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Visual Overview of Collaboration

In this section we provide a visual overview of the collaborations as a way to illustrate the unique setups across each set. We do not illustrate the individual PIs. Additionally, we use a different naming schema from the paper to further preserve anonymity.

How to Read:

-  Solid circles represent individuals we spoke to
-  Dashed circles represent individuals we *did not* speak to but were mentioned in the interview
-  Outer containers represent different organizations
- ↔ We only draw arrows across organizations assuming that people within a box speak to one another.

Acronyms Used:

PI: visualization PI, **DE:** domain expert, **GS:** visualization graduate student

The diagrams should not be read super literally, there is a good amount of assumptions embedded in how people interact.

Vignette Attributes

DSM? Marks whether the design study methodology paper [Sedlmair 2012] was explicitly cited in their research

Funding Source: Marks where funding for the project came from.

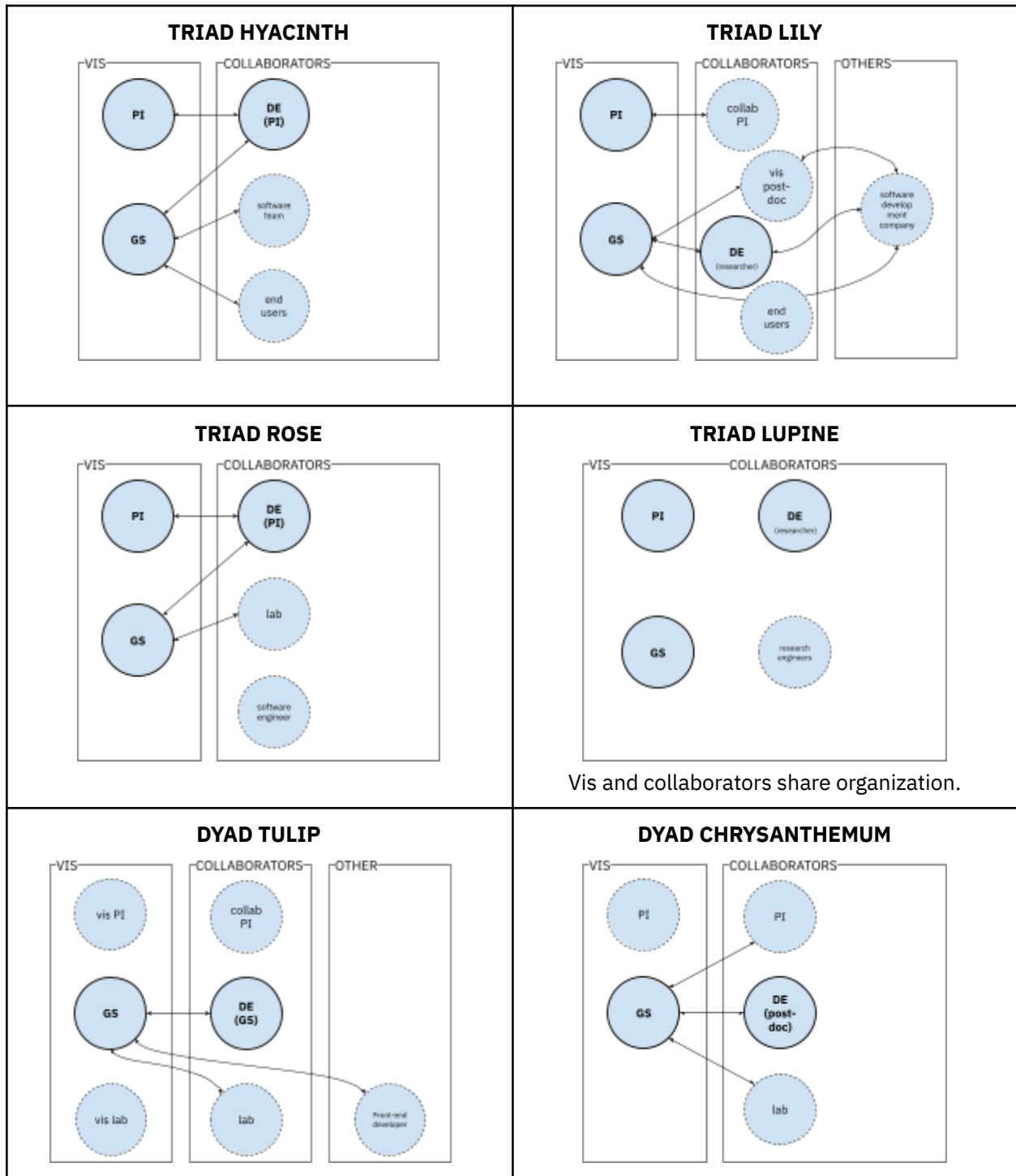
Unique Aspects: Marks notes about different attributes of a given setup.

