A fable about

SUMPTUOUS ACCOUNTING™

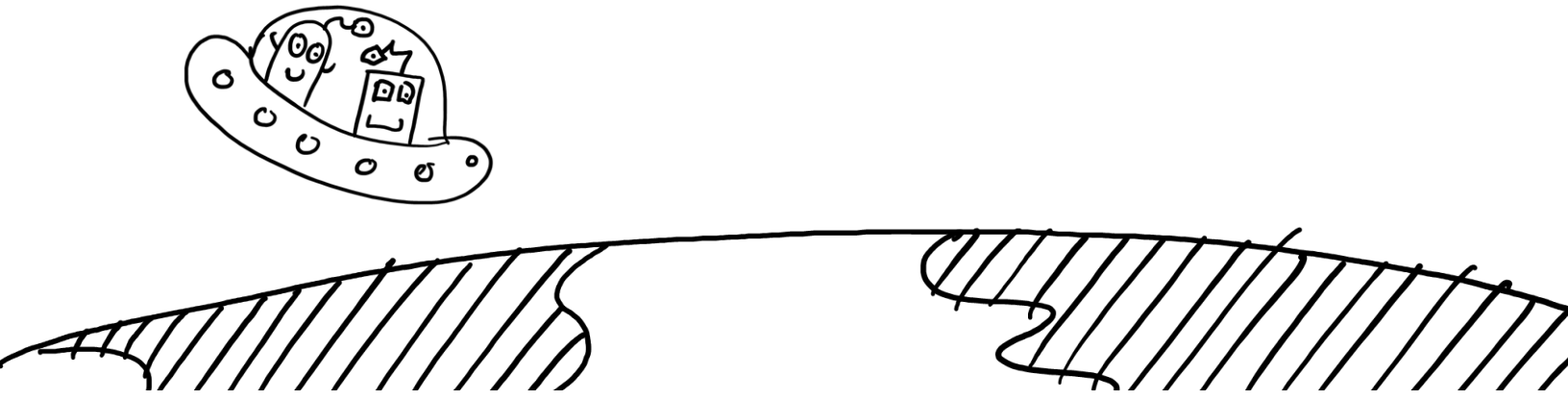
and other sci-fi adventures on Parallearth

by Karl H Richter © 2025 (version 3.0.11) [1]
www.sumptuousaccounting.org

Sumptuous Accounting™ is an intellectual provocation, taking a light-hearted approach to a very serious issue – fixing capitalism.

This working paper uses the sci-fi genre and a story-telling narrative to explore how capitalism could be evolved. Sci-fi allows us the creativity to explore an alternative reality. It frees us from preconceptions and the inertia of habit. Good sci-fi is rooted in practical feasibility – it is not fantasy.

Sumptuous Accounting™ is a thought experiment that allows us to ask: ***'how can capitalism be improved by changing our socio-economic construct?'***



[1] This version is a significant update on the previous version 2.7.1, published in 2018.

Abstract

Sumptuous Accounting™ is an accounting methodology that incorporates the non-financial impacts of commercial transactions. These economic externalities – positive or negative – are not reflected in conventional accounting methodologies. They are often excluded from market prices and financial asset valuations. Such omissions can result in market failure if price sensitive decisions are disconnected from their broader societal consequences.

The methodology employs a rigorous three-layer data architecture that maps onto and redresses known reasons for the divergence of non-financial data: (1) capturing raw, objective non-financial data throughout supply chains to fix measurement divergence; (2) formulating these data into sumpt values via standardised calculations to accommodate scope divergence; and (3) applying stakeholder-specific, normalised scores that reflect policy priorities to facilitate weight divergence.

Optionally, Sumptuous Accounting™ can be extended to calculate dynamic Value Added Tax (VAT) rates and to compensate for externalities. This can align market incentives with societal values, functioning as a behavioural tax mechanism that can both penalise perceived negative externalities and reward positive ones.

The methodology for dynamic VAT is designed with procedural consistency, transparency, and non-discriminatory application in mind. This ensures compatibility with WTO and GATT rules by treating domestic and imported goods equivalently. The methodology offers a unified and auditable framework for internalising externalities across all economic activities, supporting better informed decision-making for consumers, businesses, and regulators.

