

For Careful Slugs: Caring for Unknowing in CS (Computer Science)

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Abstract

Careful Slugs are metaphors that speculatively care for diverse practices within and alongside Computer Science. In this image-text paper we wonder with CS (Careful Slugs)—the materiality and metaphor that they generate as they encounter computational infrastructures, digital design, and interfaces. Through queer playfulness and promiscuous metaphorical practice, we propose CS as an opening metaphor for CS (Computer Science) departments where the hardened muscular lines of models and predatory based solutionisms beckon some defensive slime. As those that traverse ever-shifting and undone grounds, CS (Careful Slug) emerges from a critical disability studies perspective. We outline to practice, CS (Careful Slug) is to practice a slow “soft gooey”; to shield using protective mucous layers; to make chemical binds sticky enough to hold in-place inconclusively yet with possibilities of lubricating accountability. We invite you to sink with us into soft gooey worldings of slug-imaginings not to overburden the slug but to speculate how metaphors, might contribute to trans*feminist technoscience, accessibility, and CS (Computer Science) concerns.

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Keywords

Trans*feminist Technoscience, Disability Accessibility, Computer Science, Critters, Creative Practice, Experimental Design

Introduction: Metaphors as Speculative Praxis in and *for CS*

In this text we wonder, what it could mean to practice *For CS*? Through queer metaphorical meaning-making practice, we propose CS (the acronym for Computer Science) be replaced as an indeterminate acronym CS (in which C and S are replaced with metaphors) inside and outside computer science departments. In our work with CS we practice alongside Fred Moten's concept of CS (Chance and Scandal) and learn from it within CS (Computer Science) as a process of unknowing and unlearning. Moten writes, "indeterminacy doesn't ground freedom or equality...Rather, they are part of a complex field of scandal and chance, wherein the very idea of ground remains to be retheorized" (2017, 38). As computer science researchers we engage scandalous metaphors to break through established grounds of CS (Computer Science)—as an undoing so that diverse practices might flourish as part of a complex field of CS (Chance and Scandal). We propose that we need more metaphors for practices of: scandal and enjoyment, friendships, refusals, inaction, mucus membranes, hums, modes of survival, modes of non/commitment, queering damage (Pritchard et al. 2020), namings, cruising (Muñoz 2009), feelings, pockets, tooling up and down (MELT 2020), oozing, stimming (Scientist Stims, n.d.), reading (Smilges 2021), dreaming, writing (Brown 2021), making, smelling, rhythms and flows (Gumbs 2018), tunings (Gabrys 2016), cusps, insensibilities (Yusoff 2013), and wayward practice (Hartman 2019). Our work on CS emerges out of the cusps of computer science that code, tear, and transform the edges of the discipline towards otherwise relations.

We have worked with collaborators Romi Ron Morrison and Eric Snodgrass in a workshop series called oracle(s) on similar questions that center Black feminist poetry as key to imagine computing otherwise. These workshops have taken place at ACM FAT* (Fairness Accountability and Transparency [in Machine Learning]) conference in 2020; Futures Otherwise as part of the Alt_Cph Copenhagen Biennale in 2020; and another Futures Otherwise workshop with the Haus der Kulturen der Welt, Berlin, also in 2020. In addition, we held a workshop at the 2020 EASST+4S conference titled Maintaining CS (Chance and Scandal). In all of this work that we are invited to do, in and outside of CS spaces and conferences we bring in critical and aesthetic practices that intervene within and yet persistently remain outside of what is thought of as CS (Computer Science). Our work of practicing for "the future we need" requires questioning the forms and formats of interventions that seek to remake the violent realities of dominant CS (Computer Science)—that we live within and struggle amidst. The violent

realities and histories of computer science that we refer to include the way that computation normalizes, optimizes, and makes operational through computation colonial and eugenic modes such as sorting, separating, categorizing, segregating—reliant on hardened categories and universalisms (Amaro 2019; Benjamin 2019; Pritchard et al. 2020).

