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Benchmarking ADT struct representation vs Vector struct representation

This notebook compares the representation of structures on Boogie level as:

- Vectors of the universal \$Value type. Values for all fields are represented in boxed (\$Value) representation. Selecting and updating fields amounts to vector indexing. On select/update values need to be unboxed/boxed.
- Abstract data types. Values of fields are stored in unboxed representation unless their type is generic. Equality on universal values has to be implemented by a large case distinction of the multiple ADT variants. However, equality is extensional unless a struct contains a transient field of vector type, which breaks extensionality.

Preparation

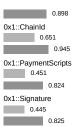
Load the prover-lab crate. This may take *long* (minutes) the first time the Jupyter server is started because it compiles a lot Rust sources.

```
In [3]: use prover_lab::benchmark::*;
```

Module Verification Time



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Top 20 by Function

```
let mut struct_as_vec_fun = read_benchmark("struct_as_vec.fun_data")?;
let mut struct_as_adt_fun = read_benchmark("struct_as_adt.fun_data")?;
struct_as_vec_fun.sort(); // Will also determine order of other samples.
struct_as_vec_fun.take(20);
plot_benchmarks(&[&struct_as_vec_fun, &struct_as_adt_fun])
```

Out[7]:

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	= struct_as_adt	
Pay	mentScripts::peer_to_peer_with_metadata	tin
	1.491	_
Acc	ountCreationScripts::create_child_vasp_account	٠.
	2.719	tiı
	asuryComplianceScripts::preburn	
	1949	ti
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Die	m A occuptiva sekura	ti
Die	mAccount::preburn	
	1.307	
	mAccount::pay_from	
	1.639 1.446	
	asuryComplianceScripts::cancel_burn_with_amount	
	1.257	
	1.251	
	mSystem::add_validator 1.170	
	1.052	
	mTimestamp::set_time_has_started	
	1.142 1.422	
	nesis::initialize	
	1.136	
	1.419 mAccount::cancel_burn	
	1.087	
	1.247	
	datorAdministrationScripts::add_validator_and_reconfigure 1.037	
	1.099	
	mAccount::deposit	
	1.007 1.191	
	mAccount::tiered_mint	
	0.970	
	1.116	
	datorAdministrationScripts::remove_validator_and_reconfigure 0.940	
	1.183	
	asuryComplianceScripts::tiered_mint	
	0.934 1.095	
	mAccount::withdraw_from	
	0.925	
	1.125	
	datorAdministrationScripts::set_validator_config_and_reconfigure 0.898	
	0.989	
	mAccount::create_designated_dealer	
	0.893 1.060	
	m::burn_now	
	0.877	
	1.127	