding (e.g., Bellochi et al. 2014). The same direction can be recognized in the going versions of sociocultural and social constructivist approaches in educational research, where important aspects of classroom life, including "meaning," "social (e.g., socio-mathematical) norms," "knowledge," and identity are said to be "negotiated." But when the primacy of the social is acknowledged, personality (identity) *is* the ensemble of societal relations an individual has entertained (Leont'ev 1978; Marx/Engels 1978; Vygotsky 1989). Moreover, as one critic of the traditional approach to the social suggests, students would not be able to "negotiate" something like classroom norms or socio-mathematical norms that (mathematics) educators write about unless they already were in possession of versions of such norms that could then be debated to reach consensus (e.g., Radford 2008; Radford and Roth 2011). Another critique notes that "meaning" in Vygotsky's late work always already is "co-meaning" (Veresov 2005). The sociability of classroom processes, according to Radford, cannot be understood in terms of negotiation where the stakeholders, students or teachers, invest some form of capital (e.g., "meaning") for the purpose of accruing more of it. This cannot explicate the origins of the "meanings" and norms that students have and negotiate. It explicates even less the *social* in the social origins and nature of what students bring to the negotiation table.

Towards the Primacy of the Social

Vygotsky came to realize that consciousness—the highest, specifically human characteristic of the psyche (Leont'ev 1978)—is a consequence of living in society (culture). Somehow contradictorily, he appears to focus on the individual all the while stating that "the psyche of an individual is social and socially conditioned" (Vygotsky 1925/1971, p. 14).[5] But he also recognized the role of biology in human development. What Sylvia

[5] Veresov (2005) points out, though, that at that time, Vygotsky had a more behavioristic understanding of the relation between individual and collective.

comes to do is not the result of her own subjectivity but is an individual realization of collective possibilities, which she has experienced in the relation with Mrs. Winter. To solve the problem of an integrative approach to the development of the psyche, Vygotsky, towards the end of his life, turned to Spinoza. This enabled him to move away from his earlier approach premised on the "logical-methodological *mediating* intentions" (Mikhailov 2001, p. 16) of signs to the idea of the irreducible unity/identity [edinstvo] of the biological and the cultural and the associated differentiation between inner and outer, self and other.[6] Because of his early death, Vygotsky never was in a position to work out his newly developing approach that he was writing and talking about in his final days (Yaroshevsky 1999). There are in fact contradictions in "Concrete Human Psychology" (Vygotsky 1989), which contains statements (diagrams) about the mediational nature of the sign and the conceptual seeds for departing from it. The unity/identity of self and other—i.e., individual and collective—would have been among the "truly realistic conclusions that would have inevitably emanated from this by no means 'sudden realization' [of Spinoza's *one substance*]" (Mikhailov 2001, p. 11).

Already in *Psychology of Art* (Vygotsky 1925/1971), a difference is articulated between the traditional psychological approaches, where the assumption is made that a collective psyche is the result of the coming together of individual psyches.[7] In his view, society is the result of an inner necessity (affordances from the collective provision of needs), which makes it that individual subjectivity is possible only when there is collective subjectivity (Holzkamp 1979). Thus, individual psychology is social psychology rather than the other way around: As a result, "everything within us is social, but this does not imply that all the properties of the psyche of an individual are inherent in *all other members* of this group as well" (Vygotsky 1925/1971, p. 17, emphasis added). In this dialectical approach, no single property has to be in common among all members of a group to make them a group, just as the category of family does not require that any two individuals share at least one common property. Coming from a very different theoretical background, Livingston (2008) has very similar concerns, which he expresses with respect to "constructionist versions of the sociology of scientific knowledge" (p. 212). Although the literature is replete with evidence of the various influences on knowledge claims, including race, gender, laboratory practices, and normative behavior, the problem of specifying the social remains: "the social character of domain-specific skills and reasoning may only be an *incidental* feature of scientific discovery" (p. 212, emphasis added). As a consequence, "the social, while situationally unavoidable appears as added on to worldly truths independent of it" (p. 212).