In a move of unknowing this work of CS centers speculation as a practice that refuses technocratic solutionism to question the temporalities that mandate production, progress, and normate presence. In this paper as a speculative practice of working with metaphor, we propose to replace CS (Computer Science) with CS (Careful Slugs), forthcoming could be CS (Cushions and Stargazing), CS (Crying Sabotage), and/or CS (Chancer Scientist). We propose that the metaphors of Careful Slugs might create possibilities for new kinds of work in Computer Science. Possibilities in which unknowing itself become disoriented, disassembled, and undone in its conventional forms (cf. Jasbir Puar, in McRuer and Johnson 2014). Working with slowing down and practicing with less immediately evident questions for normative computer science, CS (Careful Slugs) speculative fictions might help us to ask questions about anti-ableist practices, anti-racist practices, and otherwise metaphor practices. Attending to interdependence, slowness, centering with intention and lubricated accountability (Mingus 2019). Careful Slugs help us to ask: Who is this creating accessibility for? Where is alt text used? Who is privileged in this space? Where is a readable font used? Who is explicitly welcomed into this space? Who does this serve? How does this work dismantle white supremacy? How careful can Careful Slug be?

We invite you to speculate how Careful Slugs might be called upon when beginning to design a community infrastructure, and/or developing a queer operating system, and/or designing as crip technoscientists. We pursue this work as white trans*gender, queerfeminist, and disabled practitioners in the name of the multiple flourishings that are ongoing within CS (Community Successes) that are committed to disability justice (Sins Invalid 2016), racial justice (Black Lives Matter, n.d.), and trans*feminist praxis. A flourishing such as articulated by Alexis Shotwell (after Haraway) "to name the contingent, without-guarantees, partially shared world that recognizes both ethical entanglement and irreducible difference" (2016, 155). We follow Robert McRuer and Merri Lisa Johnson's cripistemological framework which attends to "the places where bodily edges and the categorical distinctions blur or dissolve" (2014, 149–69). Through working with metaphor, we generate a series of speculative fictions for CS—Careful Slugs stories that reconfigure relations and introduce scandals and chances into Computer Science, Design, and STS processes that might lead to other sorts of project plans, research questions, and technical inquiries.

For CS

CS (Careful Slugs) has everything to do with CS (Computer Science) and CS (Committed Survival).

CS (Careful Slugs) is not an event or critical break after which new standards are established.

CS (Chance and Scandal) can be trained for with the commitment towards undoing another source of oppression.

CS (Careful Slugs) can be a form of failure less closely tied to action.

CS (Chance and Scandal) helps to set up an expanded gestural repertoire of "how" and "what" and "to do."

CS (Careful Slugs) can be resourced.

CS is an indeterminate acronym [[Computer Science], [Chance and Scandal], [Composition and Struggle], [Complexity and Space], [Committed Survival], [Care and Shelter], [Chocolate and Strawberries], [Cushions and Stargazing], [Collective Strategies], [Careful Slugs], [Cut and Scale], [Collapsing Species], [Chancer Scientist], [Cohabitation and Sharing], [Conditions and Story], [Crying Sabotage], [Collective Suffering]].

In reaching towards scandals that are chancy, overwhelming, and less closely tied to action, we configure CS as materiality and as metaphor. We do this to account for, unsettle, take responsibility for, and remake dominant CS (Computer Science) as it currently "is"—a field built on colonial and imperial violences. We can understand CS (Computer Science) as reliant on "a one-world world" that materializes through computation "as a figure of domination and extraction, as well as exclusion and marginalization, even as it promises universality" (Gabrys 2022, 8). These violent extractivist practices not only work on ableist and racist assumptions of what bodies are (see Rocha and Snelting 2022) but, by operationalizing them and providing the conditions for logistical, population, and military control of people and resources (Aouragh et al. 2020). Aided and funded by a tight coupling of technocracy and technosolutionism which controls the world through ownership (acquired by violent impositions) of infrastructure (Aouragh and Chakravartty 2016). These violences are hardened into the field, which continuously uphold and stand in for what Sylvia Wynter describes as "universal généralisant": the unquestionable reason, value, and authority that is the illusion of all colonial constructs (1989). CS (Careful Slugs) works to destroy these multiplying unquestionable constructs. An example of this universalizing move when it intersects with the interests of hyperscale companies gathered under GAFAM/GAMA,¹ BATX,² FA(A)NG,³ MAMAA⁴ is M\$ta's (formerly F\$c\$book) new world-building project, the m\$tav\$rse, which requires non-disabled people to wear VR glasses to gain access to work, life, and hanging out with their colleagues and friends. Eyecontact becomes a prerequisite way for allistic (non-autistic) conditioning in the m\$tav\$rse release videos which portray the metaverse as "the future" and the way that a universal "we" will access and spend time with each other in the cloud—a resource-hungry and data-intensive infrastructure. "A

future," which as we describe elsewhere, is only made possible through the extraction of precious metals, the depletion of communities, and standardization of spacetime by a powerful consortium (see Pritchard et al. 2020). Destroying the established grounds of computer science and its interdependencies with hyperscale Big Tech infrastructure is part of our work on CS.