Summary principles

- Sumptuous Accounting™ **solves the classic economic challenge of correctly pricing externalities**. It introduces the concept of a sumpt that can enumerate non-financial attributes. The sumpt gives rise to the affectionate term 'Sumptuous Accounting™'.
- A three-layer data architecture is employed to redress known reasons for the divergence of non-financial data[2]. This follows a strict discipline of separating non-financial data into (1) the **raw data** that record the axiomatic facts, (2) the formulation of raw data into **sumpt values** for comparative analysis (several different sumpt values are possible for each attribute, each sumpt value uniquely representing a different worldview), and (3) **sumpt scores** between -100 and +100 that codify the individual interpretations of all actors. The scores enable the individual interpretations of different stakeholders to be recorded concurrently as "polyvocal" voices[3]. The scores are not a core part of the data consumed by economic actors, but are a mirror that reflects a normalised weighting of their interpretation and prioritisation of the non-financial attributes being analysed.
- **All actors have access to the same data** – end-consumers, supply chains, investors, and regulators. Each layer within the data architecture is additive without distorting or corrupting the preceding data layer, enabling all actors to work with the same data.
- Regulators can use these data to determine if markets are working well or not with respect to their policy priorities, and can be **better informed to design policy interventions** (either incentives or disincentives as required).
- When markets do not automatically price the non-financial attributes, then regulators can optionally utilise tax policy to **adjust the mercantile pricing of products to internalise the economic externalities** as part of the purchase price. Normalised sumpt scores can be used as the basis for supervisory bodies (if they want) to develop dynamic VAT rates. This functions as a behavioural tax to nudge consumer preferences towards the policy priorities of that jurisdiction. VAT, unlike tariffs, is rebated on exports to maintain international price competitiveness. The approach is transparent based on the same underlying data, which means that different jurisdictions can take different positions, and apply different VAT rates based on different priorities – these may change over time and across election cycles. Implementation is consistent with WTO and GATT rules.
- Sumptuous Accounting™ **can be universally applied to all mercantile transactions and to all financial assets under management**. The three-layer data architecture enables all actors to have access to the same common set of non-financial data; akin to how they have access to the same common set of financial data. Of course, many actors may wish to augment these non-financial data with additional data, which they are free to do in the same way that they would augment financial data for more nuanced analysis.

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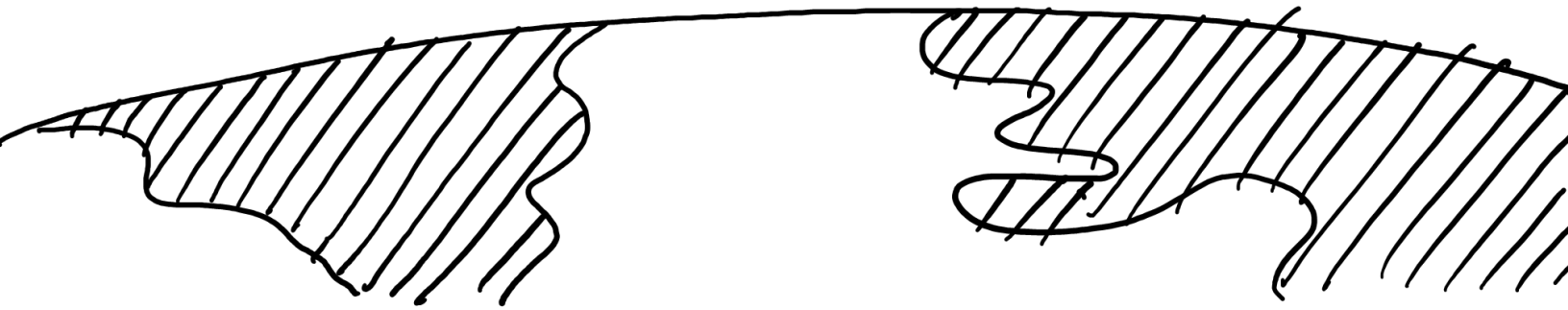
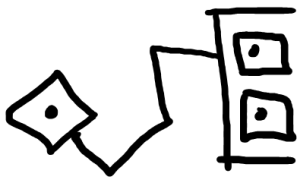
[2] See Berg, F and Kölbel, J & Rigobon, R. (2019). *Aggregate Confusion Project: The Divergence of ESG Ratings*. http://dx.doi.org/10.2139/ssrn.3438533). Berg et al studied the observable divergence between different sources of non-financial data (Environment Social Governance factors). They identified three categorical reasons for divergence: measurement, scope, and weight. These three categories map onto the three-layer architecture of Sumptuous Accounting™ as a solution to the problem of divergence identified by Berg et al.

