

The Problem We All Live With

The Knowability of Black Girls, the Importance of Context, and Mathematical Chauvinism

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April 27, 2016

The studies I have described here make sense only in the context of mathematics. They focus on critical features of mathematical understanding: the nature of quantitative relationships, the meaning of symbolic representations, conceptions underlying advanced mathematical concepts, and the meaning of arithmetical expressions. Or they focus on mathematics that has been difficult for students to learn: solving word problems or proving generalizations. JRME publishes research in which mathematics is an essential component rather than being a backdrop for another area of inquiry. I encourage readers to continue to examine articles in JRME with the **“Where’s the math?”** question in mind.

—Heid (2010)

Editorial: Where’s the Math in (Math Education Research)



**Knowability
of
Black Girls**



**Mathematical
Chauvinism**









If schools are for all children to flourish, **then the individual child can be our unit of concern, but not our unit of analysis or reorganization.** Why should kids be the focus of change when it is the rest of us —the culture that is acquiring them—that arranges their trouble?

—McDermott & Varenne (2005)
Reconstructing Culture in Educational Research





To say that Black women, in an U.S. context, were almost ‘unknown’ was not to indicate that there were no stereotypical images of Black women in existence. Williams is well aware of negative portrayals of Black women as she writes numerous articles defending Black women in the face of transient, public opinions. **However, what provoked Black women’s general ‘unknowability’ was a paucity of resources within “fixed public opinion” that one could draw upon when interpreting Black women (Williams 1900/2007, 54).**

—Dotson (2013)
Knowing in Space



the study



Figure 1- Lamaresha throwing the peace sign.

Lamaresha defines the classroom dynamics and...



its effects on classroom learning.



The Mean Girls' social network gets complicated as competence mediates positions within the community of practice.

Maisie: Okay, so who are the kids that you play with the most?

Jenique: Mia, Heaven, and Lanae. And John. But I cannot play with Mia anymore because my score is a 66. And Mika –she on red. Her school real low—she and Heaven's score. **I gotta stop playing with them during** **two, but not Mia.** I can talk to her but not in school [but] afterschool. I'm on yellow.

How did a third grade, Black girls' social network influence patterns of participation within the mathematics classroom community?

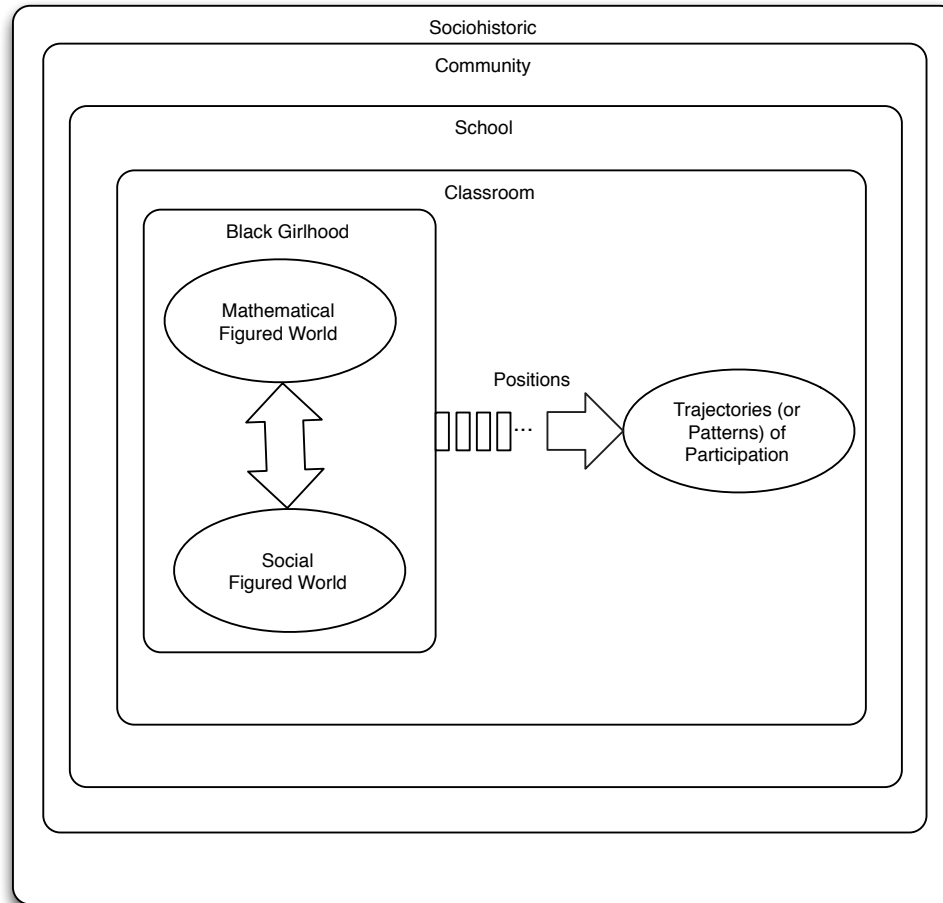
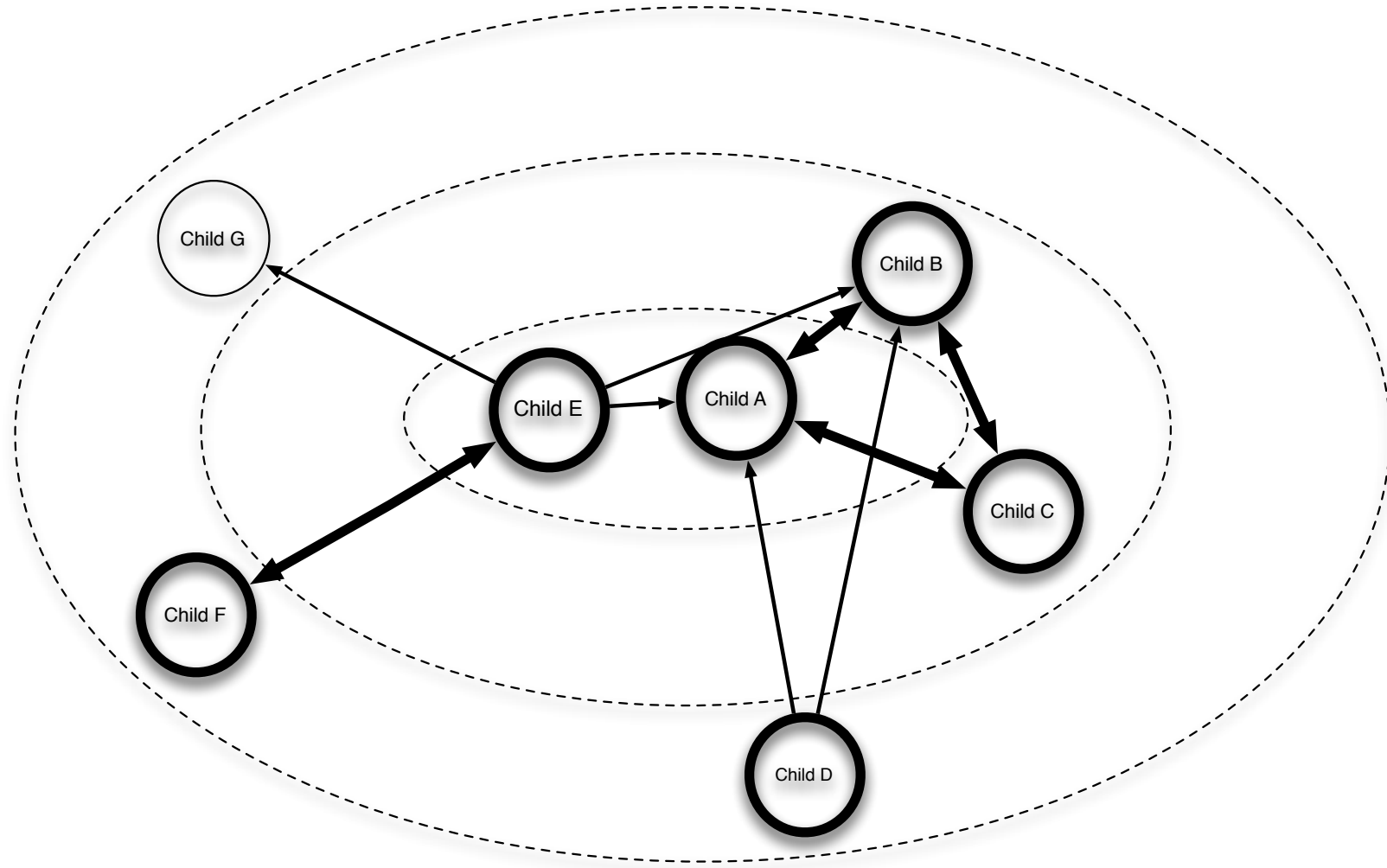