Operations for CS_practices --;-----><

<p>I Conjuring the Question</p> <p>Feel into a question for CS for maintaining responsibility without knowing what will happen, a question that rubs along the cusp of unknowing. When your question is felt, write it down.</p>	<p>conditions</p> <p>careful</p> <p>crip composed compulsory cancelled</p> <p>considerablecarceral</p>	<p>III Craving the Practice: [CS, + CS, CS, *, CS]</p> <p>Look for your chosen CS_expressions in the compiled practice glossary below. Each one generates a CS_practice, note them down you should now have 1-4 CS practices.</p>
<p>II Parsing the Expression</p> <p>Parse up to four words from the CS_strings, do this by closing your eyes and placing your finger on the page four separate times. These are your CS_expressions.</p>	<p>crying</p> <p>science</p> <p>struggle</p> <p>scandal survival strawberries</p> <p>support strategies</p> <p>scientist</p> <p>sharing</p>	<p>IV Non-Equivalencies of CS_practice: (#)</p> <p>To address your question for maintaining responsibility, make a [CS, + CS, CS, *, CS] towards unknowing. Operate with 4 CS_practices at a time and remix as needed, depending on scale of unlearning desired. If you cannot find a practice for your chosen CS_expressions, consider making one up. In order to practice, you may need time, materials, companions, non-human assistants, and (in)determinate space.</p>
<p>computer</p> <p>chance</p> <p>complexity committed</p> <p>chance</p> <p>care</p> <p>caring</p> <p>chocolate</p> <p>cushions</p> <p>composure</p> <p>commons</p> <p>chancer</p> <p>composition</p> <p>collective</p> <p>cohabitation</p> <p>companion</p> <p>collapsing</p> <p>cut case</p> <p>collective choice</p>	<p>space</p> <p>structures slug</p> <p>situationism</p> <p>scandal</p> <p>studies</p> <p>silliness</p> <p>sleep</p> <p>study</p> <p>stories</p> <p>sabotage</p> <p>states</p> <p>scale scaffolding</p> <p>species</p> <p>suffering</p> <p>story</p> <p>stargazing</p>	<p>V Shifting Grounds</p> <p>These CS_practices are unstable and specifically performed. Whichever CS_practices you choose are the right ones.</p>

Figure 1. This image is a screenshot from our article "CS Field Manual," (Pritchard and Britton 2020) published by the Kunsthalle Osnabrück. In this work we laid out five steps for working with CS, including "Conjuring the Question," "Parsing the Expression," "Craving the Practice," "Non-Equivalencies of CS_Practice," and "Shifting Grounds." The authors would like to note that if they would re-publish this CS Field Manual now they would work with less ocular-centric language and modes of sharing, undoing our own implicit ableisms remains our ongoing praxis.

Following CS as a "metaphor offers an (entwined material and imagined) future that has not arrived and the future we live and have already lived through ... as sites of struggle and liberation and joy!" (McKittrick 2021). "For CS" helps us to practice for the near future where indeterminacy, playfulness, racial, and disability

justice and non-technical expertise make inroads into computer science; where this work flourishes, though this future is not yet here (Muñoz 2009). We embrace Moten's call for scandal and chance where the grounds of what is possible is available to be reformulated and speculated towards.