Already Marx/Engels (1978) stated that what makes humans human is not something abstract inherent in the individual. Whatever we can find in students like Sylvia

[6] The final volume of *The Collected Works* (Vygotsky 1999), which focuses on Vygotsky's legacy, contains 293 occurrences of the name Spinoza.

[7] There is considerable confusion concerning the writings of Vygotsky, whose noun *psyche* and the related adjective *psychic* often are translated as "mind" and "mental," which do not include affect and, therefore, are inconsistent with the scholar's holistic categories and unit analysis. Rendering the Russian term *psixiki* as psyche would be more consistent with (a) other translations of the term, such as in the work of A. N. Leont'ev and (b) Vygotsky's own Spinozist approach. German translations render the term as "Psyche" (psyche) rather than "Geist" (mind).

that is specifically human is the result of relations she has had with other members of society. Thus, the specifically *human* in Sylvia, Mrs. Winter, and all of us exists as *societal* relations/ conditions (Ger. gesellschaftlichen *Verhältnisse*). Historically, humanity has arisen from relations within the hominid group (Holzkamp 1983; Mikhailov 2004). Human beings are the product of their relations with others since times that predated language. This attention to the others' behaviors and to acting such as to be attended to by another "creates the borderline situation in which the alien is identical with one's own and one's own exists as an experienced reality of Other" (Mikhailov 2001, p. 26). The person Sylvia then is not the result of a solipsistic effort of autopoiesis; instead, what she is and will be in the future exists in the ensemble of the social relations (including those with Mrs. Winter) she has lived—though not every relation will subsequently apparent in what she does.

A correlate of the primacy of the social is *reflexivity*, the fact that people behave in ways that maintain the conditions to behave in these same ways (Livingston, 2008). The examples of driving across four-way intersections and taking pedestrian crossings clearly exhibit this form of reflexivity. It is also made thematic in cultural-historical approaches, where human beings are said to be "determined *in their activity and consciousness by their objective life conditions*, and thereby by *the societal relations, which they create and transform in collective concrete labor*" (Holzkamp 1979, p. 8). This reflexivity leads to the fact that the sign no longer has mediating function but is "the subjective reality of an *inner voice*, born of its *externalization* for the Other, and thus also for oneself as for the Other within oneself" (Mikhailov 2001, p. 17). Therefore, the orderliness of our world arises from the fact that we make available for one another our *intra-intersubjectivity* to "reproduce and change the tension of that semantic-sensual field of our continual addresses to another," a semantic field referred to as culture (Mikhailov 2004, p. 31). Sylvia comes to reason mathematically when she pairs the classification of an object with a justification; and this reason comes to be valid for her as it has been for her teacher Mrs. Winter. In this way, the social order is *witnessable*, that is, available to every member of society contributing to making the social order visible, and, therefore, not requiring special (scientific) methods for identifying it. Humans monitor what others are doing and act in ways that make available to others, who also are monitoring the situation, their own sense of the situation.

Empirical Studies that Point to *Socio*genesis

In the context of his writing on developing a concrete human psychology, Vygotsky points to situations where sociogenesis and the primacy of the social relation are exhibited. While making his case, he writes about how a child learns to point (intentionally) (Vygotsky 1997b). First the child may attempt to grasp, or merely move in the direction of, an object, which turns out to be a little out of reach. When the mother or other adult takes this movement as pointing, takes up the object, and offers it to the child, she has given the movement a specific sense. Eventually, so Vygotsky, the child intentionally points when it desires an object that is out of its reach. More recent research has added that the mother may actually point to rather than pick up the object, and then orient to observe the child's reaction; the mother's pointing is what the child imitates (Kaye 1982). In this situation, it is the action of the mother (other), who

