

Algebra of Identity: Skin of Wind, Skin of Streams, Skin of Shadows, Skin of Vapor

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1. Braiding

Here, I braid three cords together, identity, algebra, and poetry. Identity is the subject matter, algebra is a metaphor for looking at identity in a different way, poetry is used as the enactment of the view of identity described with the algebra. I also use algebra as a tool to aid in development of computational techniques for implementing a new form poetry – a form which is thematically fixed but variable in particular expression and metaphors.

The subtitle of this paper:

Skin of Wind, Skin of Streams, Skin of Shadows, Skin of Vapor
is meant to evoke a restricted notion of identity, and the insubstantiality of that notion. A focus on skin is obsessive and solipsistic. I am expected to talk about it in a talk on identity. When ethnic identity is made binary and colorized, we talk in bodily terms, of skin. It is evocative – it is a membrane, protecting, projecting, coating, an exterior, a superficial, obvious and immense organ. I shan't disappoint these expectations of skin obsession, but when I talk about the traits of ethnic identification these are just symbols for attributes of aspects of social identity.

Wind whips, shrieks, or is unnoticeable. Streams bears small creatures below rocks, rush with energy and transparency. Shadow obscures, cools, relaxes. Vapor: moistens, hides, causes ships to crash, is fluid but hangs in the ether. If we can imagine these four skins, we can also imagine skin of tangled roots, illicit love, unscratched itches, crossed senses, angels, or demons. I shall get back to this later.

What I am trying to conjure is a sense of the fleeting nature and contingency of identity as it is typically conceived of. I propose why some current notions of identity seem damaging, and discuss alternative ways to address it. My belief is in internalizing and exposing this very contingency, accepting this as the reality in how we perceive ourselves, others, and the concept of identity as a whole.

In the beginning I would like to motivate the discussion of identity.

2. Identity

It is crucial to be cognizant of the network of forces determining your identity. Though it is not possible to regulate one's identity, it is necessary to be one of the forces contributing to its expression.

An example:

Alison Saar , Sam Gilliam and Martin Puryear are three artist found in the same categorized section of *ARTODAY*¹, a book on contemporary art.

Regarding Alison Saar, the author writes:

...Alison Saar has also looked at African fetish statues as a source of inspiration. ... The problem with all these attempts to make a new Africa in America is that the spectator is aware of the artist's self-consciousness, of an attempt to create a kind of 'primitivism' which doesn't come into existence spontaneously.

Of Sam Gilliam, the author writes:

Gilliam is, and has always been, an abstract painter, whose work eschews overt symbolism. ... Gilliam has caused considerable irritation amongst African-American militants, and has sometimes been accused of 'Uncle Tom-ism' because of his insistence on being judged purely as an artist, not as a generic representative of minority culture.

Of Martin Puryear the author writes:

Martin Puryear, now perhaps the most celebrated African sculptor, is similarly insistent, despite the fact that he is one of the few African American artists who has direct experience of Africa ... Attempts to align his work with African artifacts have been made by enthusiastic critics, but seem fruitless in the face of Puryear's own statement that, when in Africa, he felt like an outsider – not part of the customs of the people among whom he lived.

Clearly from this collection of statements (which I assert reflect not only the opinions of one art critic, but a general tendency in art critical writing in general) the author has already taken the stance that the racial identity assigned to these artists takes precedence over the content and formal issues of the work by placing these artists all in the "Racial Minorities" section in the book (which happened to be the second to last section, the last being "Feminist and Gay"). The organization of the book indicates the author's hierarchical view of the relative importance of different groups of artists. New York artists deserve their own section (which does not include artists from New York that happen to be of racial minority groups), and British artists are important enough to be segmented by content, there is a section on British Figurative Painting, as opposed to ethnic identity. Curiously, contradictorily, the author simultaneously racially classifies these artists, emphasizes racial debates surrounding the artists, and denies the artists self-determination in assertions of heritage. The African American artist cannot be seen non-racially, but can only be seen as an African American artist who wishes to be seen non-racially. At the same time, the African American artist cannot be seen in connection with any ancient historical tradition or culture, as such attempts are "self-conscious or tenuous."