Metaphors and/as Breach

This paper is indebted to the work of Black expressive cultures on metaphor, as Katherine McKittrick notes the ways in which they attend to science in their work. Informed by McKittrick, poet Alexis Pauline Gumbs and writer adrienne maree brown, we attempt to notice the violences of speciesism, ableism, racism, and as McKittrick says, breach it (2021, 1) to reconfigure practices of science and technology. McKittrick outlines the powerful history of Black expressive cultures and the use of metaphors in breaching that break through gaps in walls, barriers, and surfaces of the structurally violent world that we are in. Rather than only noticing the practices of technoscience and remaking it for better worlds, we call for queer playfulness and promiscuous metaphorical practice. Careful Slugs experiments towards practices that breach the two positions that are currently validated within Computer Science (CS) (and that we ourselves are part of and that fund our lives): affirmative solutionism, where computational flows are assumed to be able to be reformulated towards "fairness" through increased representation and technocracy (such as "Data Feminism," "CS for good," or the conference FAccT on Fairness, Accountability and Transparency), or refusal without plurality, where decentring technology results in a commitment to interventions that do not involve any type of computing practice or the development of critical access technologies otherwise.

We wish instead for CS to be an opening metaphor even as we write this from within CS (Computer Science) departments where the hardened muscular lines of models and predatory based solutionisms beckon some defensive slime. As unfolds in the speculative practices that follow, CS (Careful Slugs) is to practice soft goopy, to shield using protective mucous layers, to make chemical binds sticky enough to hold *in place* inconclusively (McKittrick 2006) yet with possibilities of lubricating accountability.

CS Careful Slugs

In this paper we pick up CS (Careful Slugs) as one of the CS metaphors, from the "CS Field Manual" section "operation for CS practices" (see Figure 1), and develop it as a situated and speculative practice that makes interventions into the "how," "why," and what "to do" when approaching computational work or working in CS (Computer Science). We speculate with CS (Careful Slugs)—the materiality and metaphor that they generate as they encounter computational infrastructures and interfaces. Rather than work within paradigms that reinforce CS as refusal without plurality or affirmative solutionism, CS (Careful Slugs) emerges from a

critical disability studies perspective in relationship to Black feminist thought and trans*feminist technoscience as academic fields that follow slugs which traverse ever shifting and undone grounds.

CS (Careful Slugs) wonders with queer slugs—the materiality and metaphor that they generate as they encounter computational forms and formats. As an interface play we speculate on how slugs come together in slippery spaces to do computer science—that is, how they enter as metaphors. Our slipping with slugs is informed by Aimee Bahng's (2017) proposal to reach across speculative reality and wonder *with*, rather than marvel from a distance. And following Bahng's lead we situate slugs as a surprising yet recurring player in trans*feminist technoscience.⁵ We invite you to sink with us into soft gooey worldings of slug-imaginings not to overburden the slug but to speculate what more-than-human processes might contribute to trans*feminist technoscience and CS (Computer Science) concerns (Haraway 1997; Hird 2008, 229; Pritchard 2018, 21; Britton 2020). We apply personhood sloppily and queerly, breaching colonialist hierarchy and situating this work amongst companions who engage with so-called animal, vegetal, fungal, mineral, and gastropod practices as propositions for organizing, activism, and imaginaries. CS (Careful Slugs) commingles with (amongst others) crittering practices of OncoMouse (Haraway 1997 & 2010); the dorsal politics and stabilizing practices of dolphins (Gumbs 2020); temporalities of the flowering grass that we know as rice (Gan 2017); trust teaching mycelium (brown 2017); the alloyances of gold (Pritchard, Rocha, and Snelting 2020); the resistance through sex under capitalism of the Octopus Girlfriend (Lewis 2021); the penguins against capture (Troyan and Pritchard 2022); world-building wisdom of beavers (Simpson 2021); practices of care as sick protesters (Hedva 2016) and the practice of organizing by the moon (Hamraie 2021).

Centering disability in our work requires multiple oppositions to contexts that claim to be engaged with fairness, accountability and transparency such as many papers that emerged from the 2020 FAccT conference. Many of the papers from this conference proposed that disabilities need “solutions” and can be resolved through practices of inclusion-assumed-as-care, disclosure of disability as the only way to ensure access needs being met, or assimilation as a practice of ignoring difference; against these modes CS (Careful Slugs) ripples with anti-assimilationist access for all bodyminds. CS follows Rosemarie Garland-Thompson, who works with the concept of “misfitting” (2011) to describe a shifting set of relationships between flesh (Morrison 2021) and spacetime, which are in an ever-shifting context: a contingent relation always in motion. For example, fluorescent lighting (so common in many institutional spaces) can simultaneously cause headaches and discomfort for many: move to a room with diffused lighting and much becomes possible; move to a room with fluorescent lights, so many experiences are foreclosed. We slime up this insight to ask, what kinds of metaphors or experiences *fit* into and impact CS (Computer Science)?