Figure 2-Conceptual map of the mediation of social and mathematical figured worlds.



Community of Practice ↔ Social Network

Figure 3-Example of relational ties within a community of practice

Methods

- Context
 - West side of Chicago
 - June Elementary School
 - Demographics: 99.4% Black/AA; 96.8% low-income
 - Strong Black cultural ethos
 - Rich-history in school integration
 - More recently enmeshed in school closure debate
- Participants
 - 1 Black/AA teacher of record (Ms. Jakki Robinson)
 - 13 Black/AA boys
 - 13 Black/AA girls
 - 6 girls interviewed as focal students (of varying competence)

The Girls in the Gradebook

Name	Race	Age in Yrs (Birth Month)	Math Grades and Test Scores				Attendance and Discipline Data	
			Final Math Grade	Test Score (Percentile Rank Nat'l)			Absences	Suspensions
				(BOY)	(MOY)	(EOY)		
Mia	Black/AA	9 (Sept)	91	56%	65%	84%	5	0
Jenique	Black/AA	9 (Apr)	88	24%	32%	53%	10	1
Brittany	Black/AA	9 (Jul)	84	24%	53%	59%	7	0
Shawna	Black/AA	9 (Mar)	84	47%	29%	--	8	2
Lamaresha	Black/AA	9 (Feb)	82	38%	29%	35%	20	0
Heaven	Black/AA	9 (Mar)	85	29%	38%	38%	29	0
Taylor	Black/AA	9 (Unknown)	65	< 1	6	< 1	6	0
Lanae	Black/AA	9 (Unknown)	71	17	10	27	10	0
Joi	Black/AA	9 (Unknown)	81	32	38	30	7	0
Aliyah	Black/AA	9 (Unknown)	68	3	6	3	10	0

Table 1-Demographic, achievement, attendance, and school discipline data.

The Girls in the Classroom

Name	Physical	Background	Gender	School
Mia the Model Student	Light brown-skinned; skinny & tall; long, braided plaits	Lives with grandmother and younger brother	Hyper-girlish	<ul style="list-style-type: none"> • “A” student; • regular attendance; • no discipline issues; • enjoys school; • considers herself to be good at school
Jenique the Enforcer	Medium-brown skinned; chubby & average height; long braided extensions or plaits	Lives with father and grandmother	Girlish	<ul style="list-style-type: none"> • “A/B” student; • regular attendance; • one major discipline issue; • ambivalent about school; • doesn’t consider herself to be one of the better students
Brittany the Helper	Dark-brown skinned; average-stature & tall; long braided plaits	Lives with mother, stepfather, and siblings	Hyper-girlish	<ul style="list-style-type: none"> • “B” student; • regular attendance; • no discipline problems; • loves school; • considers herself to be an improved student
Shawna the Bully	Medium-brown skinned; chubby & tall; short cornrow braids	Lives with mother and older sisters	Tomboyish	<ul style="list-style-type: none"> • “A/B” student; • minor attendance issues; • major discipline issues; • ambivalent about school; • does not consider herself to be a good student
Lamaresha the Enthusiast	Dark-brown skinned; skinny & short; semi-straightened hair worn in pony tails	Lives with aunt, mother, cousins, and siblings	Tomboyish	<ul style="list-style-type: none"> • “A/B” student; • major attendance issues • no discipline issues; • loves school; • considers herself to be a good student
Heaven the Fallen Party Girl	Medium-brown skinned; skinny & tall; short cornrows braids or afro-puffs	Lives with mother, father, and sisters	Girlish	<ul style="list-style-type: none"> • “A/B” student; • major attendance issues; • no major discipline issues; • enjoys school; • considers herself to be a perfect student

Table 2- Summary of focal girls.

Data Collection

Data Type	Quantity	Description Frequency
Classroom observation <i>(Video recordings with a stationary camera and moving camera)</i>	33 <i>(54 recordings; each 60 to 90 minutes)</i>	Every class visit throughout the year
Field notes	35 <i>(5-80 sheet steno pads)</i>	Every class visit throughout the year
Small group work (audio recordings)	80 <i>(each 30 to 90 minutes)</i>	During group work throughout the year
Student work	~500 pages	Every class visit throughout the year
Artifacts	~100 articles, including photographs, student drawings, or miscellaneous documents	Occasionally
Achievement data	3 district-benchmark tests, state-standardized annual scores, & classroom grades	Three sessions in fall, winter, and spring
Attendance data	Totals for the year	Once at end of the year
Student interviews of focal students <i>(video recordings)</i>	30 interviews <i>(3 interviews for each focal student)</i>	Three sessions in late summer, winter, and spring.
Teacher post-reflection interviews <i>(audio recordings)</i>	18 interviews	Occasionally (mostly in the fall)
Community artifacts	~50 articles, including letters, fliers, field notes & audio recording from community meeting, etc.	Occasionally

Table 3- Data collected in 3rd grade classroom.