Views on Maintenance: Marks comments and thoughts regarding maintenance.

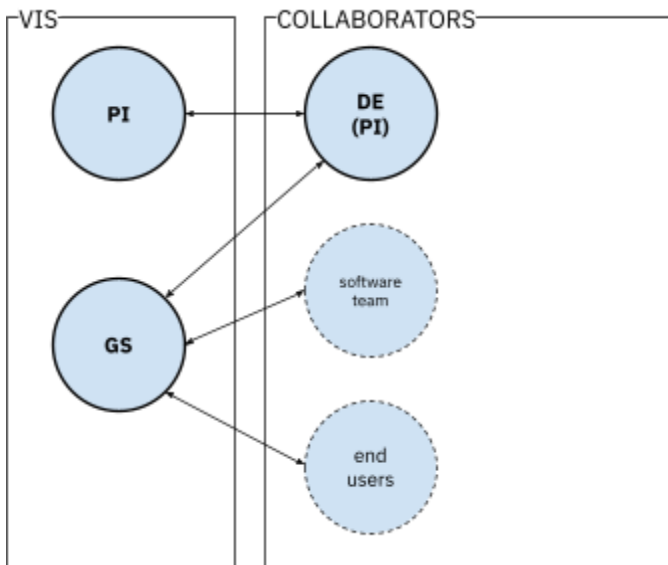
Affect: Marks comments regarding affect about the collaboration.

Expectations: Marks expressions of expectations regarding the collaboration and tool.

Why *this* collaborator/collaboration? Marks how the collaboration was established.



Triad Hyacinth



Triad Hyacinth is a North America-based group. The domain can be characterized as highly-seasonal with advanced computational modeling methods. The GS is personally interested in the domain and reached out to the collaborator.

DSM? no

Funding Source: domain

Unique Aspects:

- This collaboration is set-up like design consulting: the GS develops a prototype that is then fully re-engineered by a software development team
- The grad student has a lot of agency, they initiated the collaboration

Views on Maintenance: *Given that the GS is personally invested in this domain, they would like to support the tools post-graduation, but there is less pressure to do so because the collaborator's organization is re-implementing his prototypes into their infrastructure.*

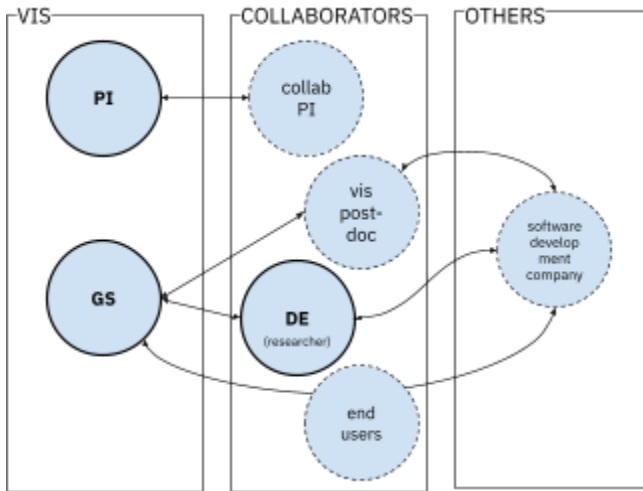
Affect: *Generally, there is an authentic shared interest in the domain and work being done.*

- DE: appreciates that the vis grad is interested in the domain
- GS: enjoys the work and the people

Expectations: *The expectations for GS's work seem well managed both by the GS and also by the DE and PI.*

Why this collaborator/collaboration? *The vis grad pursued this collaboration due to personal interest and need for funding.*

Triad Lily



Triad Lily is a Europe-based group. The domain can be characterized as a large industry lab with access to funding, software engineers, and a history of advanced computational methods for data analysis. The vis PI has a long history of working with this collaborator and puts a lot of effort and thought into maintaining this relationship.

