Dealing with a Monster Ecto Query

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Axios

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About Me

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I'm not a morning person.

The problem

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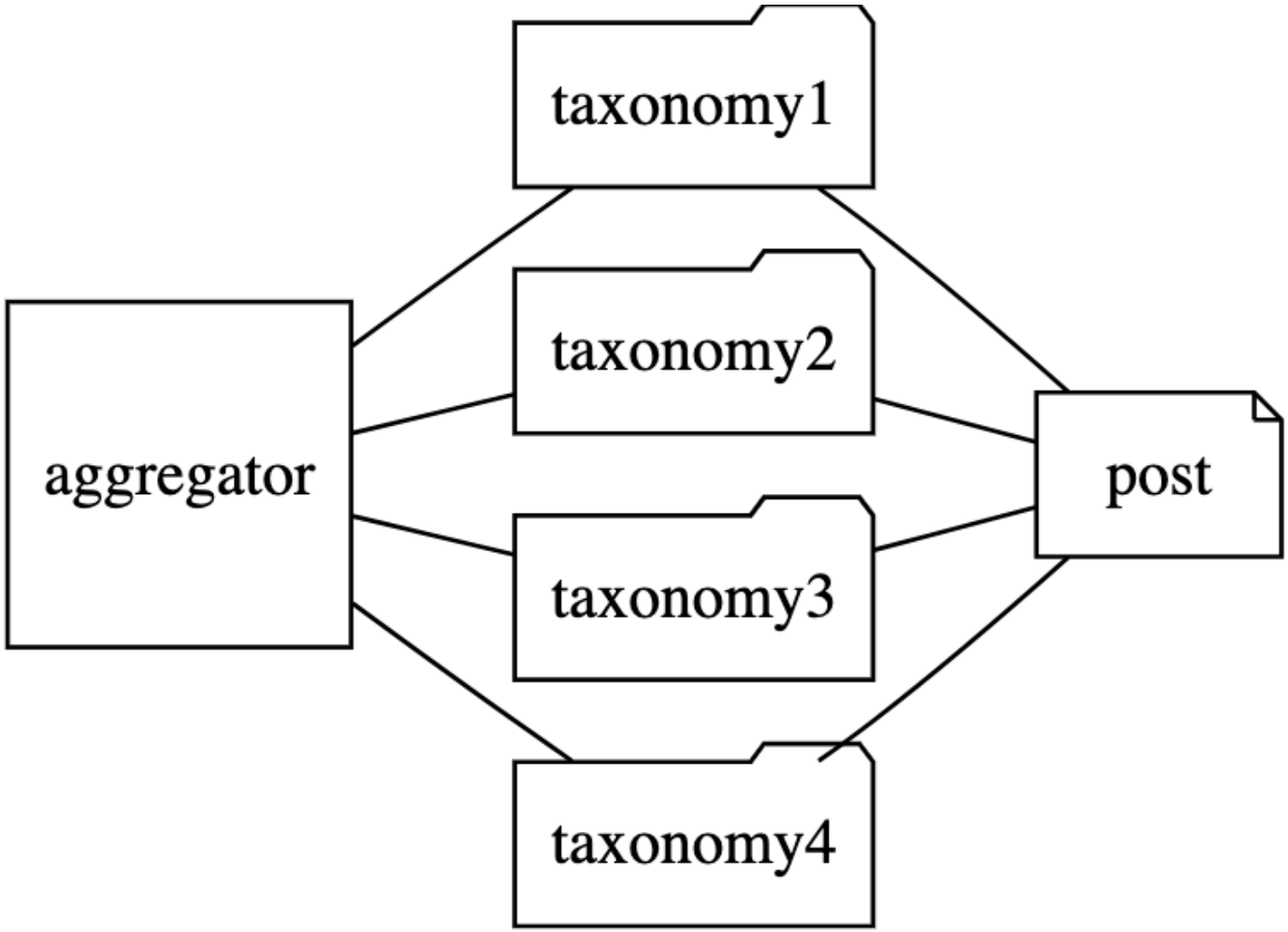
And the biggest day in US political news is next week.
(the presidential election)

Context


taxonomy1
taxonomy2
aggregator
post
taxonomy3
taxonomy4

Starting code

```
Repo.all(
  from p in Post,
    left_join: t1 in assoc(p, :taxonomy1 ),
    left_join: t2 in assoc(p, :taxonomy2 ),
    left_join: t3 in assoc(p :taxonomy3 ),
    left_join: t4 in assoc(p :taxonomy4 ),
    left_join: a1 in assoc(t1, :aggregators ),
    left_join: a2 in assoc(t2, :aggregators ),
    left_join: a3 in assoc(t3, :aggregators ),
    left_join: a4 in assoc(t4, :aggregators ),
    where:
      a1.id == ^id or
        a2.id == ^id or
        a3.id == ^id or
        a4.id == ^id
)
```

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```
Repo.all(
  from p in Post,
    left_join: t1 in assoc(p, :taxonomy1 ),
    left_join: a1 in assoc(t1, :aggregators ),
    where:
      a1.id == ^id
)
```

Break it down

What if we do 4 smaller queries?

```
Repo.all(
  from p in Post,
    left_join: t1 in assoc(p, :taxonomy1 ),
    left_join: a1 in assoc(t1, :aggregators ),
    where:
      a1.id == ^id
)
```

Written out 4 times, once for each taxonomy

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```
defp query_articles(id, taxonomy) do
  Repo.all(
    from p in Post,
      left_join: t in assoc(p, ^taxonomy),
      left_join: a in assoc(t, :aggregators ),
      where: a.id == ^id
  )
end
```

Not DRY enough

What if we take advantage of atoms and the pin operator?

```
defp query_articles(id, taxonomy) do
  Repo.all(
    from p in Post,
      left_join: t in assoc(p, ^taxonomy),
      left_join: a in assoc(t, :aggregators ),
      where: a.id == ^id
  )
end
```

And call it 4 times, once for each taxonomy

Just a little further

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What if we use Elixir's famed concurrency?

```
taxonomies = [
  :taxonomy1,
  :taxonomy2,
  :taxonomy3,
  :taxonomy4
]
```

```
Task.async_stream(
  taxonomies,
  fn taxonomy ->
    query_stories(id, taxonomy)
  end,
  timeout: 30_000
)
|> Enum.flat_map(fn
  {:ok, posts} -> posts
  _ -> []
end)
```

Results

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- Postgres analyze execution time: 8.424ms $\rightarrow$ 0.125ms $\times$ 4 = 0.5ms
- Max requests per second: 700%
- Stress-free Election Night

Find Me Online

- **Twitter:** @maco_nix
- **GitHub:** @maco
- **Homepage:** mackenzie.morgan.name
- **Elixir Slack:** @maco