With such forces seeking to constrain social and individual conceptions of people, it is imperative to seek techniques and perspectives capable of disarming such constraints. Many times even socially aware and proactive groups define themselves and their

relationships to others in binary terms. Black, white. Majority, minority. Patriarchy, oppressed. White-privileged, affirmative-actioned. A world of binaries is concrete and actionable.

In the racialized world of black vs. white, the catch-all category of “other” is typically understood in terms of whether the current person under consideration is more black-like or white-like, or as an Indian-American colleague encountered while traveling through rural Colorado “you ain’t black, you ain’t white, so what is you?”

Aligning under binary banners makes the power struggle very clear, though it is disenfranchising for those who seek a sensitive expression of personal identity. A mathematical analog to binary thought, Boolean logic, is quite powerful, in its limited domain². It is sound. Anything that you can prove in a reality described by Boolean logic is entailed by that reality. This means that in any possible world it is true if you can prove it. Furthermore, it has the converse property that anything you can say in Boolean logic that is true in all worlds, can be proved. It is complete. When I say possible worlds, I mean being able to look at all of the possibilities for what is true and what is false.

Of course, this line of thought is only metaphorical when it comes to identity, but it has interesting repercussions when we indulge this thought experiment. This type of binary thinking leads toward finality of thought, imperial statements, and reification of ideas. There is no way to express a concept such as she is “woman and not a woman” so that it is true. Though socially it is perhaps possible to think of situations where such a statement might pertain. An interesting note is that as soon as logic is expanded to include generalizations, with statements such “for all women who are sports fans,” the logic is no longer complete. The power is taken away.

I invoke mathematics here as a device to allow us to move away from the standard binary way to view identity. I seek new blends involving identity, new ways to combine thoughts, without deviating from the subject matter. Discussion of algebra provides a means to do so.

3. Algebra

Algebra may be considered, in its most general form, as the science which treats of the combinations of arbitrary signs and symbols by means defined through arbitrary laws³.

– George Peacock, *A Treatise on Algebra*, 1830.

‘Watch out, men! You are not so pretty that you can handle a woman’s blade!’ But as Raven turned the blade by the lantern (Bayle squinted because two threads of light lanced from the gnarly hilt), she was still grinning. ‘Ah, you men would take everything away from a woman – I’ve been in your strange and terrible land long enough to know that. But you won’t have this. See it, and know that it will never be yours!’ She

laughed. (It wasn't one blade on the hilt, Bayle realized, but two, running parallel, perhaps an inch apart: as she brandished it, the lantern flashed between either side⁴.)

– Samuel R. Delany, “The Tale of Potters and Dragons,” *Tales of Nevèryon*, 1978.

In the Delany quote, the sword, a violent and masculine symbol, has been transformed into a vulval feminine symbol in a matriarchal mythology, no less violent. It is a combination of signs and symbols defined through (seemingly) arbitrary laws of culture. Algebra deals with the rules for how things can generally be combined. Since I often work using this framework, these days I am sensitive to blending in many domains⁵. The blending of concepts is contingent and fleeting⁶. The national obsession of the U.S.A., identity, is no exception. One obvious breakdown in traditional notions of identity is creation of new ethnic identities by merging. Identity also occurs in peculiar ways in different contexts, for example in a market economy it is treated often as a commodity as we encounter phenomena such as identity theft. It is important and crucial to recognize and challenge inequitable power structures. One way to do so is through understanding identity as a dynamic network as opposed to a system of binary relations. The challenge is to do so within a social context based upon the binary relation of standard vs. other.

In the research of the Meaning and Computation Laboratory at UCSD we use algebraic semiotics, an approach to meaning and representation that combines algebraic specification with social semiotics, to represent sign systems⁷. We also use it to implement construction of metaphors using ideas from conceptual blending theory in cognitive science. We construct blends of concepts. Ideas such as identity now can be blended with ideas such as commodities (in identity theft), screen based icons (as avatars), and where identity is blendable itself (concepts such as Hispanicity, whiteness, or gay, lesbian, transgendered unity). Identity of one individual can be blended with identity of another. For example O.J. Simpson is often referenced in news reporting on the Kobe Bryant case because both are African American sports figures. Note that this analogue between sports figures is the result of a blend: Ishmael Reed notes in a recent article from his *Konch* magazine⁸ that the music mogul Phil Spector was accused of murdering a white woman, the same Phil Spector who reputedly rescued Tina Turner from the abusive Ike Turner, but Spector has not been often compared to Ike Turner. A feature of blending is compression, the relationships between individuals are compressed and changed. Compression⁹ often occurs in blending where the blended space is used to visualize something of a large scale in terms of a smaller one. In the Kobe Bryant/ O.J. Simpson example, two individuals are taken to be analogous because of their existence in a larger group, black male sports figures. They are identified only because they are used as representations of a larger concept – the violent black male. Phil Spector could not show up in the compressed blend in this case, because he is not a representation of that group. Tokenism can be seen in these terms – one individual is used to represent the many.

