Integrating data reported using various standards

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Same data. Three names. A machine cannot tell.

All three concepts below mean the same thing: Gross Scope 1 GHG Emissions.

ESRS

`esrs:GrossScope1GreenhouseGasEmissions`

ISSB

`ifrs-sds:AbsoluteGrossScope1GHGEmissions`

GRI

`gri:GrossDirectScope1GHGEmissions`

Without a concordance, a machine comparing these three reports cannot know these are the same fact.

A concordance maps facts between taxonomies

Example 1: 1:1 numeric -- machine resolves the name difference automatically

```
{ "type": "concordance:numericAssertionType",  "assistance": "none",
  "source": { "concept": "ifrs-sds:AbsoluteGrossScope1GHGEmissions" },
  "target": { "concept": "esrs:GrossScope1GreenhouseGasEmissions" } }
```

Example 2: M:1 sum -- ESRS mandates Scope 1 and Scope 2 separately; ISSB permits reporting them combined

```
{ "type": "concordance:numericAssertionType",  "assistance": "none",
  "sources": [ { "concept": "esrs:GrossScope1GreenhouseGasEmissions",                "calculation_id": 1 },
               { "concept": "esrs:GrossLocationBasedScope2GreenhouseGasEmissions",    "calculation_id": 2 } ],
  "target":  { "concept": "ifrs-sds:AbsoluteGrossScope1And2GHGEmissions", "calculation": "[1]+[2]" } }
```

The concordance is infrastructure for interoperability -- not a statement that any standard is superior. ESRS, ISSB and GRI each remain authoritative in their own domain.

Six assertion types cover every mapping situation

Each assertion type describes the structural relationship between source and target fact-spaces.

`numericAssertionType`	Numeric facts -- same or different units	1:1, M:1 sum, 1:M split, unit conversion `ifrs-sds:AbsoluteGrossScope1GHGEmissions -> esrs:GrossScope1GreenhouseGasEmissions`
`nonNumericAssertionType`	Text blocks or strings -- 1:1 correspondence	Same concept, different name; methodology descriptions `ifrs-sds:ApproachUsedToMeasureGHGEmissions -> esrs:DisclosureOfMethodologies...`
`textBlockAssertionType`	Text blocks that need splitting or merging	1:M split (one text into several); M:1 merge (several into one) `esrs:MethodologyTextBlock -> gri:Scope1Methodology + gri:Scope2Methodology`
`textToNonTextAssertionType`	Text block to structured value	Read prose to extract a boolean, integer or enumeration `ifrs-sds:WhetherRemunerationLinked... (textBlock) -> esrs:ClimateRemunExists (boolean)`
`nonTextToTextAssertionType`	Structured values combined into a text block	Render boolean + integer + enum as a coherent narrative `esrs:CarbonPricingApplied (bool) + Price -> ifrs-sds:ExplanationTextBlock`
`nullAssertionType`	No equivalent exists in the target taxonomy	Documents a coverage gap -- not a missing value, an explicit absence `GRI has no carbon price concept; ISSB has no governance gender concept`

Every assertion carries an assistance hint

The hint is a contract with consuming tools -- it says not just what to do, but how much help is needed.

AUTO

Machine applies the assertion automatically

1:1 numeric, M:1 addition, unit conversion, explicit dimension member

ASSISTED

AI assistance recommended but not essential

Merging multiple text blocks, entity-extension lookups, typedToExplicit where labels are unambiguous