DSM? no

Funding Source: domain

Unique Aspects:

- This collaboration is set up like design consulting: the grad student develops a prototype that is then fully re-engineered by a software development team

Views on Maintenance: *The code is open-source on Github and the prototype will be rebuilt by a software development team so maintenance to some extent becomes an irrelevant topic.*

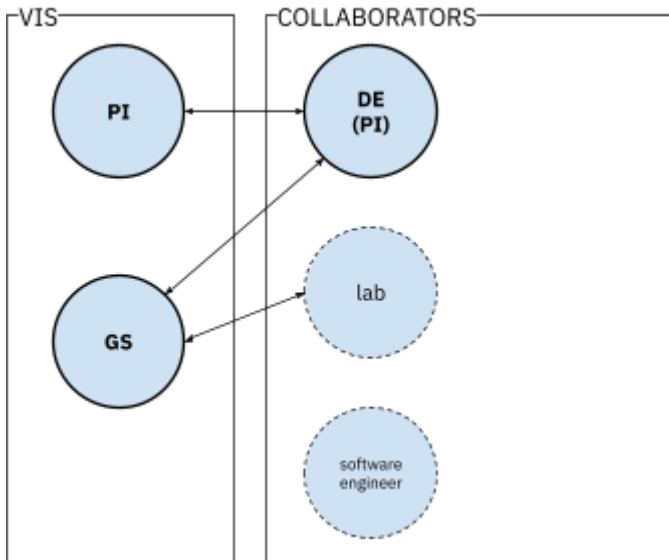
Affect: *Overall everyone had a positive experience collaborating but it felt more contractual. The DE also mentioned that they felt like at times it was a lot of work for them.*

Expectations: *Given the history of working together, the expectations about the research artifact were already established.*

- Vis PI: a stable prototype and collaborator knew what to expect
- DE: acknowledgement that vis grad was building a proof of concept

Why this collaborator/collaboration? *The vis PI had an existing relationship with the supervisor of the DE.*

Triad Rose



Triad Rose is a North American-based group. The DE is a PI of a large lab with access to funding and a history of advanced computational methods for data analysis. The project we discussed is from about 10 years ago.

DSM? n/a

Funding Source: domain

Unique Aspects:

- Both PIs really discussed the value in collaborations as a form of teaching grads and helping them in their careers

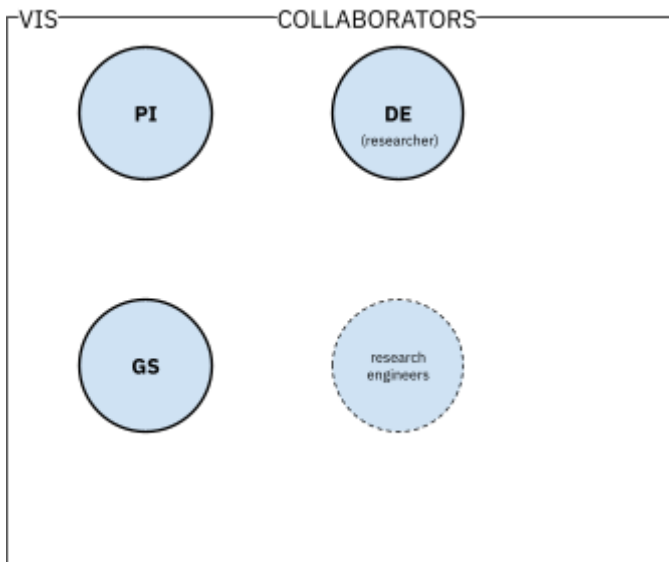
Views on Maintenance: *The tool from the initial deployment wasn't easily usable because it required additional work with data uploads, so maintenance is a moot point.*

Affect: *Generally everyone was happy but there were some tensions around the process of development. The visualization lab and domain lab had different work cultures which was brought up in the interviews.*

Expectations: *There were no explicit discussions about a deliverable. However, implicitly, the DE was hoping for insight and the vis side was hoping to solve a problem by making a usable tool.*

Why this collaborator/collaboration? *The vis PI and DE are both faculty members at the same university and the DE reached out to the PI about a specific computational problem.*

Triad Lupine



Triad Lupine is a Europe-based group. The domain expert is immersed with the visualization researchers and works across the domain and visualization with access to funding, visualization researchers, and a history of advanced computational methods for data analysis.