Analytical Approach

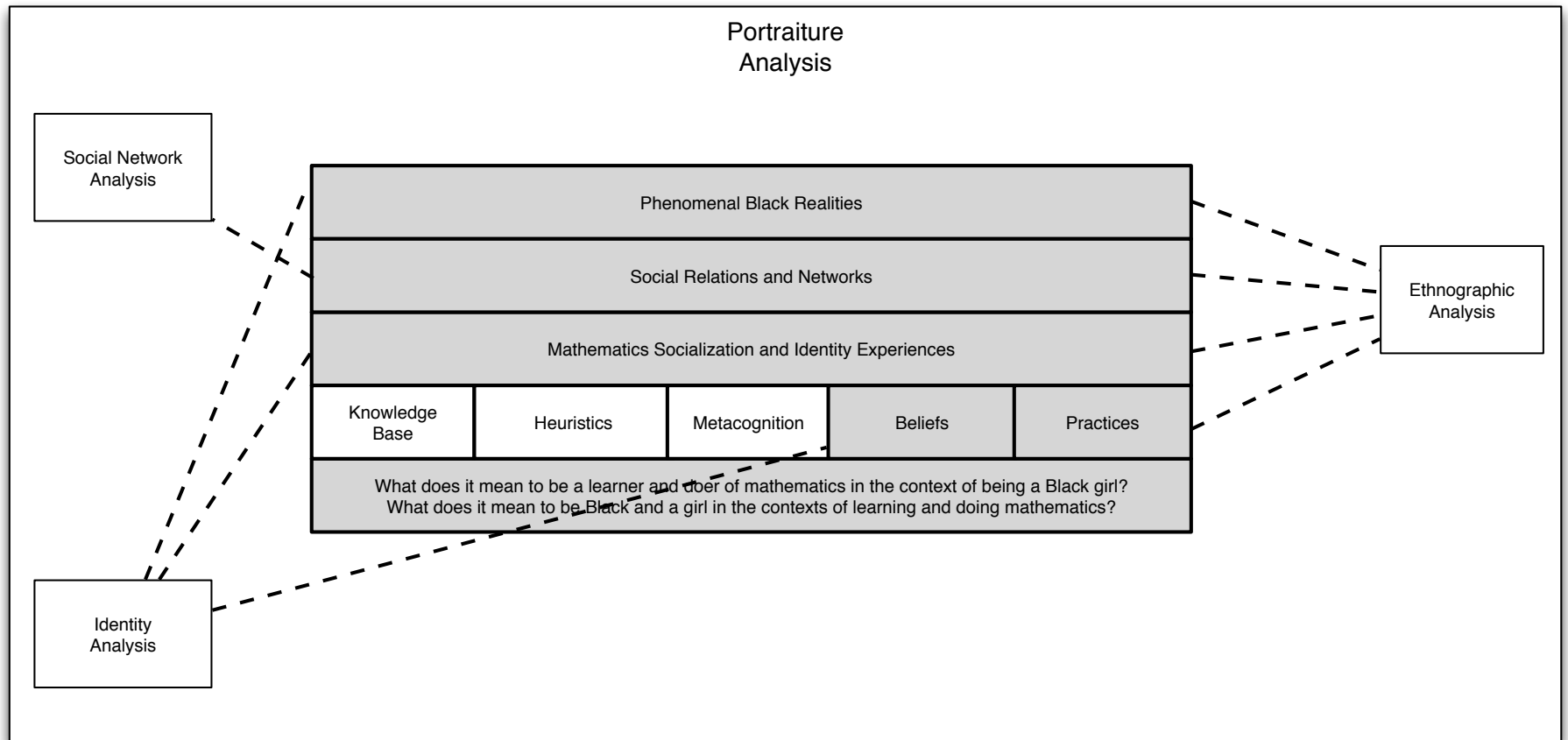


Figure 4-A modified integrated framework for studying "learning mathematics while a Black girl" (cf. Martin, 2012).

In this formulation, then, **I want to engage all of these theories [and methods] as visitors.** This comes from the recognition that going all the way home with many of these theoretical positions—feminism, post-modernism, nationalism, Afrocentrism, Marxism, etc.—means taking a route cluttered with skeletons, enslavements, new dominations, unresolved tensions and contradictions. **Following many of the theory/theorists “all the way home” inevitably places me in the “homes” of people where I, as a Black woman, will have to function either as maid or exotic, silenced courtesan, but definitely not as a theoretical equal.** Going all the way home with them means being installed in a distant place from my communities. I believe that the “visitor theory” approach offers a technique of interaction similar to the intention of “multiple articulations.” **It becomes a kind of critical relationality in which various theoretical positions are interrogated for their specific applicability to Black women [and girls’] experiences and textualities and negotiated within a particular inquiry with a *necessary eclecticism*.** It is a particular way of reading or writing the Black/female experience which plays on a variety of possible configurations. It is at once a process and a pattern of articulations. (p. 46)

—Davies (1994)

“Going a piece of the way”

Key Findings (in Mathematics Learning & Participation)

- The role of social groups in mathematics learning and participation
- The power of mathematical competence in social negotiation
- The power of social status in mathematics participation
- The periodicity of the girls' social and mathematical worlds
- The definition of school mathematics as the confluence of social and mathematical worlds

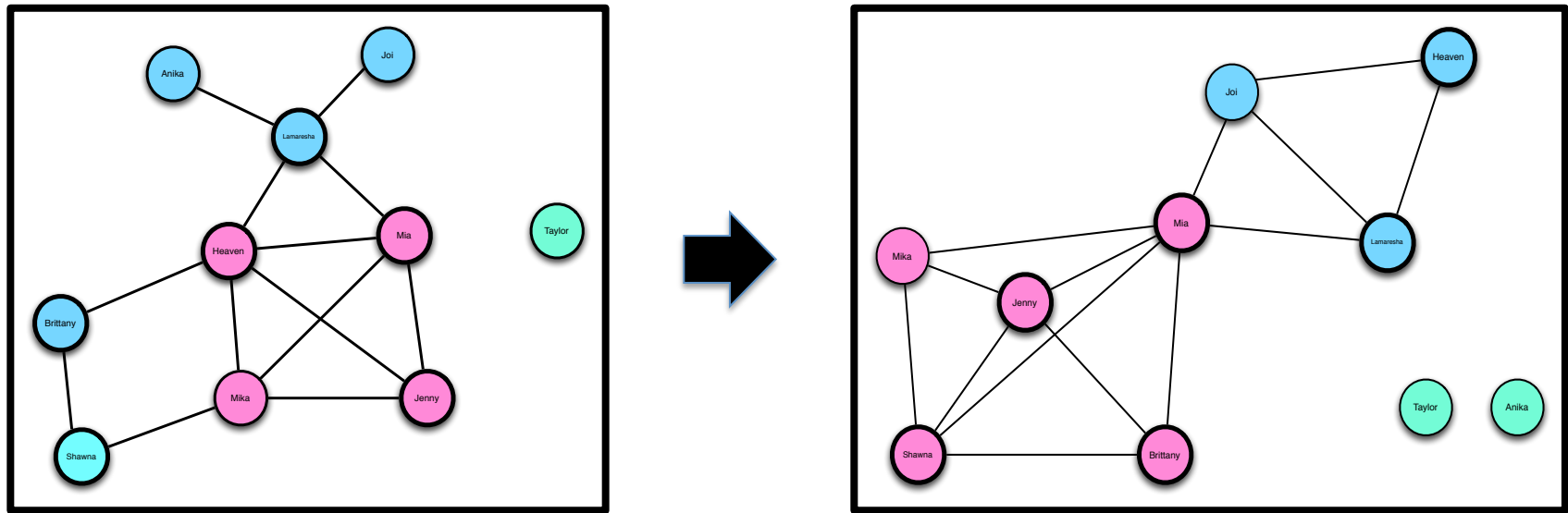


Figure 5- Between the fall and winter, the girls social network undergoes a major shift.












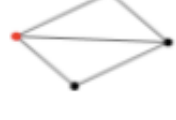
Node	Degree 1	Degree 2	Betwn 1	Betwn 2	Close 1	Close 2	Eigen 1	Eigen 2	Sub-graph 1	Sub-graph 2
Mia	4	5	4	12	.083	0.111	.174	0.172		
Jenique	3	4	0	1.33	.067	0.091	.148	0.168		
Heaven	5	2	10.5	0	.091	0.059	.190	0.040		
Brittany	2	4	1.5	1.33	.063	0.091	.072	0.168		
Shawna	2	4	.5	1.33	.053	0.091	.066	0.168		
Lamaresh	4	3	13	2.5	.077	0.083	.121	0.075		

Table 4-Node level centrality measures for BOY and MOY.