[3] See Gray, R. Dey, C. Owen, D. Evans, R. & Zadek, S. (Feb 1997). *Struggling with the praxis of social accounting – stakeholders, accountability, audits and procedures*. https://www.researchgate.net/publication/45417328. Gray et al, argue that social accounts must reflect the individual perspectives of different stakeholders i.e. social accounts are assumed to be both polyvocal and multiple.

Scene 1:

INTRODUCTION



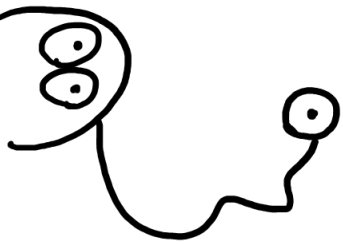


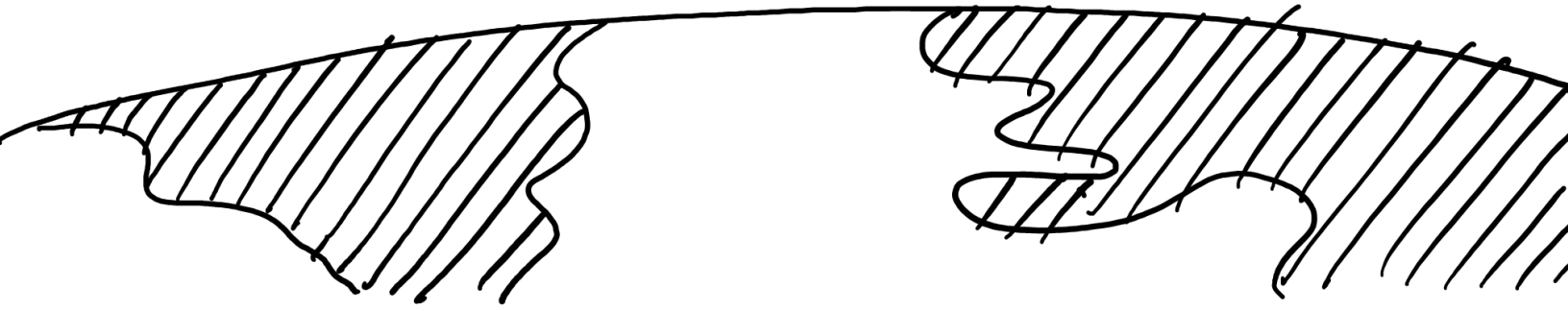
Parallearth is a planet in a nearby galaxy.

It is revered across the universe as an exemplar of prosperity, environmental custodianship, and social justice.

It resembles Earth in almost every way except that Parallearthlings appear happier than Earthlings.

… although they look very weird!