attributes to the (grasping) movement the sense of pointing. As a result, the child has found in its own actions what it is to point and, thereby, what it is to act upon others. Both phenomenological analyses and neuroscientific studies suggest that a person (here the child) can only see and therefore imitate a movement when it already is capable of the movement (Buccino et al., 2006; Henry 2000).[8] Vygotsky and Kaye note that the movement first is taken as a gesture by another person; in fact, it becomes an action upon and instruction for another person; and in giving the object to the child, the instruction (direction) has been followed. Later, the child begins "to regard this movement as a direction" when it connects "the unsuccessful grasping . . . with the whole objective situation, does he himself" (Vygotsky 1989, p. 105). At that instant, the child points for the purpose of being noticed by the other, who, in reaching the object, also affirms having attended to the pointing gesture.

There is an equivalent structure of development in word-use (Kaye 1982; Vygotsky 1997b). Again, the objective connection between a word and the situation first is a social relation: "the objective connection between the word and the thing must be functionally used by adults as a means of socializing with the child. Only then will the word also make sense to the child" (Vygotsky 1997b, p. 105). As a result, the signification of a word *first* exists for others; only then will it begin to exist for the child as well. An example can be found in the ethnographic description of first science reading situations involving a mother and her 1-year-old son (Roth, Goulart, and Plakitsi 2013). In the situation these authors describe, the son, sitting in the mother's lap, holds the book with the right hand, thumb placed on the picture of a ball and a bit bent. The mother says with rising intonation, "a ball on his head?," followed by the child's squealing, drawn out sound "gueen." There are three turns, in which the mother (twice) and child (once) produce similar sounding sounds until the mother says, "a, oh, green. Okay. You telling me the colors, uh." In this instance, the squealing "gueen" was asserted to be the name of the color (green). The authors note that experiential qualities, such as a color, come to be related to words. The social relation is the relation between the material object (in the way it appears to the senses) and the word. The word initially derives its sense from its relation to a thing; and this relation exists in the objective tie between the word (signifier) and the thing signified in that situation. The word later generalizes in the use of the individual to become a concept when it refers to multiple, often perceptually differing things. Such generalization of the word and the social intercourse where it is used together form a unity/identity (Vygotsky 1987). This relation between generalization and communication is made to stand out in Fragment 2, where the same phrase is shown to belong to different individuals (generalization across users), which is equivalent to the same word being used by the same person in different contexts (generalization across situations).

The primacy of the social and sociogenesis can be seen especially well in the development of the congenitally deaf-blind or children turned deaf-blind in the very early stages of their lives (Meshcheryakov 2009). In his report from one Soviet institution, the author describes the children prior to their innovative intervention as immobile and without initiative, sitting in the same place and same pose for hours.

[8] The neuroscientific studies suggest that mirror neurons are involved in the imitation of hand actions (Buccino et al. 2005); and these mirror neurons are themselves the result of movement habits that have previously been established.

Deprived of the senses that work at a distance, the children would not use their sense of touch to investigate their surroundings or to familiarize themselves with any objects close to them. Even "eating, dressing and undressing and the satisfaction of their most basic physiological needs are only carried out after external impulse, without which they processes concerned might be postponed in time until an extreme degree of need be reached, which in its turn would produce an outbreak of fury" (p. 53). Closed in upon themselves, the children did not seek nor have a need of contact with other people. They did nothing of the kind that constructivist epistemology attributes to the "natural" (biological) inclinations of the child.

Meshcheryakov provides long accounts of how some of the children learned to eat with spoons, which in every case involves a *physical* relation with another person—just as Vygotsky states in the quotation that opens this study. Every specifically human behavior that could be ascribed to a child first has been a real relation with another person.[9] For example, once children put food on the spoon and bring the spoon to the mouth, each of which was a joint (guided) movement before, they tended to drop the spoon. They only sought it again when done with chewing and swallowing the food. The teacher then was holding the child's hand and gradually loosening the hold until the child held onto the spoon until scooping up another bit to be lifted to the mouth. Holding on to the spoon here existed as a social relation before the child exhibited this behavior on its own. Adults guided the children with their hands to get them to touch the spoons while they were feeding themselves, and, in this, participated in the feeling the mediating role of the spoon. Even such things as properly chewing the food was a (physical) social relation first: a teacher would let the child feel a piece of food and would have the child hold his hand against the teacher's neck and cheek. The ability to communicate—writing, speaking, using finger spelling—was premised on the development of such self-care, and, as the latter, first exists in the form of social relations.