REQUIRED

AI or human must act -- machine cannot proceed alone

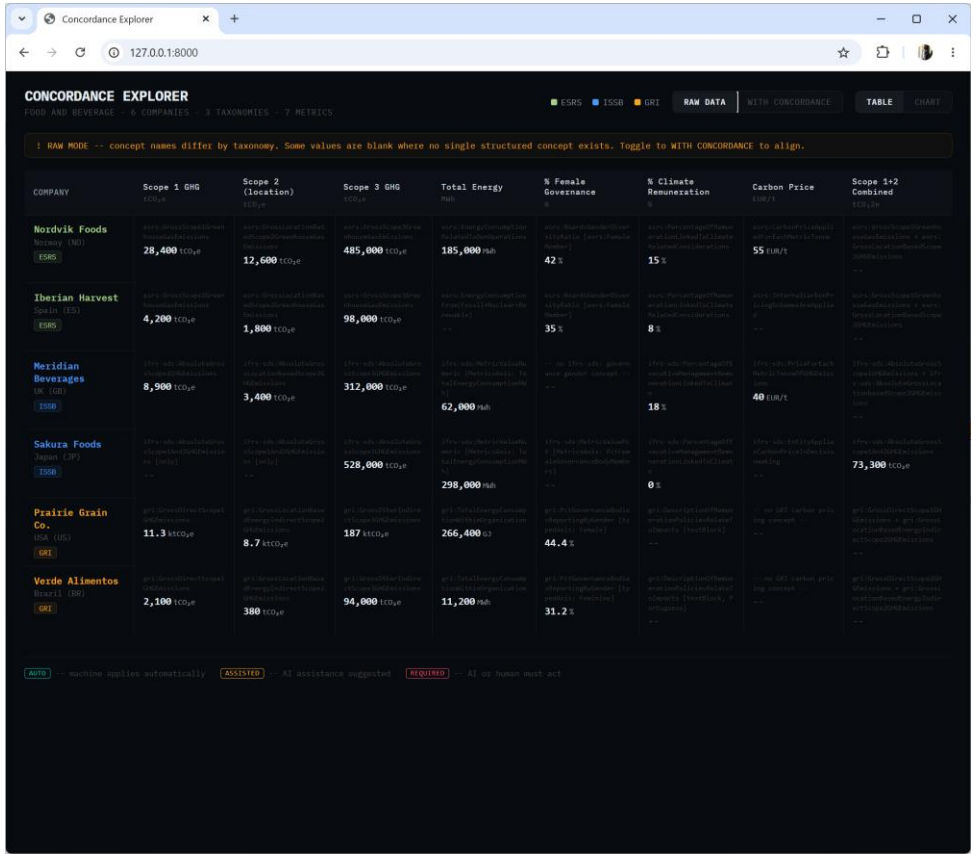
textBlock to boolean, typed dimension with non-obvious values (e.g. Feminino), 1:M disaggregation

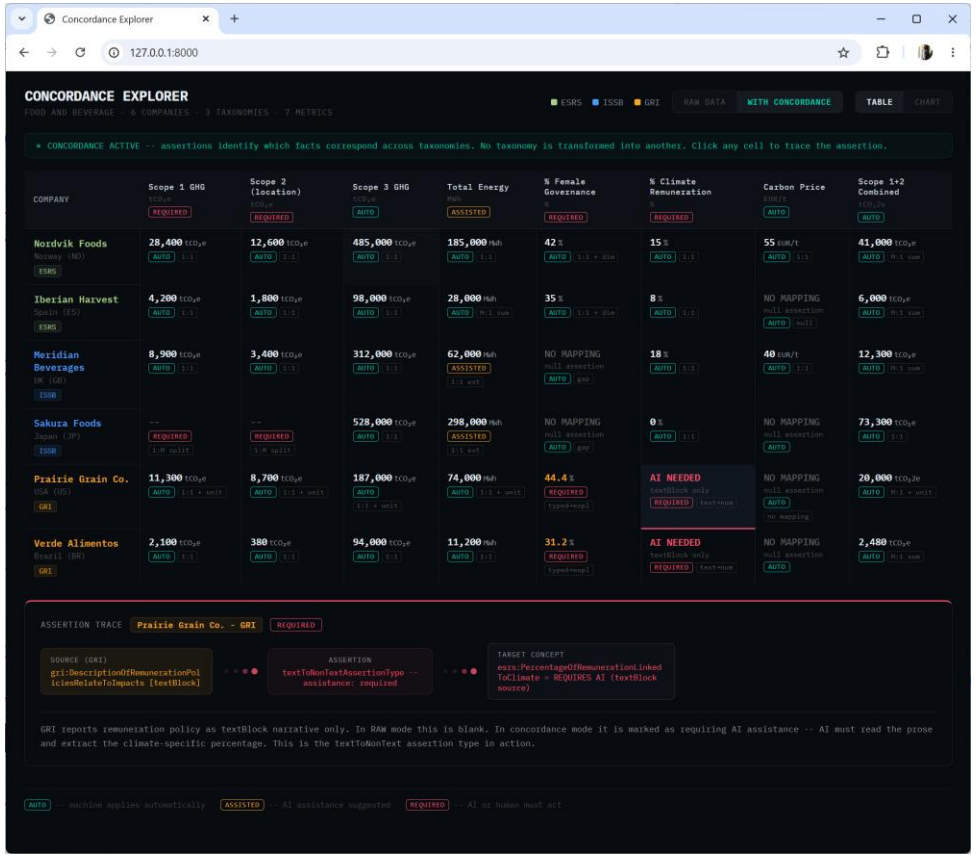
Note: nullAssertionType has no assistance level -- it is a distinct assertion type documenting an explicit absence, not a difficulty level.