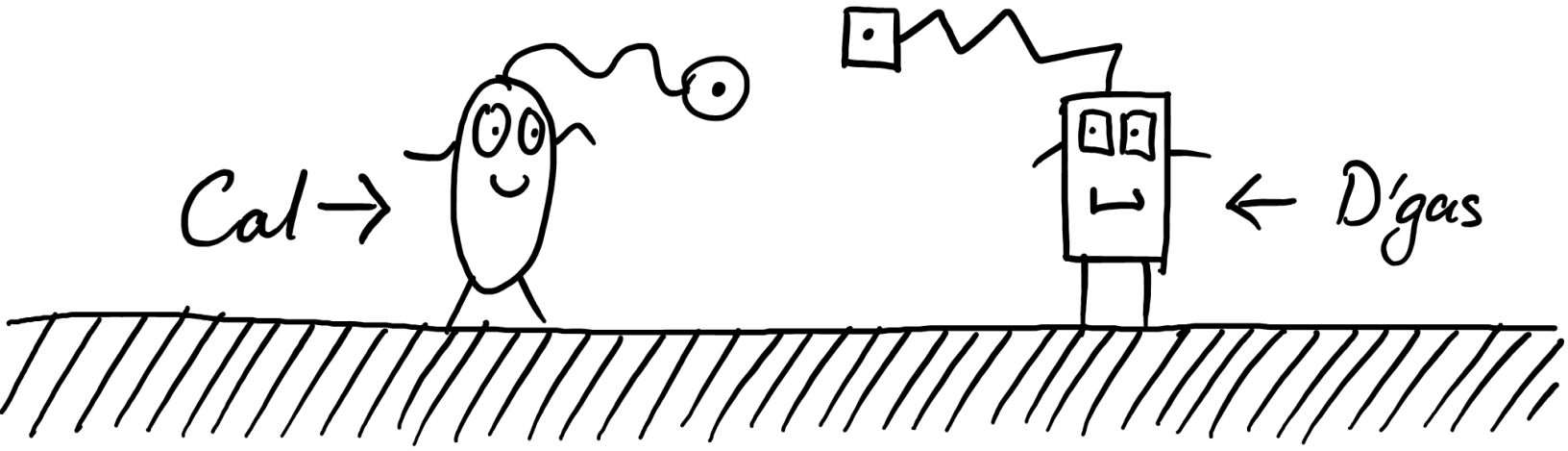




- Parallearthlings have a third eye located on a long tentacle, which means they can perceive their own actions the same way others do.

- They also practise Sumptuous Accounting™ [4].

(These facts may, or may not, be related)



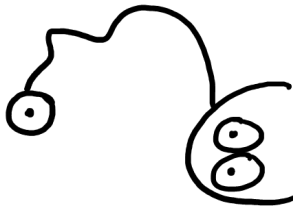
[4] The term Sumptuous Accounting™ was coined in 2018 by Karl H Richter, it is trademarked so that the meaning remains as intended in this paper.

1) Sumptuous Accounting™

- Sumptuous Accounting™ introduces a new concept – the sumpt – which enumerates the economic externalities of a transaction as interpreted by a third party (or the Parallearthling's third eye).

- In economics, externalities refer to the non-financial value and indirect effects experienced by third parties because of someone else's actions, without being reflected in the market price. These effects can be positive (benefits) or negative (costs).

- In double entry bookkeeping, every transaction is recorded twice, once as a debit and once as a credit. The sumpt is postulated as a third bookkeeping entry to record the externalities associated with every transaction, effectively introducing 'Triple Entry Bookkeeping™'.

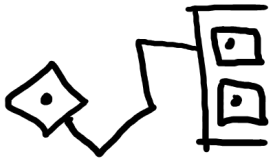


From Latin nouns

1. **Debit** - **debitum** [5] - **"What is owed"**

2. **Credit** - **creditum** [6] - **"What is entrusted"**

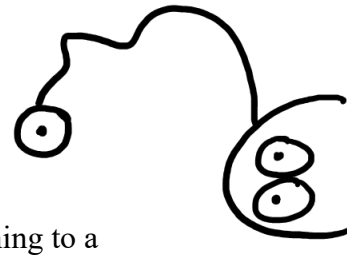
3. **Sumpt** - **sumptum** [7] † - **"What is claimed"**



† By the way – the word "sumptuous" is derived from the Latin word "sumptus", which means to "take" or "claim". "sumptus" is the plural of sumptum and the perfect passive participle of "sumo, sumere".

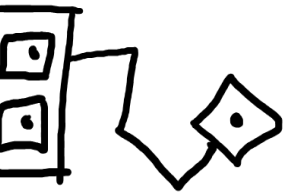
Therefore, Triple Entry Bookkeeping™ is known as ***Sumptuous Accounting™***. [8]

[5] https://en.m.wiktionary.org/wiki/debitum
[6] https://en.m.wiktionary.org/wiki/creditum
[7] https://en.m.wiktionary.org/wiki/sumptum
[8] https://en.m.wiktionary.org/wiki/sumptuous. The term Triple Entry Bookkeeping™ was coined in 2018 by Karl H Richter, it is trademarked so that the meaning remains as intended in this paper.