It is important to remember that blends are created on the fly; they constantly change; they are active. They execute and allow for thought experimentation. They exist in

larger networks and are extremely dynamic and contingent. This contingency seems especially relevant for discussing identity concepts. When we encounter others, our conceptions of their identities are composed as blends. When someone says “well I am really not that into sports,” or “my mother is Asian,” or “I have converted to Judaism,” our conception of that person is transformed on the fly. The network of concepts that make up the perceived identity of that person is changed. Currently I am working on an algorithm to explore the construction of blends on the fly for generating media. It is possible to imagine how such work could be used to inform precise discussion about identity concepts.

4. Poetry

Blending and metaphor are conceptual tools that can be used to address this fluctuating view of identity. New views of an identity can be introduced using metaphor and taken through transforming phases with evocative effect. For me, the use of exaggerated metaphors in poetry and literature can illustrate this idea. In my own work this is a central device that I use. In my novel, a fantasy entitled *Milk Pudding Flavored with Rose Water, Blood Pudding Flavored by the Sea*¹⁰, characters constantly change identity and metaphorically transform. The fantasy in the tale arises from elaborating these metaphors more than any other type of magical or paranormal effects. For example, in the first half I describe the tale of a type of black knight youth traveling from city to city. Metaphor is used to describe the view of him through the lens of that particular town.

In one example, Jal-R takes on a new role in the chapter “Men and Mothers,” his description is established and transformed as the passage progresses. After this passage he transforms further:

The voices were indecipherable. The number of people from far-away and near-away lands was greater than in years past. The effect was disorienting as he walked through the market. Many of the strangers shrank from him. His was a stark figure; black silhouette with a flowing shadow cloak slipping behind him. Despite recent sneers from his compatriot Black Riders, most townsmen and women treated him with grand respect. The strangers’ fear came from the clear bearing of power and battle with which he carried himself. He was a warrior, there was no doubt. All talk of the diminishing public regard for the riders was moot in the wake of his heavy black boots. He was an undeniable force, a Black Rider. He was the essence of a rider, he walked and a thunderhead—ominous threat surrounded him. Today his merchant friends knew better than to approach him or joke at his expense. He walked as if on a mission. The hilts of two daggers swung at his sides. Knives formed delicate decorations on the calves of his boots. There was no color on him besides a touch of pink in the embroidered rose at his chest and reflections in the hints of silver at his feet, waist, and cowl. He opened the door to a nondescript long hall and stepped inside to crying and a sanitary aroma.

A bit later:

Jal-R rocked the infant against his black padded breastplate. It had been a trial to coax the baby girl to sleep. He often felt ill at ease here and his queasy heart surely passed its vibrations to the children. The other professional mothers felt threatened by the alien image of brutality nursing their charges, muscling himself into their world. All in the longhouse felt as if their hearts beat through black gauze when Jal-R was there... a dark sense of roles askew. Jal-R was unaware of many of these perceptions of him, but the cloud that gathered each time he walked in there was impossible not to notice. It mattered little, he told himself, he had resolved to learn at least some of the arts of the mother to provide for Ayoli.

My engagement with the idea of unstable, metaphorical, and transforming identity did not begin with the Jal-R Black Rider character. Reconnecting this poetry to the subtitle of this talk, I also wrote of an expansive view of skin. My obsession with skin peaked when I was around 19 years old. I created more than 30 types of skin and imagined life in each of these¹¹.

These were skin such as: the skin of the man whose skin turned to paper, the man whose skin was made of everything funny, the balloon-skinned girl, the man whose skin was made of sexual experimentation, the girl with noisy skin, the man whose skin was pink but people called him white but didn't mean the color of pure driven snow, the man whose skin was brown but people called him black but didn't mean evil.