Example reports

Company	Country	Taxonomy	Sub-sector
Nordvik Foods AS	Norway	ESRS	Dairy processing
Iberian Harvest SA	Spain	ESRS	Olive oil and preserved vegetables
Meridian Beverages Ltd	UK	ISSB	Soft drinks and juice
Sakura Foods KK	Japan	ISSB	Packaged snacks and instant noodles
Prairie Grain Co.	USA	GRI	Grain milling and flour production
Verde Alimentos Ltda	Brazil	GRI	Coffee processing and export

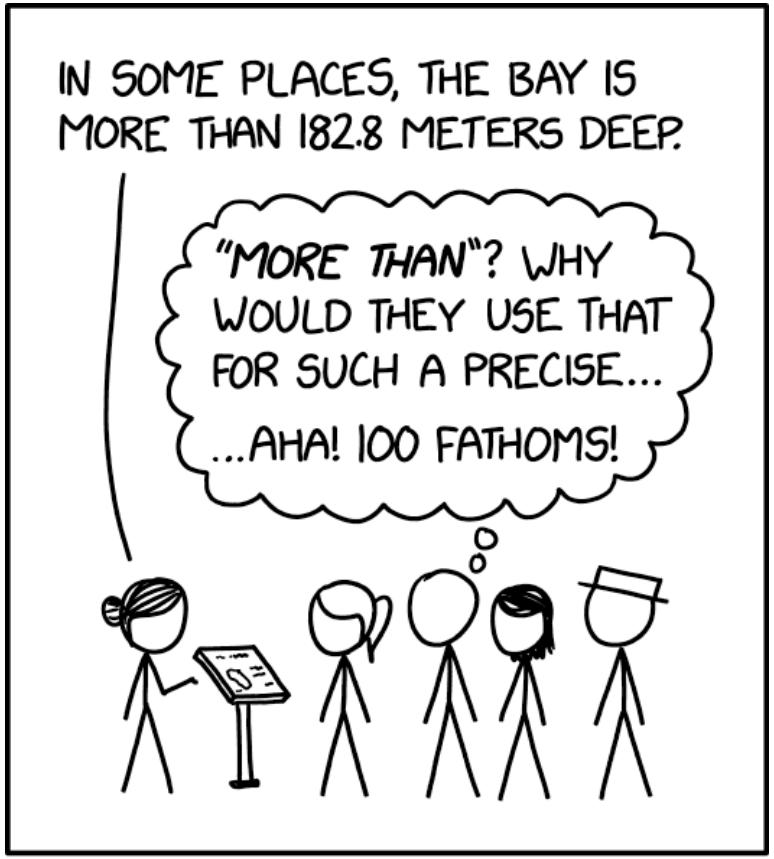
Demo concordance app …





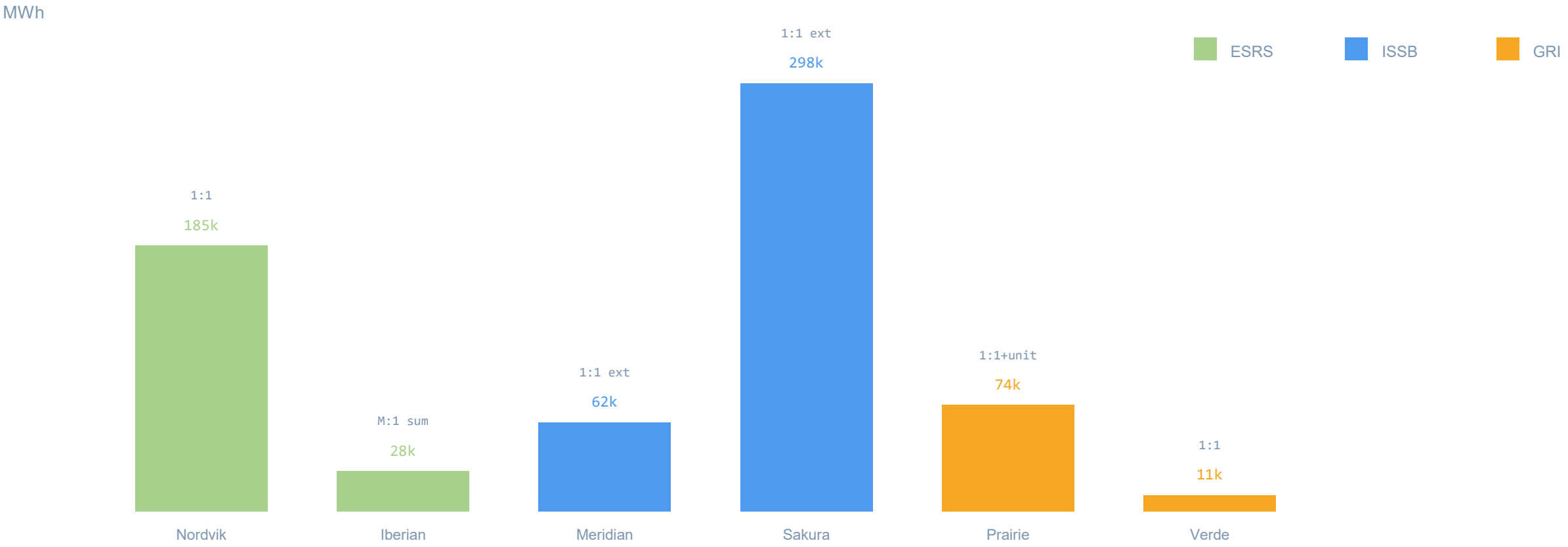