Unfitness, which we take to be in line with crip trans*technoscience and its practices of refusal/worlding from unexpected positions, gestures to ways “of getting things done—by infusing the disruptive potential of disability into normative spaces and interactions” (Prince 2015, 269). This disruptive practice of crip technoscience (Hamraie and Fritsch 2019) is a politics that values humans and more-than-humans for who they are “and understands that people have inherent worth outside of capitalist notions of productivity” (Sins Invalid 2016, 17). Following the commitments of crip technoscience, which understands interdependence to be a political technology, we trail how CS (Careful Slugs) unfolds our interdependent relations between CS (Computer Science), CS (Crip Stories), and CS (Committed Survival) towards speculations of a CS (Computer Science) otherwise.

We follow CS (Careful Slugs) in how it might reroute, chomp away, do nothing about, slime up, slow down, or ripple towards attachments as a way of accounting for, unsettling, taking responsibility for, and remaking dominant universalisms of CS (Computer Science). We propose that when computation is approached through the speculation of CS (Careful Slugs), the computational operations of sorting become slowed down, separating becomes impossible as sticky bodies stick to surfaces, categorizing becomes softened. As Sami Schalk reminds us, many metaphors assume nondisabled embodiments and rely upon “universal” experiences of the body “everyone sees, speaks, hears, feels, and moves in the same (nondisabled) ways” (2013). We push back against these assumptions with Schalk and practice non assumption of what bodyminds⁶ are in any space CS (Careful Slugs) as we work towards what Ruth Wilson Gilmore calls “alternative outcomes” (Gilmore 2007, 28). We understand Computer Science to be a very dominant-world-making science that must have otherwise imaginaries that unmake its rigidities and offer speculative possibilities. Alternative outcomes point to the multiple presents and futures that diverge from the violence of the quotidian and suggest how the resources of everyday life may have otherwise been organized (Gilmore 2007, 28; 2021). The work of building, finding, and attending to the possibilities of alternative outcomes comes from focusing on the conditions that set up the not naturalized and not taken for granted of CS practice.

Careful Slugs Speculative Fictions

The speculative practices and images that follow have been generated through choosing a metaphor from the “For CS” Field Manual and using it to speculate alternative outcomes—in this case, Careful Slugs. It would have been a different set of practices if we had chosen CS (Cushions and Stargazing), or CS (Collapsing Species), or CS (Collective Strategies). We offer these speculative practices, each based on a different actual slug as an experiment to generate new conditions—a set of Careful Slugs speculative fictions for Computer Science. Each fiction follows

the world of a different type of slug and develops metaphors that are in service of multispecies flourishing, consent, disability accessibility, anti-racism, trans*feminist joy, lubricating accountability, and unknowing practices.

We invite you to take one of these practices into the Computer Science lab and before starting an assignment, project, meeting, or writing project—read it—out loud or silently—with companions or alone. Hold the images close, print them out, project them on the lab walls. Feel into the practice without knowing what will happen, meditate with each Careful Slugs as a design method—rubbing along the cusp of unknowing. While reading, consider the images that we made celebrating each of the slugs, in whose honor we have written these fictions. These images were created as digital meditations on each of the slugs that we have queerly loved in this work. What happens by shifting the grounds of your work? What (slime) trails are yet to be followed? What kinds of specificities and instabilities are brought up when Banana Slugs are also considered? Who or what is affected differently when considering the Dusky Arion, or the Red Triangle, or any other slug alongside your practice?



Figure 2. On an overlapping warm background Red Triangle slug forms overlap with differing levels of opacity. Through the overlaps triangles of different sizes emerge from negative space.

Red Triangle Slug: A Defensive Elastic Sticky Safety Mucus

▲ Stealthy secretions emerge from the Red Triangle who deploys a sticky defensive mucus from their belly when threatened. They have what they need to keep themselves safe. They have invented many specificities, their *defensive elastic sticky safety mucus* super glues any predators who may have followed them. Predators are literally stopped in their tracks, their feet attached to the path no-longer traveled. Predators are bad at consent, they never ask if they can follow: the Red Triangle reminds consent is everything. The Red Triangle's super glue mucus remains sticky as they carry on as they please. Their mucus: sticky in rain, sticky in dry, sticky in all moistures, their stroll-stopping mucus cannot be washed away. They stop their followers: this is no social media ploy.