One such poem follows:

Skin normally has thin blue veins in it
But the man whose skin turned to paper
Knew that the thin blue lines on his skin
Were made from ink and not the flow of blood.
The lines were parallel to each other,
Yet because his skin curved
It was hard to tell whether the lines
Were standard or college rule,
And due to the fact that the man whose skin turned to paper
Had skin that was not a chalky white,
The thin red vertical line that ran perpendicular to the blue lines
Was difficult to see.
One hole through his head
One through his duodenum
One through his tibia
So that although the size of a normal man
He fit in a three-ringed folder.
One pencil in each hand
So that, enabled by ambidexterity,
He could twice as quickly write and record
His thoughts and ideas

Images called doodles or tattoos.
Writings, poetry, and self-indulgence
Make a set of verse, a body of work
That begins: skin normally has thin blue veins in it.

For me, exaggerated, densely metaphorical, and shifting views of identity traits have a liberating effect. It expands a sense of possibility for self-identification. It also stimulates a skeptical view of social identity politics in that it engages the political issues, but also declares their divergence from reality.

5. Improvisation & Conclusion

The output of my recent research program combines this type of poetry with the use of algebraic techniques to construct metaphors on the fly. I wrote a computer program, in the LISP programming language, that uses algebraic semiotics as a foundation to generate poems that can be reconstructed on each reading algorithmically, while maintaining core concepts and themes. I think of this work as development of improvisational texts (active media). The metaphors are fluid. In the long term I see these as being interactive with the generation of new metaphors driven by user interaction with a graphical or gamelike interfaces. At the end of this section I have included the output of a run of a preliminary version of the algorithm.

The system works by establishing a set of theme domains, such as skin, angels, demons, old Europe, and old Africa, composed of sets of axioms. It constructs conceptual spaces, using the algebraic semiotic framework, and blends these to construct metaphors using a conceptual blending algorithm. These are then combined with a narrative template based on a model from socio-linguistics research, a formalization of Labov's structure of narratives of personal experience¹². This narrative template is integrated with metaphors generated on-the-fly, and the result is outputted. The core of the work is in metaphor generation, not natural language processing. What comes out of it are conceptual spaces and axioms, not English sentences. For the purposes here, I implemented a front-end to construct a type of poetry, but in particular the guided combination of concepts is the focus of the work. I see the output as experimental research and not a final product. I conclude with this generated poem in the same mould as those I created nearly ten years ago: "The Girl with Skin of Haints and Seraphs." I present the poetry both in forms lightly edited for grammar, and in the forms originally output from the code execution. The generation of this poem unifies the topics in this talk. It is meant to evoke a fleeting and ever-changing sense of identity, inspired by the algebraic view mentioned earlier. It also uses algebraic semiotics as the underlying computational model for conceptual blending. Lastly, it produces a template for production of poetry with the same type of metaphor and thematic concerns with identity as in the poems I just read. Poetry inspired to take a broad view of sundry identity signifiers such as skin. Here is lightly edited output for "The Girl with Skin of Haints and Seraphs:"

in the shadows and the white greek-goddess. in the shadows she peeped
out: charcoal-skin girl.

the young lady would prevail. horned-haint female vapor steamed from
her pores when she rode her bicycle
death was better, inside she was resolved to never find a proud lost love
each night she decided a smug life is no worse than smug death.

And here is the LISP output upon which it was based:

(in the shadows) (and (greek-goddess / white)) (in the shadows) (she
peeped out (charcoal-girl / skin))
(the young lady would prevail) ((horned-haint / female) vapor steamed
from her pores when she rode her bicycle)
(death was better) (inside she was resolved to never find an (pride / loss)
love)
(each night she decides (smugness / smugness) life is no worse than
(smugness / smugness) death))

Lightly edited output:

her arrival onto this earth was marked with a winged-creature shooting
piercing-arrows.
she began her days looking in the mirror at her own mathematics spiked-
tail face. black greek-goddess feelings no longer mattered to her when she
was elderly. she was demoralized. they would call her white epidermis.
she could laugh. they would call her the original white-lady. the original-
lady invented mathematics in her core, in the rain, when she was no
longer a child, and original-lady charcoal-woman marks streaked her
thighs, life was a sight gag. she only cries melaninated soul tears these
days.