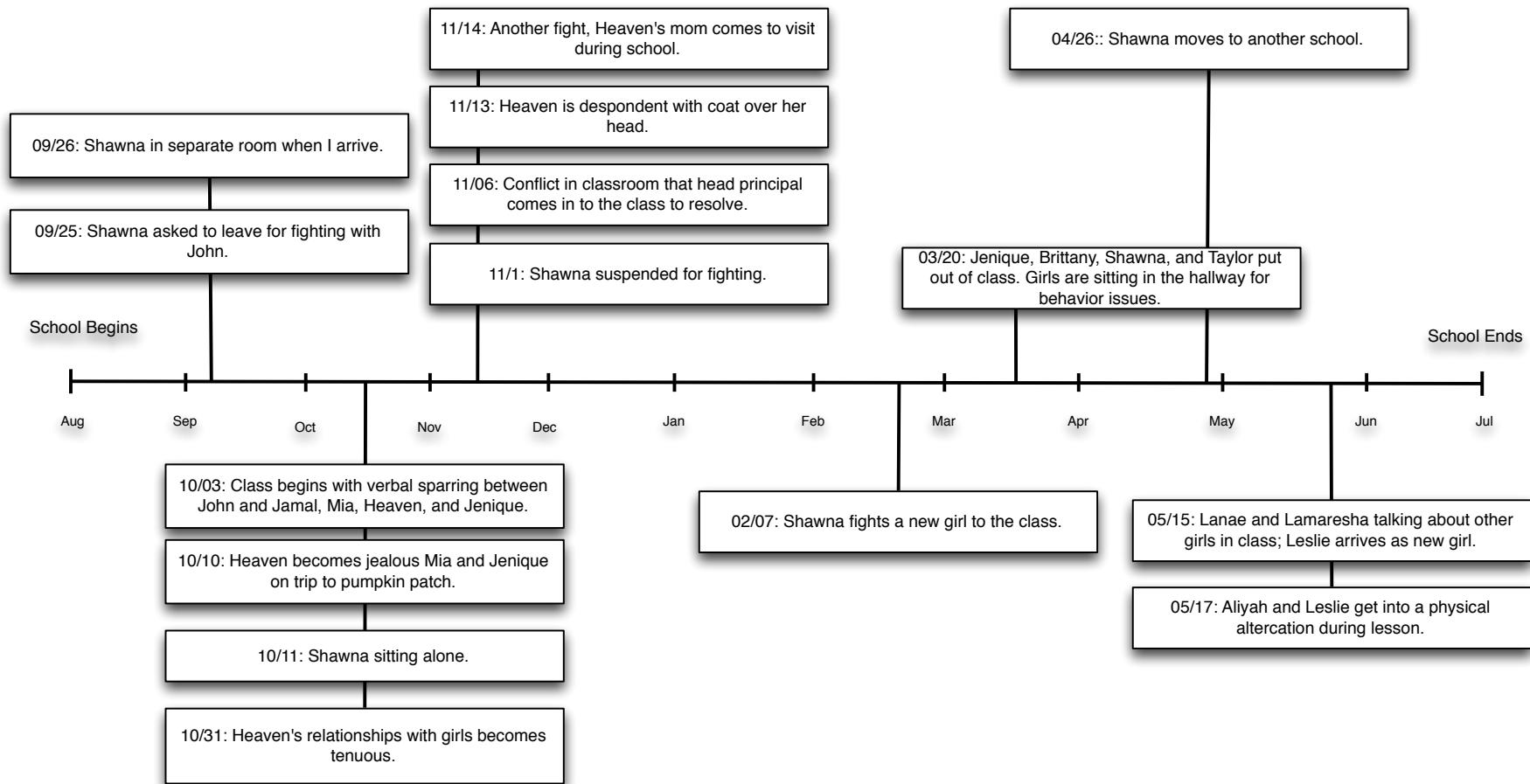


Figure 6-Phrases in field notes marking contentious or isolating social events over the year.

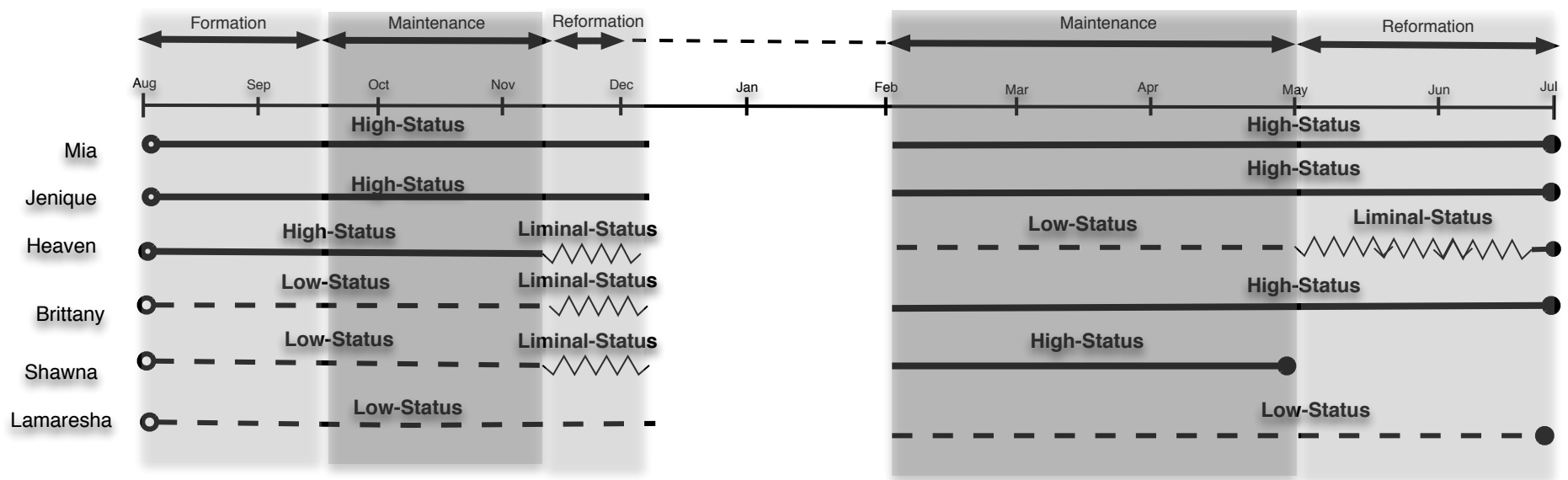


Figure 7-Phases in the social network and individual trajectories over the year.