DSM? No

Funding Source: vis

Unique Aspects:

- Domain expert immersed in the vis department

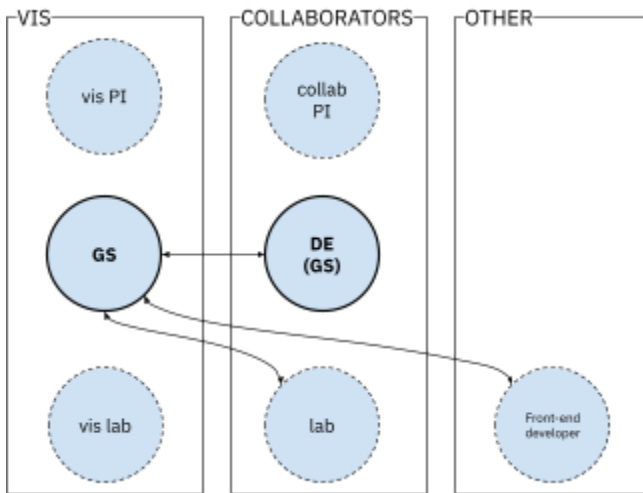
Views on Maintenance: *There was little discussion about maintenance because the project is on-going and the tool's functionality is still being developed.*

Affect: *The DE is frustrated, the vis grad is stressed about their career, and the PI focused on fun as a metric of success.*

Expectations: *Everyone is interested in creating usable software, but the expectations are sometimes at odds with more pragmatic goals like publishing.*

Why this collaborator/collaboration? *The DE works closely in both the vis department and domain department.*

Dyad Tulip



Dyad Tulip is a Europe-based group. The DE is a graduate student working in a domain that is historically removed from computation and data analysis. The GS in this scenario is *not* in a computer science program but worked through the design process and visualization development process. Both GS and DE discuss *how* much they learned from collaborating. We spoke only with grad students and no PIs.

DSM? no

Funding Source: domain

Unique Aspects:

- Vis student not in CS
- Domain-side PI was very particular about certain design requests

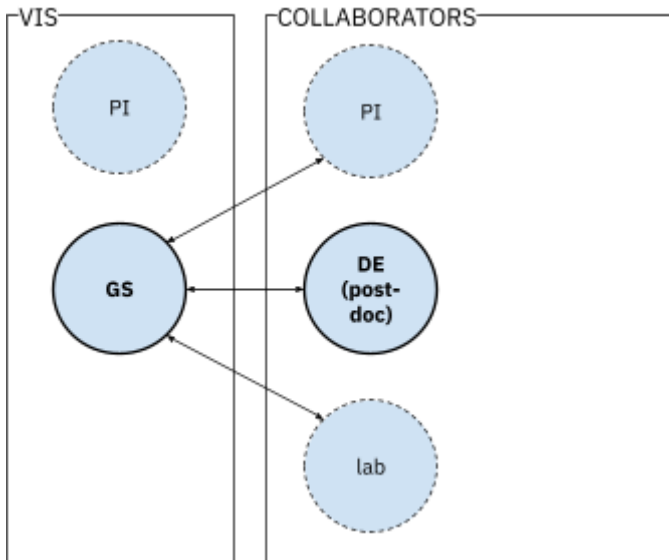
Views on Maintenance: *There is a mismatch between how easy/difficult maintenance will be between GS and DE.*

Affect: *Both GS and DE enjoyed working with one another and learning about the other's domain.*

Expectations: *Did not get a good read of expectations (who set them and how).*

Why this collaborator/collaboration? *Without interviewing the PIs, it is hard to learn more than the domain PI received a grant on which the GS was then funded.*

Dyad Chrysanthemum



Dyad Chrysanthemum is a Europe-based group. The domain expert is a post-doc working in a domain that is historically removed from computation and data analysis. In this dyad, there is respect between parties, and the GS really immersed themselves in the domain.

DSM? yes

Funding Source: domain

Unique Aspects:

- The development of the tool convinced the domain team to finish digitizing their database

Views on Maintenance: *Even though the GS is graduating, they feels a personal and professional obligation to continue supporting the tool and the DE sees the tool as something they will use for his research even 10 years down the line.*

Affect: *Both the GS and DE were very happy about the project and the collaboration.*

Expectations: *There were no expectations to build a tool although the scoping of the funds was to make a data visualization.*

Why this collaborator/collaboration? *The funding came from a large interdisciplinary project and vis grad ended up focusing on this one domain specifically*