Figure 3: On an overlapping background a Dusky Arion Slug forms overlap with various levels of opacity. The antennae of each Dusky Arion slug gestures in a different direction.

Dusky Arion Slug: An Inseparable Gooeyness

▲ The Dusky Arion, with her soft gooey body, is emboldened by wetness, a wetness that reaches out to her and from her. A slight moistening or dampening of the ground makes the conditions that draw her from underneath towards encounters with surfaces. In this damp and dynamic situation (Harding 2008), she orients along the dampest surfaces. Her yellow-orange slime stabilizes movements at this site, and at this one, and at this one. Her slime creates one of her most queer properties, her queer longings "that propels us onward, beyond romances of the negative and toiling in the present" (Muñoz 2009, 1). A gooeyness that makes it impossible to understand herself as separate from what she moves across, as she chemically binds with surfaces. Unlike her Slug-like kin the slime mold, the Dusky Arion isn't a wonderful trans*feminist technoscience metaphor for communal living or non-hierarchical organizing: her stickiness is her everyday and calls upon scientists, geographers, and trans*feminist technoscientists alike to consider the relations between humans and more-than-humans. From gardeners to heart surgeons, she provides the materials and metaphors for killing to healing, ethics to sealing (Osterloff 2018). Yet Dusky Arion ontologies are more-than hydrogels for heart breakers, and her soft body—one long muscle—lubricates as it sticks. She is softening and softens interdependently—if only to move across. With moistness she forms an array, comes out in force, interfacing with her softenings. She travels faster on wet surfaces, her binding slime absorbing the stresses from the surfaces. How do we move between the moistures and drynesses that threaten our access? How do we relate with empowerment to the traumas of our enclosures? What about that soft?



Figure 4. On an overlapping background Banana Slugs arch across each other revealing different layers of opacity. Through cut-outs spots abstract shapeshifting forms are revealed.

Banana Slug: Re-/Un-/Never- done

▲ What is normative in Slug life? Oh Banana Slug, do remain unstable. The “natural” and “ground” are destroyed and defamiliarized and re-/un-/never- done. Remaining in shift, zie can change zir body if zie wants to, and zie thrives on shifts and eruptions; catastrophizing is not at play for zir, when one reality ends zie dives into the next one, sliding into it like a mollusk on a mudslide. Zie is a Banana Slug and zir (sex) life is wild, unpredictable, and slow. Zie moves amidst all of the realities of what’s there: to move, to court, to frame, to secure, to date, to be together, to reproduce, to wander, and to slowly separate. One night, needing to separate the appearance and the function: zie nibbles their bodies apart. It is a principle of life chances, to better understand how zie nibbles her body from one with extra organs, to one without: zie chews through zir organs to display what’s

not there, what cannot be compiled. Carrying on and finding other partners in zir unstable sexuality, zie is contextualized by crawlers: nestling into the detritus of the moist daytime.



Figure 5. A rounded leaf like form fans out over the surface of the image, it resembles an *Elysia Chlorotica* Slug, rounded and uneven at its edges. The forms inside remind of veins in skin or veins in a leaf.

Elysia Chlorotica Slug: Tran-planimal Coexisting Poetics

▲ Oops! Hold up! The ground is shifting once more the CS (Careful Sea Slug) is misfitting alternative approaches to interpretation along their trail! If we tune to ambiguity we encounter the *Elysia Chlorotica* demanding unknowing practices that risk “what we cannot bear and what we love too much” (McKittrick 2021, 17). In our desires for metaphors and mergings, these leaf-like green super Sea Slugs are being overread—tranimal (Kelley 2014), planimal, solar-powered cell, and chloroplast thief. Their capacities to live on chloroplasts have been mistaken as