Lisp output:

((her arrival onto this earth was marked with (winged-creature / winged-
creature shoots piercing-arrows / piercing-arrows)) (she began her days
looking in the mirror at her own (mathematics / spiked-tail) face) ((greek-
goddess / black) feelings no longer mattered to her when she was elderly)
(she was demoralized) (they would call her (white / epidermis)) (she could
laugh) (they would call her (original-lady / white)) ((original-lady /
original-lady invented mathematics / mathematics) in her core) (in the
rain) (when she was no longer a child (original-lady / charcoal-woman)
marks streaked her thighs) (life was a sight gag) (she only cries
(melaninated / soul) tears these days))

Lightly edited output (produced and performed live during a talk given at the Powering
Up/Powering Down Festival/Conference held by the critical arts and technology
organization *Teknika Radica*, January 30 -February 1, 2004):

her tale began when she was infected with smugnessloveitis. she began
her days looking in the mirror at her own itchy entitled face. her failure
was ignoring her tormented angel nature. life was an astounding miracle.
nordic-beauty death-figure vapor steamed from her pores when she rode

her bicycle. that was nothing lovely. when 21 she was a homely woman.
she decided to persevere; in the rain, she fears only epidermis imperialists.
she believes that evil pride devours and alternates with pride of hope. it
was no laughing matter. she snuggles in angel skin sheets and sleeps.
inside she was resolved to never find a smug or paranoid love.

Lisp output:

((her tale began when she was infected with (smugness / love) -itis) (she
began her days looking in the mirror at her own (itchy / entitlement) face)
(her failure was ignoring her (tormented / angel) nature) (life was an
astounding miracle) ((nordic-beauty / death-figure) vapor steamed from
her pores when she rode her bicycle) (that was nothing lovely) (when 21
she was a homely woman) (she decided to persevere) (in the rain) (she
fears only (epidermis / imperialists)) (she believes that (evil / pride
devours / alternates-with hope / pride)) (it was no laughing matter) (she
snuggles in (angel / skin) sheets and sleeps) (inside she was resolved to
never find an (smugness / paranoia) love))

¹ Edward Lucie-Smith, *ARTODAY*, Phaidon Press Limited, 1995.

² Herbert B. Enderton, *A Mathematical Introduction to Logic*, Academic Press, Inc.,
Harcourt Brace Jovanovich, 1972.

³ George Peacock, *A Treatise on Algebra*, 1830., from K. Meinke and J.V. Tucker,
Universal Algebra, pp. 189-411 in: S. Abramsky, D. Gabbay and T.S.E. Maibaum (eds.),
Handbook of Logic in Computer Science: Volume I, Oxford University Press, 1993.

⁴ Samuel R. Delany, "The Tale of Potters and Dragons," *Tales of Nevèryon*, Bantam
Books, 1979.

⁵ Gilles Fauconnier and Mark Turner. *The Way We Think: Conceptual Blending and the
Mind's Hidden Complexities*. Basic Books, 2002.

⁶ Joseph E. Grady, Todd Oakley, and Seana Coulson. "Blending and Metaphor." In
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⁷ Joseph Goguen. *An Introduction to Algebraic Semiotics, with Application to User
Interface Design*. In *Proceedings, Computation for Metaphors, Analogy and Agents*,
Chrystopher Nehaniv, Editor, 1998. Yakamtsu, Japan, April 1998.

⁸ Ishmael Reed, "CNN's Ku Klux Feminists Unleashed On Kobe," *KONCH Magazine*,
July 2, 2003.

⁹ Fauconnier, Gilles and Mark Turner. "Compression and global insight." *Cognitive
Linguistics*, Vol. 11, 3-4, 2000.

¹⁰ D. Fox Harrell, *Milk Pudding Flavored with Rose Water, Blood Pudding Flavored by
the Sea*, unpublished.

¹¹ D. Fox Harrell, *Conceit*, unpublished.

¹² William Labov. *The transformation of experience in narrative syntax*. In *Language in
the Inner City*, University of Pennsylvania, 1972. from Joseph Goguen, "Notes on
Narrative," course website: Social and Technical Issues of User Interface Design,
University of California, San Diego.