

# Hazel Assistant Calculus WIP

Andrew Blinn

University of Michigan, USA  
blinnand@umich.edu

Cyrus Omar

University of Michigan, USA  
comar@umich.edu

## Abstract

The hazelnut assistant calculus provides an extensible framework for type- and value-directed completion and refactoring support in a structured editing context.

**CCS Concepts:** • Software and its engineering → General programming languages.

**Keywords:** live programming, code completion, refactoring, GUIs

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YOOO

## 1 Assistant Calculus

blah blah blah types

TODOs:

- get cursor icons from hazelnut paper DONE
- get right arrow for bidi DONE

## References

Suggest Hole Analytic

$$\frac{\text{Intros}(\tau) \leadsto A_{\text{intros}} \quad \text{Elims}(\Gamma, \tau) \leadsto A_{\text{elims}}}{\Gamma \vdash \triangleright \langle \rangle \triangleleft \Leftarrow \tau \leadsto A_{\text{intros}} \cup A_{\text{elims}}}$$

Suggest Elims

$$\frac{\begin{array}{cc} \text{ElimCase} \leadsto A_{\text{case}} & \text{Var}(\Gamma, \tau) \leadsto A_{\text{var}} \\ \text{VarApp}(\Gamma, \tau) \leadsto A_{\text{varapp}} & \text{Proj}(\Gamma, \tau) \leadsto A_{\text{proj}} \end{array}}{\text{Elims}(\Gamma, \tau) \leadsto A_{\text{case}} \cup A_{\text{var}} \cup A_{\text{varapp}} \cup A_{\text{proj}}}$$

IntrosTriv

$$\frac{}{\text{Intros}(1) \leadsto \{\text{construct triv}\}}$$

IntrosProd

$$\frac{}{\text{Intros}(\tau_1 \times \tau_2) \leadsto \{\text{construct pair}\}}$$

IntrosArrow

$$\frac{}{\text{Intros}(\tau_1 \rightarrow \tau_2) \leadsto \{\text{construct lam } x\}}$$

IntrosSum

$$\frac{}{\text{Intros}(\tau_1 + \tau_2) \leadsto \text{construct inj L, construct inj R}}$$

**Figure 1.** Base suggestion judgments

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