photosynthesis. With the perfect muscular softness, for unwinding the naturalized boundaries of plant and animal, *Elysia Chlorotica* plays with the ease in which they might be overdetermined. Indeed, a community of researchers are now questioning why they were so “taken with the idea of heterotrophs becoming photosynthetic” (Roose 2014). As a tran-planimal they enter into more-than-human methodologies as a figure of coexisting, a story of symbiopolitics as a questioning force (Hird 2008; Kelley 2014; Helmreich 2014, 58). A Slug pointer to think against, and through, traditional connections—their fascinating capacity to metabolize algae sparking the imaginations of science and theory alike. The green Slug, fed by the green building of its body seems to bring together seemingly impossible mergings, seemingly incompatibilities; merging life types—making plant cells work in ways that seem impossible to scientists—that wink at trans*feminist technoscience with a certain kind of knowing. However, the Charismatic Sea Slug is far in excess of their biological descriptions, and despite their production of metaphors for commingling, we might need to risk some unlearning here. It emerges that the *Elysia Chlorotica* does not merge symbiotically but instead stores algae like fuel cells exploiting them for survival.

Hold up! Is this still thinking of them through existing frames of knowing, switching “solar power” for “plant”? *Elysia Chlorotica* leaves behind a trail on the sea bed that, when we get closer, reads, “the biological is more than biological” (Helmreich 2014, 59). And as we read they disappear from the site of the trans*feminists, their green body blending with the sea bed below, their careful trail becoming indescribable; getting into spaces of knowing, not meant for us.

un-Conclusion

Careful Slugs are metaphors that speculatively care for diverse practices within and alongside Computer Science. We have invited our readers to engage with speculative fictions for Careful Slugs that invite their practices into the Computer Science lab and engage the edges and surfaces of our practices be they smooth, rough, leafy, curved, carved, broken, rocky, moist, wet, lit, coded, and/or bracketed towards mucuses, slimes, lubricants, and adhesives which slip away edges and boundaries. While moving across the uneven field of Computer Science we have attended to energy, saving spoons (Miserandino 2013) and time to move between spaces, often about one meter per hour, taking our cue from multiple Slugs; and have engaged Careful Slugs fictions as those which allow for wayfinding in spaces that otherwise may have gone unnoticed; caring for sticky moments and moments of stuckness that slow down and allow for pausing to attend to the less perceptible.

As Careful Slugs move through trans*feminist technoscience as metaphoric practice we love Slugs as they are misfitting companions, not to be exterminated nor extracted from. We find experiences of misfitting to be powerful as they explicate oppressions that surround those so-called misfits and in this way CS

(Careful Slugs) become companions for the CS (Chance and Scandal) needed to open queer worlds that are not yet here (Muñoz 2009) within CS (Computer Science). With Careful Slugs we do not wish to tokenize or instrumentalize more-than-humans by rendering them beings only valuable for what metaphor humans can extract from them. Rather, Careful Slugs undo themselves and know-make (Hamraie 2017) a trans*feminist technoscience that includes diverse experiences of entering, rippling, and transforming. Our speculative praxis with Careful Slugs oozes an invitation towards alternative practices for Computer Science in which what exists now is moistened into, and where questions of class, race, gender, and disability—that might otherwise be obscured—are non-deterministically present.

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Notes

¹ Google, Facebook, Amazon, Microsoft or Google, Meta, Amazon, Microsoft

² Baidu, Alibaba, Tencent, and Xiaomi

³ Facebook, Amazon, (Apple), Netflix, and Alphabet/Google

⁴ Meta, Apple, Microsoft, Amazon, and Google's parent company Alphabet

⁵ We offer this as a community definition rather than the claiming of a term—Trans*FeministTechnoscience (T*FTS) is defined as a branch of science studies and practices that recognizes the inseparability of the merging of boundaries and the inseparability between science/technology/society (technoscience) and remakes the material semiotic boundaries of the body, nature, and technology. We use the formula of the star (*) which sharpens the points of the intersections of antiracist, queer, trans-disciplinary and intersectional sensibilities alongside broader STS (Britton and Pritchard 2020).

⁶ Bodymind is a feminist disability studies concept from Margaret Prince (2015), which refers to the enmeshment of bodies and minds and undoes their construction as separate due to Cartesian dualisms that permeate Western philosophical traditions. *Bodymind* can be a helpful term to understand specifically the tolls of marginalization on people constructed as othered through pushing back against the notion that some experiences are only "about" pure embodiment.

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