2) The sumpt

- The sumpt refers to a "claim of impact" or "claim of non-financial value" pertaining to a mercantile transaction – i.e. the externalities according to classical economics.
- In Sumptuous Accounting™, the calculation of the sumpt, and the raw data required in formulating it, is determined by the legislative authority that has jurisdiction over the transaction.
- Similar to how Earthlings apply a Value Added Tax (VAT)[9] to mercantile transactions, Parallearthlings apply a Value Adjustment Tax (VAT). The main difference is that their VAT is calculated using a sumpt to reflect externalities. This subtle difference means that VAT on Parallearth functions in a similar way to VAT on Earth, but results in very different economic incentives and behaviours. Maybe Earthlings can learn from it…
- Parallearthlings cannot understand why Earthlings apply VAT in a way that penalises the creation of positive value in their economy and encourages the externalisation of negative impacts and value extraction – this seems pernicious.

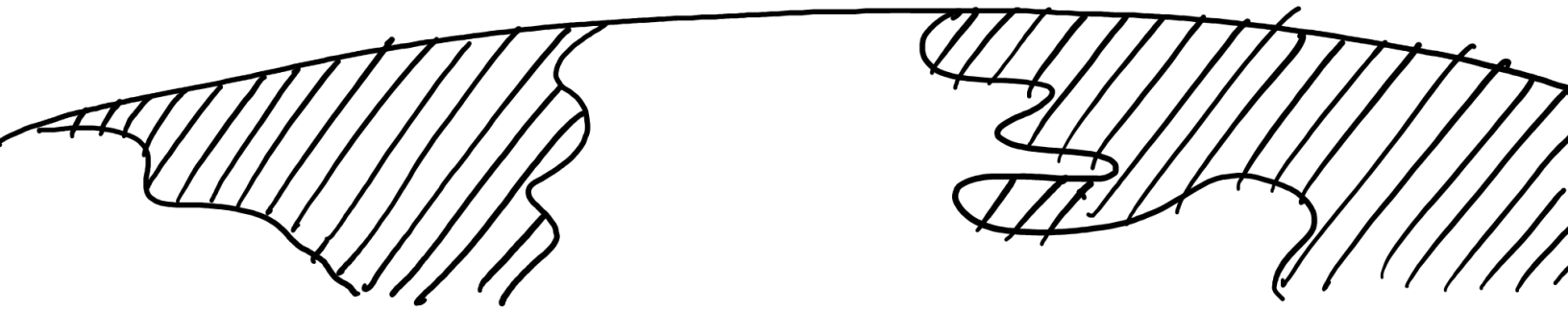


[9] Value Added Tax (VAT) is a consumption tax similar to a General Sales Tax (GST). VAT is not a tariff. VAT and GST are calculated in different ways to reach an equivalent result. See https://taxfoundation.org/taxedu/glossary/value-added-tax-vat/

Scene 2:

