Presents a framework for defining typed languages and extending them with syntactic sugar [1]. The sugarings can extend the valid expressions and types of the language.

All syntax extensions are guaranteed type-sound, and are typechecked before they elaborate into core syntax. Thus any type errors are caught early and presented to the user in terms of the surface syntax.

Strengths

- Promotes (some form of) extensible type systems.
- Preserves extensions' abstraction barriers, probably makes errors easy to debug.

Weaknesses

- Language extensions must be expressible in the core; growth is limited by the language you begin with.
- The system is no help to existing languages. Before a language can grow, it must be defined within the authors' framework.

Hmph, this makes me think macrotypes would've had a good shot at POPL.

References

[1] Florian Lorenzen and Sebastian Erdweg. Sound type-dependent syntactic language extension. In *POPL*, 2016.