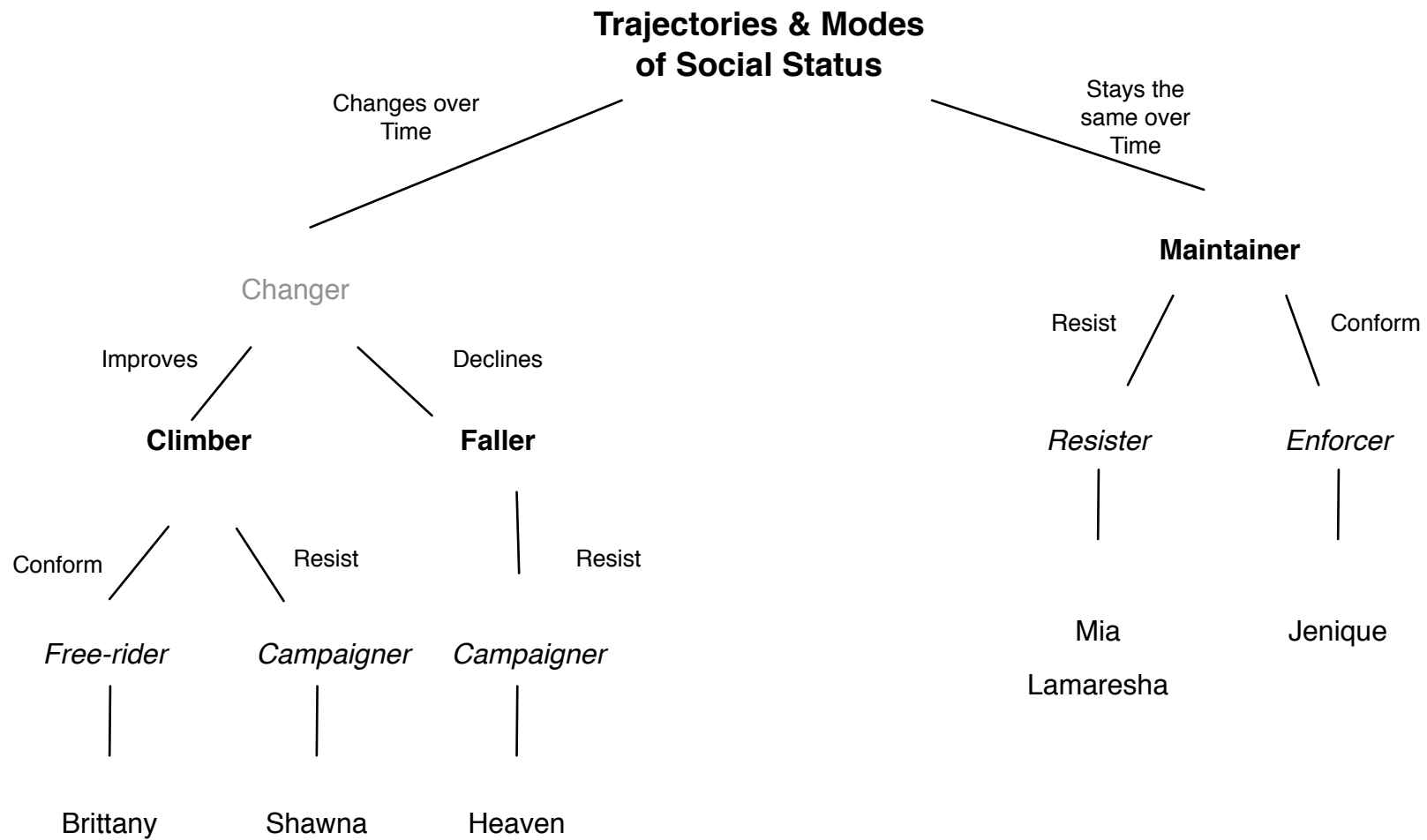


Figure 8-Trajectories and modes of social status in the girls network.

The Portraits

Heaven: A Portrait of Campaigning on an Outbound Trajectory

Shawna: A Portrait of Campaigning on an Inbound Trajectory

Brittany & Heaven: A Portrait of Free-riding versus Campaigning

Mia: A Portrait of Resisting in High Status

Lamaresha: A Portrait of Resisting in Low Status

Jenique: A Portrait of Enforcing in High Status

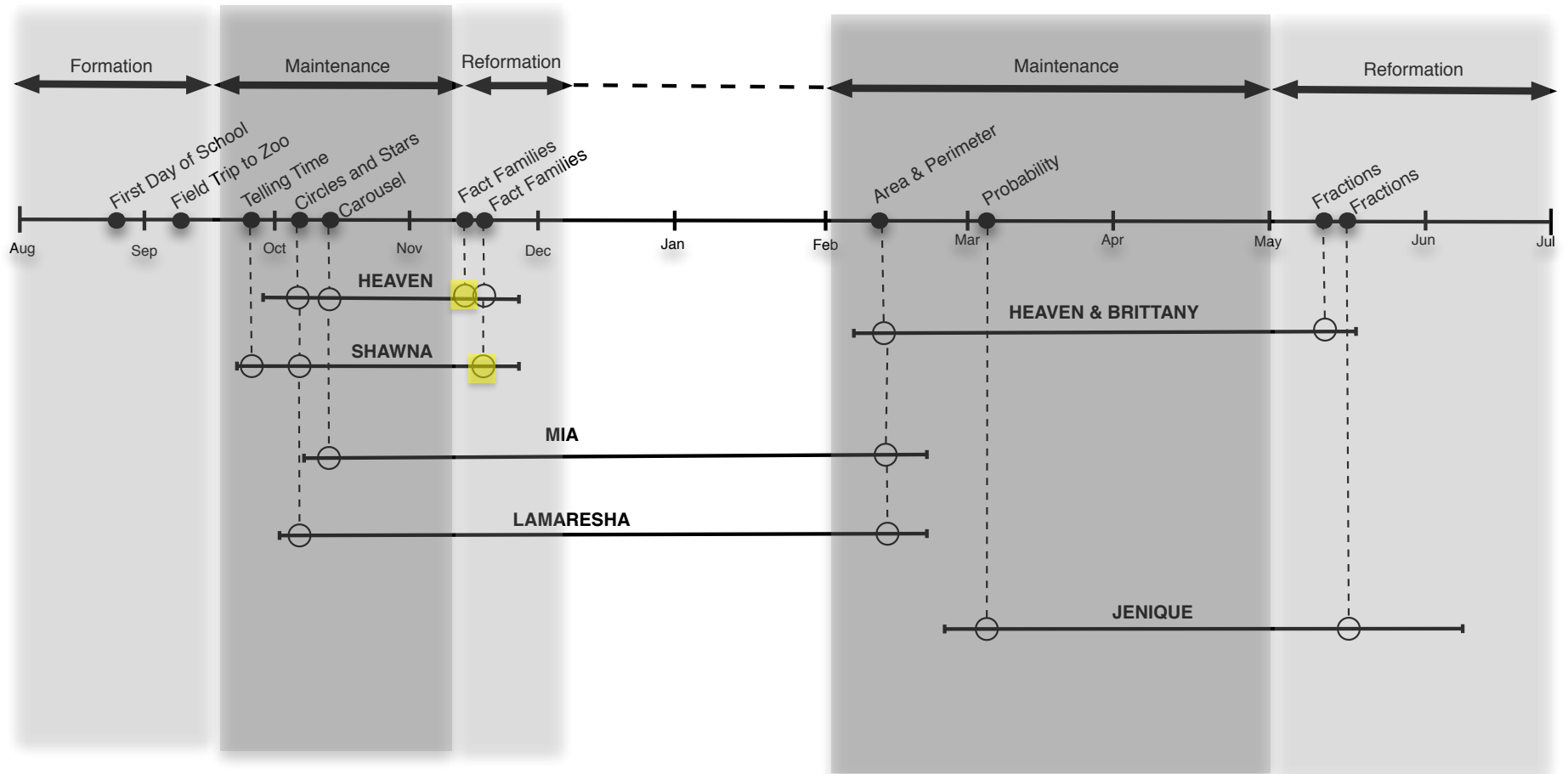
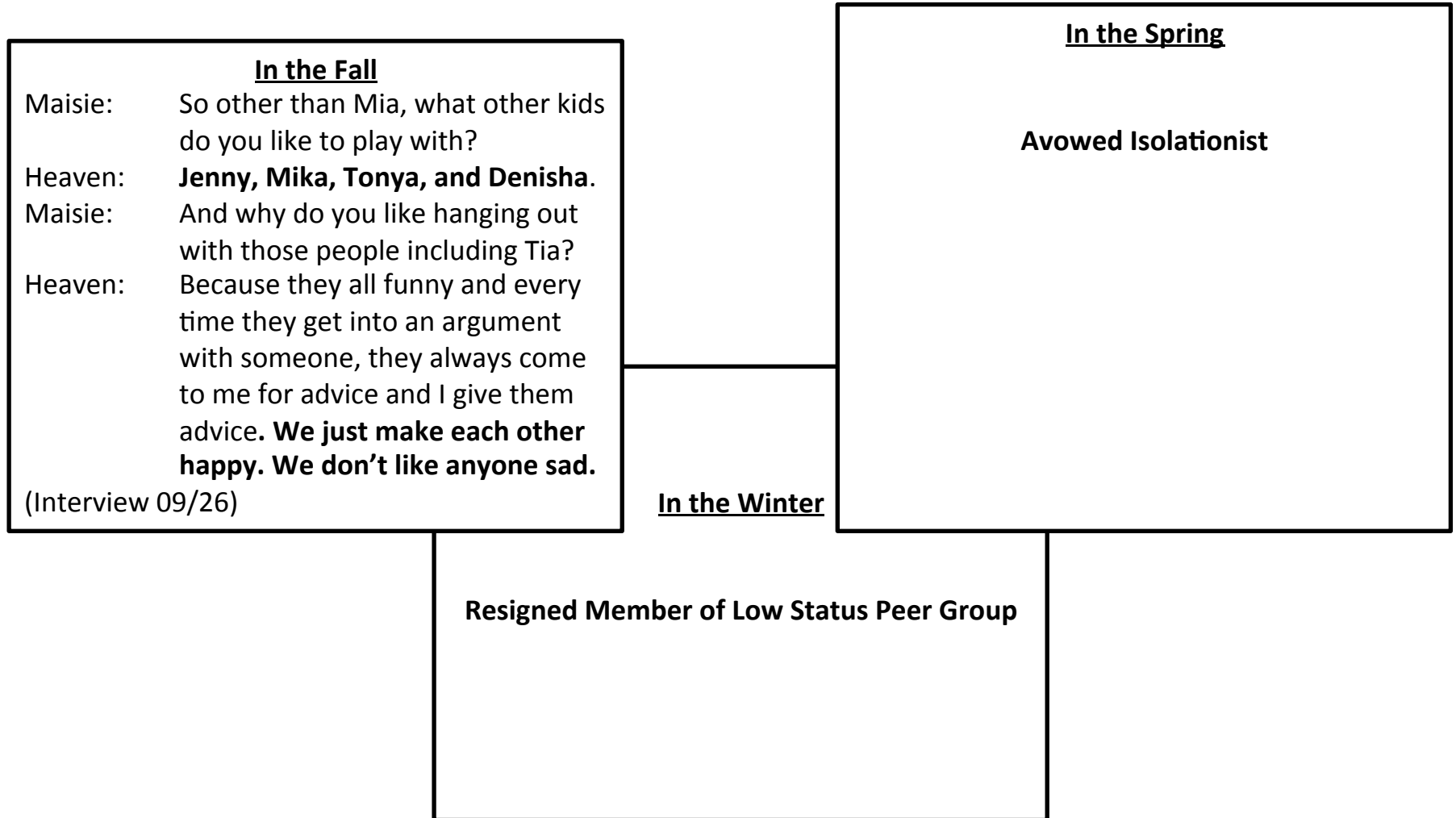