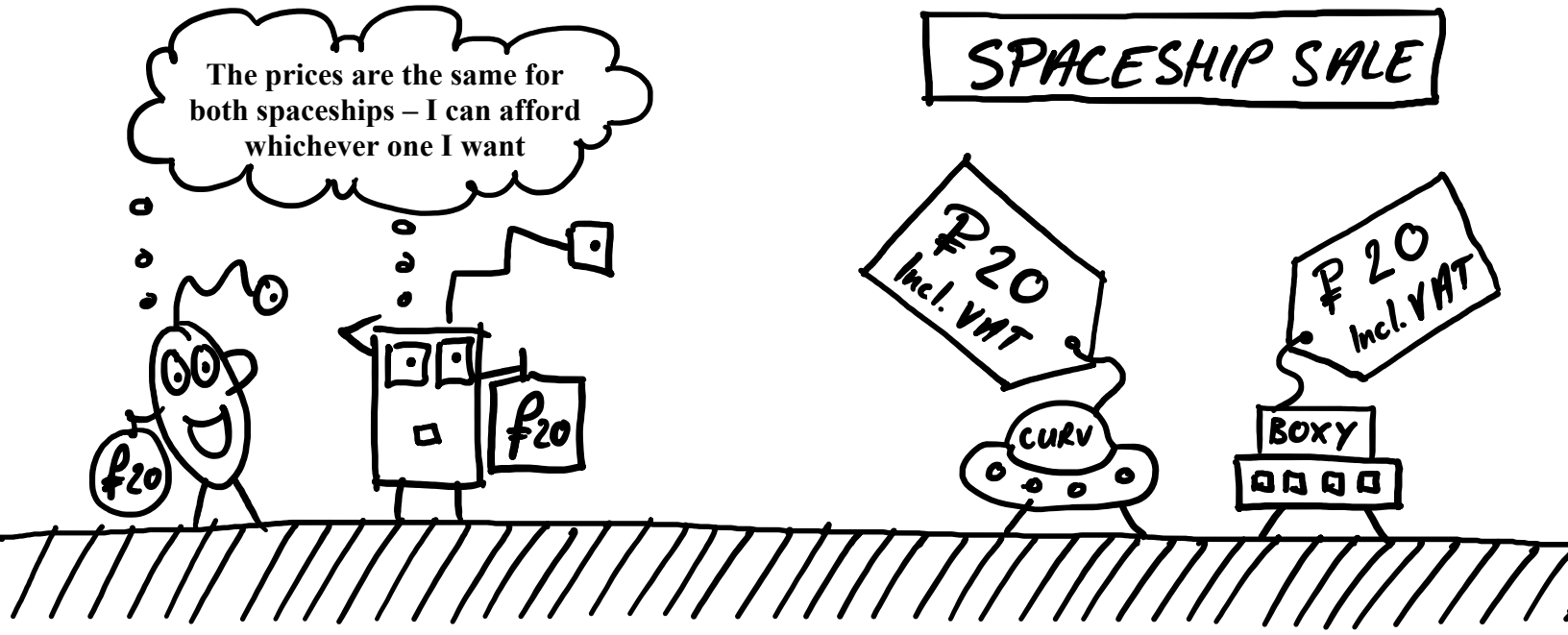
A MERCANTILE TRANSACTION

(by end consumers)



- Let’s watch Cal and D’gas buy new spaceships.

Parallearthling money = Paralls (₱)



1) Prices of spaceships include a VAT rate based on the sumpt

- The legislative authority in the jurisdiction of the transaction evaluates the sumpt data, which enumerate the externalities, to determine the applicable VAT. The resulting VAT rates are contextual for each spaceship and adjust the purchase price to reflect the net total non-financial value embedded in their respective manufacturing processes.

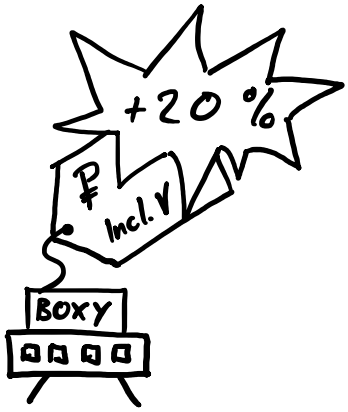
- If there are a lot of perceived *negative* externalities associated with the manufacture of the item (i.e. the processes are deemed detrimental or extractive), then the associated sumpt (and VAT payable) *increases* the price to compensate for them.

- On the other hand, if there are a lot of perceived *positive* externalities associated with the manufacture of the item (i.e. the processes are deemed to produce societal benefits and possibly increased the manufacturing costs), then the associated sumpt (and VAT) is reduced, which effectively *decreases* the price in relation to comparable items.

- The CURV was built with love potion and magic materials. This increases the cost of manufacturing.

- Due to the net positive externalities, no VAT is applied to the CURV.

Base price:	£ 19.50
Shipping costs:	£ 0.50
VAT: (0%)	£ 0.00
Final retail price:	£20.00

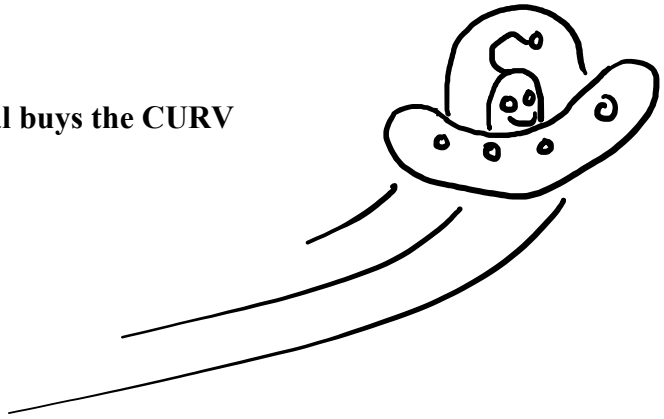


- The BOXY was built using elf slaves and burning hamster oil. This reduces the cost of manufacturing.