Implications

If soci(et)al relations *are* the first instantiation of subsequently observed higher psychological functions and aspects of personality, then there are far-reaching consequences for practice and research. Consistent with the take of primacy of the social taken here, the important aspect of Vygotsky's framing is that higher functions *are* relations rather than that these functions (e.g., reasoning) appear *in* relations, where they can be picked up to be internalized by the individual (Veresov 2005). The featured classroom fragment shows that what initially is the joint work involving two individuals (Mrs. Winter + Sylvia) later is the work (reasoning) done by one individual (Sylvia). That work never loses its social nature, which would be apparent in situations where Sylvia, doing mathematics by herself, would produce the work of mathematical reasoning as if it were for another. In ethnomethodological studies, this has led to the method of provoking the production of accounts (in breeching experiments) or in investigating situations of breakdown, that is, instances where the normal ways of doing things are disrupted for empirical or "natural" reasons (e.g., Garfinkel 1967; Suchman 2007).

[9] This does not imply that every relation will be a psychological function.

Developing some of the implications of the late Vygotsky—articulated in the text entitled "The Teaching about Emotions" (Vygotsky 1999)—Mikhailov (2001) notes the inherent fusion of intra- and intersubjectivity: "The real–ideal intersubjective field of their common '*co-spirituality*,' the universal forms of their shared culture . . . are continuously created and perfected by these same behavioral acts" (p. 20). That is, the intersubjective field, which manifests itself in real material and ideal forms, is constituted by and exists in the form of co-spirituality, continuously created intra-intersubjectivity. The upshot of this Spinozist approach is that "there is nothing *other* for us from the outset that would not be our *own*" (p. 20). Everything that we relate within ourselves is given not as an ensemble of mediators between nature and ourselves but, in fact, as subjectively our *own* because it subjectively is everyone's. That very distinction of self and other has its genetic origin in an undifferentiated *being-with* that precedes and is the condition of self- and other-awareness (Mikhailov 2001; Nancy 2008).

It is common knowledge that lower social classes are underrepresented at the tertiary (college, university) level (e.g., Baum and Flores 2011; Stich and Freie 2016). There are many programs and studies designed to assist students from working-class, immigrant, and cultural-minority families. For example, the University of Boulder's Center for Youth in Science, Culture, & New Media (Cy.scan) directed by M. Eisenhart has a project for eighth-grade African American girls to attract more of them to the sciences and allow them to construct science identities (Thieman-Dino 2007). But if higher psychological functions and personality are grounded in the (ensemble of) social relations of a person, then such programs, as laudable as they are, may not make up for the differences between those relations experienced by children from middle-class families in the course of their entire lives—relations that are reinforced and positively validated in school culture (Eckert 1989). Thus, for example, in middle class families, it is quite normal that parents and their children read (science) from the earliest of ages, before children use words and speak. The forms of soci(et)al relations continue to be different for children and students when they enter school. Consistent with existing research, working-class students find their forms of relating to others disrupted, whereas middle-class students experience continuity with the social relations outside of school (Eckert 1989). As soon as working-class students become aware of their different social relations, they may use these actively to further distinguish themselves from school culture and its middle-class norms, which leads to further conflicts with teachers (Willis 1977). It is not by accident that Willis would start his text with a quotation that emphasizes the social relations as historical products, which produce the development of individuals. As a result of their social relations, working-class lads develop working-class personalities (identities) and end up in working-class jobs.

