Using graphs to prove properties about guarded expressions

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A guarded expression is composed of parts.

Note: we could call these "equations," but intermediate expressions like "x" or "3" in $\exists x.$ `x = 3; x; 3; 2 + x` *aren't really equations. What do you think?*

A part can be solved if, considering an environment ρ, all names in the part are known within ρ. (A name is *known* in an environment if it exists in that environment and has a binding to a value in that environment. A *value* is simply either an integer or a value constructor applied to one or more arguments.).

Let us consider a guarded expression GE and the graph G. G is composed of nodes which represent the parts of GE. The edges in G are formed with this rule:
If