Figure 9-Timeline of the girls' portraits.



Figure 10-Heaven at work (alone).

Social Trajectory



Social Trajectory

In the Fall

Enthusiastic Member of High Status Group

In the Spring

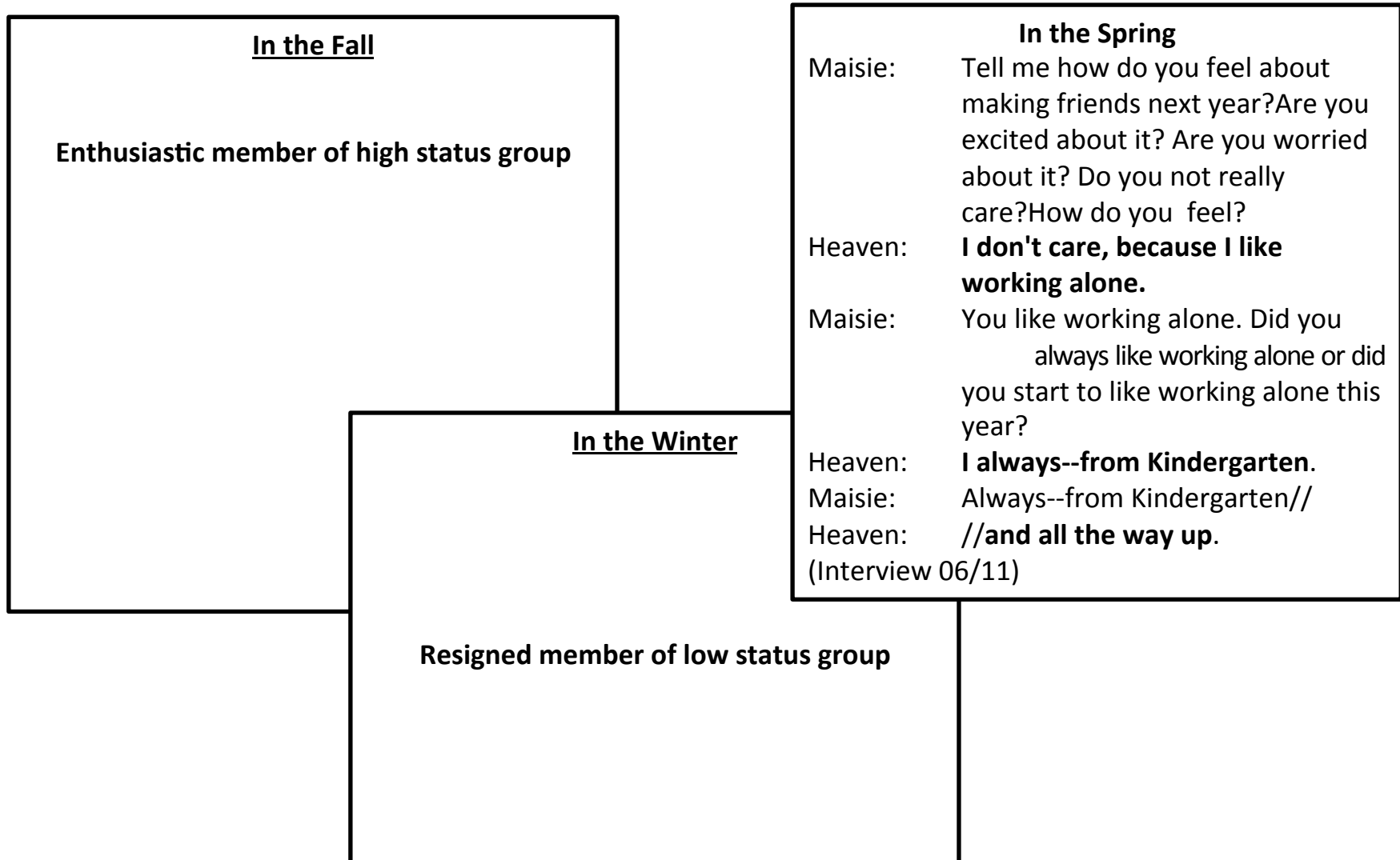
Avowed Isolationist

In the Winter

Heaven: ...So her [Mia] and Jenny are best friends now. I want to be her friend now, but I don't think she wants to be anyone friend. Everybody want to be her friend, but really we still friends, **it's just that she can't do what she want to do in front of Jenny because Jenny got ack // she act like she the boss** and she tell people they can't do that and so everybody didn't want to be Jenny friend because she kept doing that. So that's when she got friends with Jenny and **I am friends with Lamaresha and Joi.**

(Interview 03/01)

Social Trajectory



Math Trajectory

In the Fall

Maisie: Very good. So do you consider yourself one of the better math students?
Heaven: **Yeah me and Mia and Jamal and Derrick**
Maisie: And why do you say that? Why do you think = =
Heaven: Because sometimes **Ms. Robinson let me grade the math papers and then I look at mine and I know I had mine all correct** because Ms. Robertson said get a calculator and make sure they are all correct, so I know mine was all correct. Mia's was, Derrick and Jamal's was, but the other ones-they get all confused in their heads. **They got the answers right-they just put it on different ones.**

(Interview 09/26)

In the Spring

Positive but fragile identity

In the Winter

Positive but fragile identity

Math Trajectory

In the Fall

Positive but fragile identity

In the Spring

Positive but fragile identity

In the Winter

Maisie: So is there something that you found really interesting in math this year?

