Scala Inline

No Author Given

No Institute Given

Abstract. [1]

Keywords: Partial Evaluation, Macros

1 Introduction

1.1 Motivating Example

```
// case 1:
  varargs: Seq[T]
// case 2:
  fold on a known Array size
// case 3:
```

Fig. 1. Motivating example for the paper.

2 Syntax

3 Typing

References

1. Eugene Burmako and Martin Odersky. Scala Macros, a Technical Report. In *Third International Valentin Turchin Workshop on Metacomputation*, 2012.

$$
\begin{array}{lll}
t ::= & & \text{Terms:} \\
\quad x & & \text{identifier} \\
\quad (x : iT) \Rightarrow t & & \text{function} \\
\quad t(t) & & \text{application} \\
\quad \overline{\{x = t\}} & & \text{record} \\
\quad t.x & & \text{selection} \\
\quad inline\ t & & \text{inlining starting point} \\
T ::= & & \text{Types:} \\
\quad iT \Rightarrow jT & & \text{function type} \\
\quad \overline{\{x : iT\}} & & \text{record type} \\
iT,\ jT,\ kT ::= & & \text{Inlineable Types:} \\
\quad T & & \text{dynamic type} \\
\quad static\ T & & \text{static type} \\
\quad inline?\ T & & \text{maybe inline type} \\
\quad inline!\ T & & \text{must inline type}
\end{array}
$$

Fig. 2.

$$
\frac{x : iT \in \Gamma}{\Gamma \vdash x : iT} \tag{T-Ident}
$$

$$
\frac{\Gamma,\ x : iT_1 \vdash t : jT_2}{\Gamma \vdash (x : iT_1) \Rightarrow t : static\ iT_1 \Rightarrow jT_2} \tag{T-Func}
$$

$$
\frac{\Gamma \vdash \overline{t : iT}}{\Gamma \vdash \overline{\{x = t\}} : static\ \overline{\{x : iT\}}} \tag{T-Rec}
$$

$$
\frac{\Gamma \vdash t_1 : i(jT_1 \Rightarrow kT_2) \quad \Gamma \vdash t_2 : jT_2}{\Gamma \vdash t_1(t_2) : (i \,\overline{\wedge}\, j \,\overline{\wedge}\, k)T_2} \tag{T-App}
$$

$$
\frac{\Gamma \vdash t : i\{x = jT_1, \overline{y = kT_2}\}}{\Gamma \vdash t.x : (i \,\overline{\wedge}\, j)T_1} \tag{T-Sel}
$$

$$
\frac{\Gamma \vdash t : static\ T}{\Gamma \vdash inline\ t : inline!\ T} \tag{T-Inline}
$$

Fig. 3. $\Gamma \vdash t : iT$

TODO

Fig. 4. Intersection of inlineable types $iT_1 \,\overline{\wedge}\, jT_2$

TODO

Fig. 5. Intersection of types $T_1 \wedge T_2$