Without concordance: three separate, incomparable charts

There's always an XKCD …



With concordance: one unified chart, shared axis

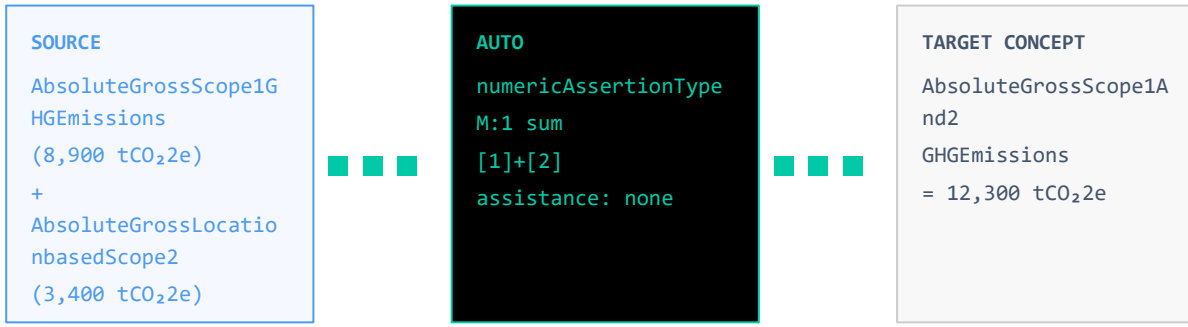
Total Energy Consumption -- CONCORDANCE mode -- GJ to MWh conversion applied -- M:1 sum for ESRS reporters



Every aligned value is traceable through its assertion

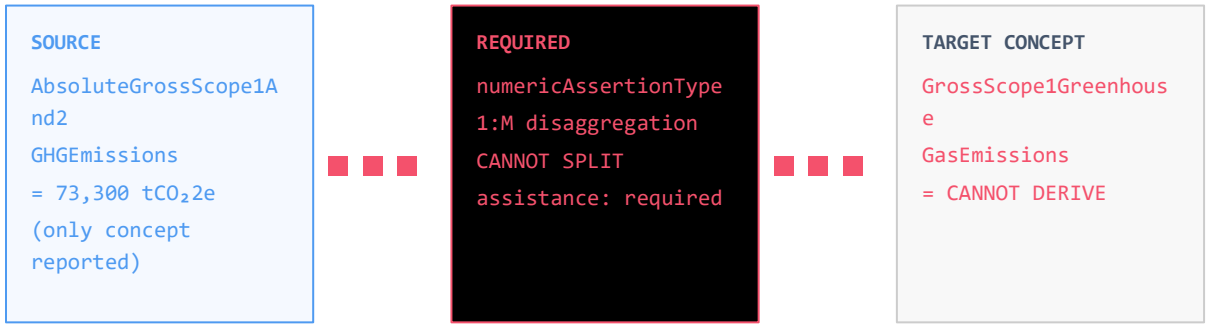
Two ISSB reporters, same taxonomy, different reporting choice -- same output metric, different concordance path.