Heaven: Decimals I found that interesting because it's like when **every time people teach me something, I catch on right to it. Everything Ms. Robinson teaches me, I help people and I get it right.**

(Interview 03/01)

Math Trajectory

In the Fall

Positive but fragile identity

In the Spring

Maisie: So I want you to think about some of your classmates who are good at math? So who are the people in your class that are good at math?

Heaven: **Jamal and me, and Mia.**

Maisie: And Mia. And do you think that people who are good at math does it come naturally to them or do you think that they have to study and practice.

Heaven: I think it comes to Jamal and then to Mia, she gotta study.

Maisie: **What about you do you have to study or do you have it come naturally?**

Hevan: **It just come to me.**

(Interview 06/11)

In the Winter

Positive but fragile identity

Math Recognition as a Trajectory

In the Fall

Maisie: Very good. So think about the students that are good, who are the other students that are good in mathematics including yourself. Who are some other students?

Mia: **Me, Jenny, Lanae, Heaven, especially Heaven. She loves math.** Yeah and let's say Jamal and Derrick. Let's see Joi.

Maisie: Anybody else?

Mia: I'm thinking. That's it.

(Interview 09/26)

In the Spring

Maisie: Let me ask you this. Do you think some of your classmates do well? Okay, so who are the people who are good at math//

Mia: **//Jamal//**

Maisie: //in your class. Is he the only one?

Mia: Yea.

Maisie: What about you?

Mia: [Shrugs shoulders.]

(Interview 06/11)

In the Winter

Maisie: So I want you to think of people who do math. What kind of people do math outside of school? Who are people who do math?

Mia: **My friend.**

Maisie: Who's that?

Mia: Like Alana.

(Interview 03/01)



Figure 11-Heaven on the margins.



Figure 12- Heaven campaigns.

Jenique: **66 takeaway 10 equals 56. 66 takeway 56 equal 10.**

(Heaven walks up to the Jenique, Mia, and Lanae's table.)

Lanae: Heaven, what happened?

Jenique: Take the work and go. Adios.

Heaven: Somebody put pencil shavings on your name tag.

Jenique: Who?

Heaven: Lanae.

Jenique: You did.

Lanae: Yea.

Jenique: **468. So I got 8. Four blues and 4 yellows. So 468
takeaway 100// [Pulling out base-ten blocks.]**

Heaven: **Girl, that's huh...**

Jenique: **368**

Heaven: **That's not 368, girl. It's 568. Look, see you add**

Jenique: It's 568 'cuz you add. I was just playin. It's 468 then
you plus another hundred and that's 568, because you still got

the 68.

Heaven: I know. But it's the same thing.



Jenique working on
math problems



Exchange to engage
socially



Return to math



Exchange to engage
mathematically

(Transcript 11/13)

Lanae: (faintly)...you talking about my mama and her roommate and that's why I was like—you's talking about my mama?

Heaven: **I wasn't talking about your mama//**

Jenique: **//Yea, I feel bad, because that ain't funny because my whole cousin. I'm not going//**

Heaven: Why don't y'all talk about somebody else mama. My mama almost died. My granddaddy. My mama daddy died. Talkin about someone family that's low.

Jenique: **I can't call you no more because—you know why—my granny said what's going on at school** and if I lie to her and Mia told and have to remember and told her all those stories. So my granny said that I have to stop talking to her for a while. That was like a week ago and she was like now you can talk to her if you want, because I am not gone stop you from talking to your friends. But I was like it's okay.

Heaven: Talk to who?

Jenique: You. My granny be like snap-snap.

Heaven: **I really didn't call you anyway cause I know your ah//my mom said don't call cause your grandma probably mad.** I told her you don't call no more so mama said if she don't call you just don't call her back. If she call you then just hurry up and answer it. My mama said even if she gone then go ahead and answer it. She said answer that phone if you call. I got a new house phone.

Jenique: **I don't have your number.**

Heaven: **I gotta give you the number. I'm gonna call your house phone.**

Lanae: I can't get on my phone no more.
 (Ms. Robinson's voice rises above the class, "Okay, 310. Can everybody give me five?")

Math
exchange
creates
traction for
social
reconciliation

(Transcript 11/13)




Figure 13-Shawna on the margins.

Jenique: Okay, let's talk about our work now for the camera//for the thingie.
 Shawna: **Okay, y'all. I'm on page 27. And this says 3, 9, 12. Three plus 9 equals 12, nine plus 3 equals 12.**
 Chorus: **12 takeaway 9 equals//**
 Other Girls: **3**
 Lanae: 3
 Chorus: 12 takeway 3 equals 9.
 Shawna: **7, 8, 15**
 Shawna: **7 + 8 equals 15**
 Chorus: **8 + 7 equals 15**
 Shawna: **15 takeaway 7 equals 8//**
 Other girls: **//7equals 8**
 Shawna: 15 takeaway 8 equals 7. Fill//find the missing numbers in each fact family. 7 plus 5 =12. 5+7 =12; 12 takeaway 5 equals 7; 12 takeaway 7 equals 5. [pause 3 seconds] 6 + 7 = 13, 7+6 = 13. 13 – 7 = 6; 13 – 6 = 7. Write a reled [sic] subtract fact for each addition problem. 8 +4 = 12 and so they said a released [sic] subtract for each addition.
 (Lanae and Jenique are whisphering.)
 Shawna: 8 + 9 = 18; 8 + 9 = 17. Write an addition fact for each addition family.
 Jenique: I ain't gone say nothing cuz I know she ain't talkin to me.
 Shawna: 14 takeway 5 equal 9
 Jenique: You tryin to do that one. Huh. That one ain't easy. See, you gotta do six takeway 15 equal 9. Five takeaway fourteen equals 9. Oh, how about, I got one. How about Fifteen takeaway 9? Yea, fifteen takeaway 9. Time to go home yall.

Positive,
 sing-songy
 math
 exchanges

(Transcript 11/14)

Shawna: **Time to go home y'all. Jenique, where you live at?**
Jenique: Huh?
Shawna: Where you live at?
Jenique: **I live down that block s'kraight ahead. You gotta go s'kraight ahead across that big street then go//**
Shawna: Down the street. I gotta go straight?
Jenique: I don't live down that block. Don't you know when I always walk this way.
Shawna: Down Oliver (street name).
Jenique: Yea. I live all the way down there.
Shawna: By the pond?
Jenique: I'll show you after school.
Shawna: Okayyyy.
Jenique: What's fourteen takeaway five?



Positive math
exchange
creates
opportunity
for social
access

(Transcript 11/14)

Limitations of the Study

- Learning and competence relies on teacher grades and verbal assessment, as well as standardized test scores.
- The social network relies on a subset of the girls in the class.

