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SG21

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noexcept(contract_assert(_))

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Contradictory goals:

1. No technical reason to use assert().
2. No technical reason to invent one’s own assertion macro.
3. Contract annotations are for defining predicates, not for dodging contracts design choices.
4. Adding contract annotation does not affect surrounding compile-time semantics.
5. I want throwing violation handlers, because I know how to deal with exceptions.

Contract annotations are for defining predicates, not for dodging contracts design choices.

desired:

```
contract_assert(p(x));
```

not desired:

```
contract_assert {evaluate_in_build_mode_X, noexcept} (p(x));
```

Adding contract annotation does not affect surrounding compile-time semantics.

```
template <int I>
Lib::X<I>::X(X&& r, int i = (contract_assert(I > 0), I)) noexcept;
```

```
std::is_nothrow_move_constructible<Lib::X<0>>
```

Not compiling controversial cases, reports the problem in the wrong place

library:

```
template <int I>
Lib::X<I>::X(X&& r, int i = f(I)) noexcept;
```

programmer:

```
std::vector<Lib::X<0>> vec;
vec.push_back({});  // ok
```

Not compiling controversial cases, reports the problem in the wrong place

library:

```
template <int I>
Lib::X<I>::X(X&& r, int i = f((contract_assert(I > 0), I))) noexcept;
```

programmer:

```
std::vector<Lib::X<0>> vec;
vec.push_back({});  // ERROR
```

Use cases for throwing violation handlers:

1. Detect bugs, but “never crash”.
2. Unit-testing defensive checks.
3. Try recovering, but OK to crash.

People who disable exceptions do not use noexcept.

Try recovering, but OK to crash.

- Works well today because we use different assertions than our libraries:
  - Our assertions throw – and we control them
  - Other assertions are disabled

“noexcept returns true, but we still throw”

- Not acceptable
- You get a throw, but it becomes different mechanism than normal exception handling
- Compromises expectation “use normal exceptions”.
- Exception handling means using noexcept for the strong guarantee.

Proposal

- Either remove throwing violation handlers
- Or accept that they are throwing, and say that