Meridian Beverages (ISSB)



Meridian reported both individual concepts. M:1 sum is fully automatic.

Sakura Foods (ISSB)



Sakura reported only the combined figure. Individual Scope 1 cannot be disaggregated.

Prairie Grain Co. (GRI) -- Scope 1 -- unit conversion chain

`gri:GrossDirectScope1GHGEmissions [11.3 ktCO₂e] → unitMapping ktCO₂e→tCO₂e (x1000) [AUTO] → esrs:GrossScope1GHGEmissions = 11,300 tCO₂e`

GRI reporters commonly use ktCO$_2$e (kilotonnes). The concordance unitMapping converts automatically (x1000). Without this, 11.3 appears incomparable to ESRS values in the tens of thousands.

Hard case: the ISSB governance gender gap

ISSB (ifrs-sds:) has no structured concept for governance body gender diversity -- a real coverage gap.

Nordvik

ESRS

esrs:BoardsGenderDiversityRatio
[esrs:FemaleMember]

42%

Explicit member -- AUTO

Meridian

ISSB

-- no ifrs-sds: governance gender concept --

ABSENT

nullAssertionType
ISSB coverage gap

Prairie

GRI

gri:PctGovernanceBodies
[typedAxis: "Female"]

44.4%

typedToExplicit
assistance: REQUIRED

The concordance does not paper over this gap. nullAssertionType explicitly documents that no ifrs-sds: concept exists -- not a missing value, a known absence. Sakura Foods (ISSB) reported 18% in a MetricsAxis extension but without a structured concept the concordance cannot map it reliably.

Hard case: typed dimensions and language

GRI uses a typed (reporter-defined) GenderAxis. Verde Alimentos reported in Portuguese.

ESRS -- explicit dimension

```
esrs:FemaleMember
esrs:MaleMember
esrs:GenderOtherThanFemaleAndMaleMember
esrs:GenderNotReportedMember
```

Members are fixed and known. Concordance can pre-specify target strings. assistance: recommended

```
ESRS -> GRI: esrs:FemaleMember -> "Female"
```

GRI -- typed (reporter-defined)

```
Prairie: "Female"
Verde:   "Feminino"
(could be: "Women", "F", "fem", ...)
```

Strings are unknown until a specific report is read. Matching requires language awareness. assistance: required

```
GRI -> ESRS: "Feminino" -> esrs:FemaleMember  (AI needed)
```

Taxonomy design implication: explicit dimensions make concordance reliably automatic. Typed dimensions (and entity defined explicit) give reporters flexibility but shift effort to consumers. Both are valid choices -- but the concordance must be honest about the difference.

The concordance is infrastructure for interoperability

Preparers

Already reported under GRI?

- Your concordance shows which concepts map to ESRS automatically
- and which need review -- before you start writing.
- Reduce duplicate effort across reporting cycles.

Consumers

Comparing companies across a sector?

- Six companies, three taxonomies, one analysis.
- Unit conversions, structural gaps, and coverage differences
- are documented -- not silently wrong.

AI tools

Building automation on top of XBRL data?

The assistance hint tells a tool exactly where:

- it can act mechanically
- and where to ask a human.

Meaning:

- No guesswork
- No silent errors.

Write the concordance once. Use it everywhere.

Thank you

About the dataset

Claude was fed:

- the 3 real taxonomies converted to a draft version of the OIM Taxonomy JSON
- The concordance requirements in markdown with JSON samples

Claude generated (with a little steering):

- All the concordance pairs (ISSB to GRI; ESRS to ISSB …)
- All the samples as xBRL-JSON
- The demo app

Get in touch

Happy to catch up in person or by email.

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Questions?