Smart Girls, Black Girls, Mean Girls, and Bullies: At the Intersection of Identities and the Mediating Role of Young Girls' Social Network in Mathematical Communities of Practice

MAISIE GHOLSON AND DANNY B. MARTIN, UNIVERSITY OF ILLINOIS AT CHICAGO

INTRODUCTION

Shawna and Mia (all names are pseudonyms) are two self-identified African American girls in the third grade. They live in a predominantly Black community on the west side of Chicago. The girls attended their neighborhood elementary school, where the student population is also predominantly Black (i.e., 99.4%), that includes pre-kindergarten to eighth grade. The girls were members of Ms. Robinson's classroom—310, the context for this study. Over the course of an academic year, Shawna and Mia experienced third-grade mathematics in seemingly very distinct ways, despite being the two highest achieving girls in their class. Although Ms. Robinson took great care in providing a nurturing and open learning environment for her students, issues of power and privilege along social, physical, and racial lines emerged as forces that organized and structured learning opportunities for the students in her classroom.

Children are not usually thought of as persons who hold power, let alone persons who wield power to accomplish their aims and desires, nor do we think of children between 7 and 9, the age range in this classroom, as forming and maintaining complicated, history-rich interpersonal relationships with one another. Yet, our preliminary analysis describes how Shawna and Mia were positioned by others within an intricate social network, and consequently attempted to use their positions to gain access to various resources in the classroom, including learning opportunities, recognition, respect, and friendship. We provide several vignettes and student narrations—first person and peer—that shed light on how Shawna and Mia experienced different forms of access to

the classroom and are an understudied aspect of African American children's phenomenal reality of "Learning Mathematics while Black" (Martin, 2012). Although the analysis here focused on two students within one social network, evidence from the larger data set is suggestive of the fact that these social network considerations are relevant and in need of further study in relation to mathematics learning among (Black) students. We note that previous research on mathematics learning has not focused on children's social networks and tends to focus on Black children's achievement outcomes (Martin, 2009). We depart from this impoverished tradition by taking a microsociological (e.g., Shalin, 1978) approach, using the girls' voices in this study to make sense of the emergent social structures that organize access to mathematics participation and learning.

BEGINNING WITH BLACK GIRLHOOD

This study of young Black girls and their social networks raises the questions: *What is Black girlhood?* and *What does it mean to be a young Black girl?* Furthermore, in light of these meanings we ask: *What does it mean to be a learner and doer of mathematics in the context of being a young Black girl?* and *What does it mean to be a young Black girl in the context of learning and doing mathematics?* (cf. Martin, 2012). We raise these questions not to create space to essentialize *being in middle childhood, being Black, or being a girl*, but to highlight the constructed nature of studying age, race, and gender. For example, James, Jenks, and Prout (1998) note that *childhood* is a sociological construction, whose meaning has shifted over time. We take a similar view, particularly a "tribal" or emic view, to the sociological construction of *childhood*—allowing the African American girls' voices and actions to form the basis of what we call "Black girlhood" (cf. Brown, 2007). Our construction of *childhood* also

Marisha L. Humphries, Jennifer Strickland, and Kate Keenan

Smart Girls, Black Girls, Mean Girls, and Bullies: At the Intersection of Identities and the Mediating Role of Young Girls' Social Network in Mathematical Communities of Practice
Maisie Gholson and Danny B. Martin

Orienting African American Male Adolescents toward Meaningful Literacy Exchanges with Texts
Alfred W. Tatum

The Stuff of Stereotypes: Toward Unpacking Identity Threats amid African American Students' Learning Experiences
Gregory V. Larrick, Denise Boston, and John Braggelman

ESSAY BOOK REVIEW
Academic/Professional Texts
Daniel Osborn

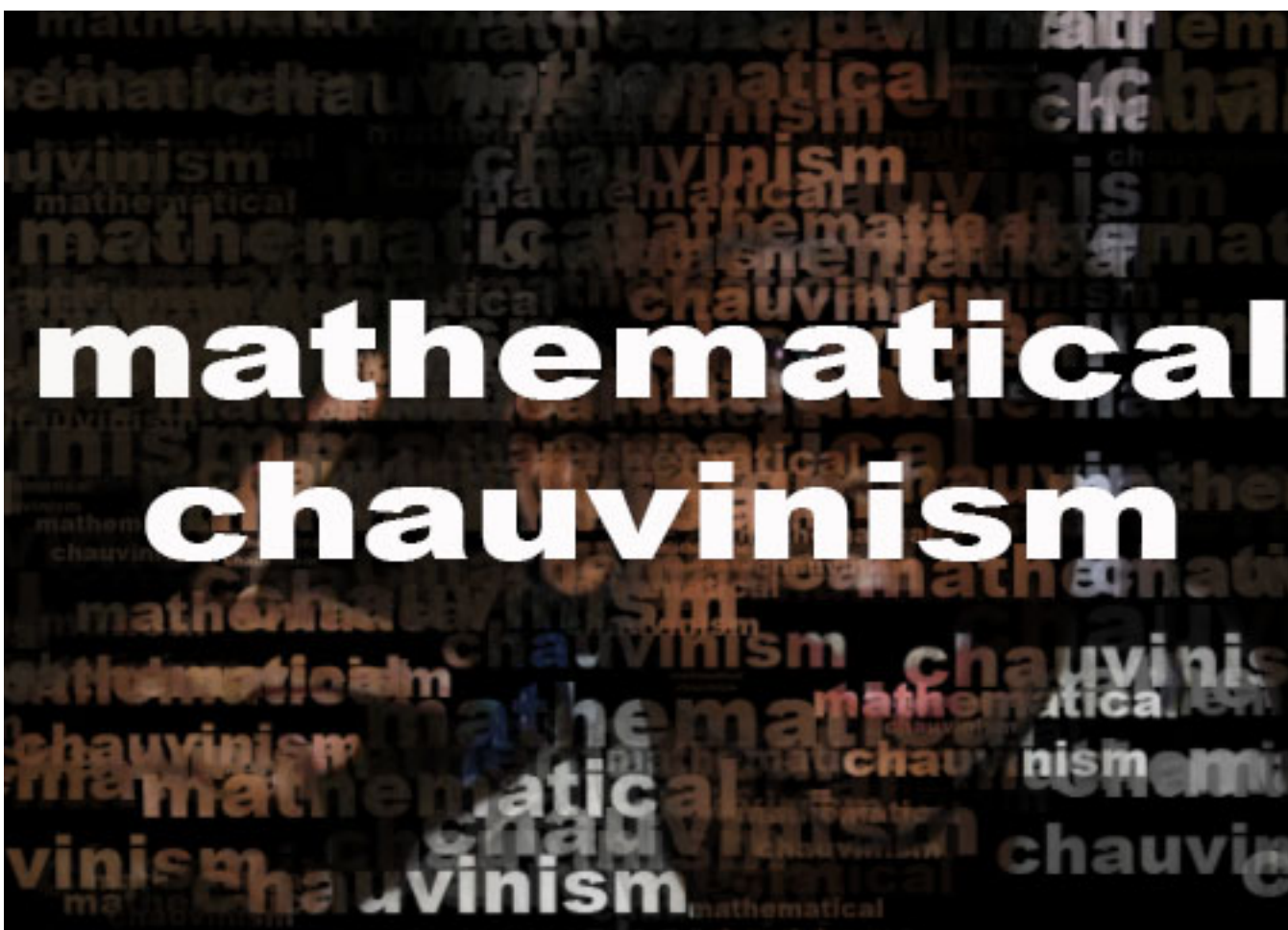
BOOKS FOR YOUNG READERS
Children's Literature As a Pathway of Possibilities
Ebony Joy Wilkins

Review of *Books for Young Readers*
Michelle Carney



Boston University School of Education

Figure 14- Journal of Education article published in 2014.



mathematical chauvinism

What happens if transcripts that I shared today were coded solely for relevant mathematical talk?



Thank you so much.

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