For educational and psychological research, there are also considerable consequences. One implication is that if social relations are the genetic origin of higher functions, then "it is ridiculous to look for specific centers of higher psychological functions or supreme functions in the cortex" (Vygotsky 1989, p. 59). Researchers no longer need to speculate about the contents and structure of mind treated as a black box. Instead, because all higher psychological functions are at some point real relations between people, researchers may engage in anthropological endeavors to find out about the functions and their relations to other functions. Moreover, these functions "must be explained not on the basis of *internal* organic relations . . . but in *external* terms" (p. 59), and "the basic principle of the functioning of higher functions is social" (p. 59). These statements have immediate methodological consequences for educational

researchers and developmental psychologists: they have to find moments in the lives of children and student where they engage in social relations that later show up as higher psychological functions, accepting that not all relations will become functions (Veresov 2005). In the present study, an example of this approach is provided in Fragment 1.

In questioning how to study the primacy of the social and sociogenesis, researchers may also turn to ethnomethodology, a form of sociology, where such an orientation already exists as expressed in book titles such as *Anthropology of Reading* (Livingston 1995) or *Ethnographies of Reason* (Livingston 2008). As other "*sociologies of the witnessable social order*," ethnomethodology "examine[s] how members of society produce and sustain the observable orderliness of their own actions" (p. 124). In this context, two research directives characterize the primacy of the social: "first, to find the social in and as those technical details and, second, to rediscover the social, interactional settings of," for example, "proving, physical experimentation, and playing checkers as the primordial and sustaining grounds of mathematics, physics, and checkers" (p. 205). Educational researchers and developmental psychologists have opportunities to investigate the transition from the social relation to the moment when the relation appears as "skill" by following children, such as Sylvia, for the time required (e.g., in the study this transition occurred, for Sylvia, over the course of 7 lessons).

Accepting the primacy of the social implies that researchers must not simply assert that something is social because it is observed in a group. Instead, they must show in which some phenomenon, such as mathematical reasoning or a physics demonstration *is* (*essentially*) social so that "its social character is neither incidental . . . nor a matter of argument . . . but present to practitioners" (Livingston 2008, p. 212) as the witnessed details of mathematical reasoning or demonstration. The primacy of the social, then, is a directive orienting researchers to find and exhibit the social as an *irremediable* (rather than coincidental) aspect of the phenomenon. The social of reasoning or demonstrating is not presupposed but discovered. The sociogenetic method is a prime candidate to find the development of the psyche is a process of becoming social.

Coda

School classrooms are societally specific, cultural places, involving gatherings of individuals placed their based on administrative reasons. It is trivial to state that knowledge, meaning, or norms are social because they are the results of what happens in such social places or because it is the result of people talking (negotiating) something into being. The challenge for researchers lies in following the directive to discover the social in existing practices or to study situations where what appears to be a cognitive skill exists as a social relation. The challenge for practitioners and educational systems lies in dealing with the fact that the children and students in their care differ biographically in the form and extent of their past and existing soci(et)al relations outside school, which show up as differences in the kinds of higher psychological functions and personalities (identities) that they manifest. Although income, race, or immigrant status of families is often used in explanatory schemes, the nature of the *social* relations in which students from such families participate are not the subject of psychological or sociological investigation. An attention to the primacy of the social would likely have to change this, from research, political, and practical perspectives.

An important implication of the primacy of the social is that thoughts, ideas, and reasoning do not pertain to the individual subjectivity and consciousness but are aspects of collective subjectivity and collective consciousness. This has serious consequences for the ways in which we think and theorize extreme situations in schools, for example, when students shoot students and teachers—the shooting at Columbine, which programs such as the above-mentioned Cy.scan addresses, is but the most notorious case.[10] If the forms of reasoning that go with or underlie such incidences are indeed reflections of the social order, then putting the individual away (life sentences, death penalty) will not address the real issue: the social relations that constitute their genetic origin. The primacy of the social and the sociogenetic method provide us (society) with new avenues for thinking about such tragic events in the life of society.

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[10] Wikipedia features a long list of citation-supported school shootings: http://en.wikipedia.org/wiki/List_of_school_shootings_in_the_United_States

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