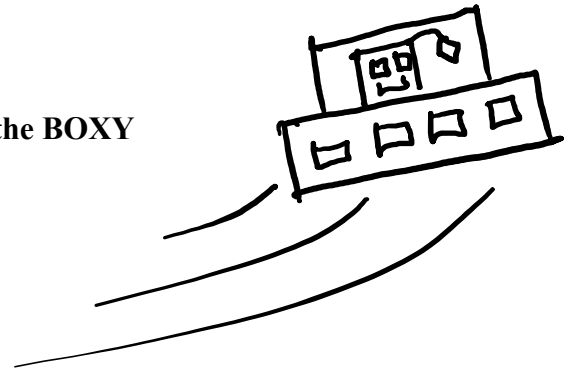
- Due to the net negative externalities, a VAT charge of +20% is applied to the BOXY.

Base price:	£14.63
Shipping costs:	£ 0.50
VAT: (32%)	£ 4.87
Final retail price:	£20.00

Cal buys the CURV



D’gas buys the BOXY

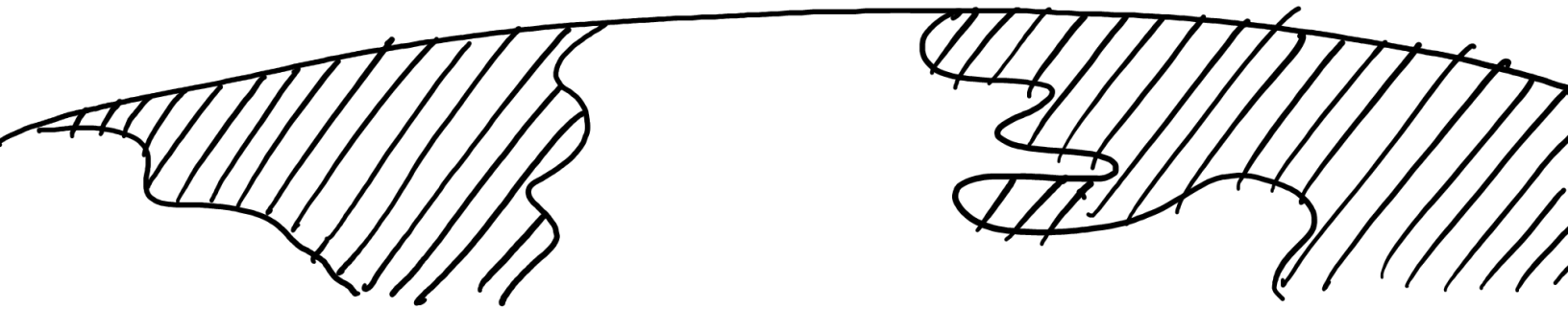


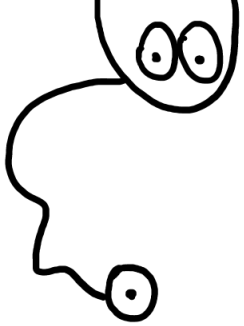
They are both happy with their purchases.

Scene 3:

CALCULATION of the SUMPT

(and resulting VAT rate)





1) How is the sumpt enumerated (and VAT calculated)?

Things on Parallearth happen in threes …

The three-layer data architecture of Sumptuous Accounting™ is adopted by all economic actors on Parallearth. It enables a common framework for the integration of non-financial factors into decision-making – from end-consumers who make individual purchasing decisions, through to macro-economic analysts and policy designers, and at every level in between.

Parallearthlings know that not everyone interprets externalities in the same way – there cannot be one universally true interpretation of non-financial attributes. Attempting this will only lead to inconsistent data and divergent assessments. In a nearby galaxy, Earthlings have struggled for a long time with divergent data about non-financial attributes and externalities. [10]

The secret that Parallearthlings discovered is to apply a strict discipline of three separate data layers when recording non-financial value:

Raw sumpt data about non-financial attributes

Formulation as sumpt values

Weighting as normalised sumpt scores

This data structure is applied across all aspects of the real economy, financial sector, and regulatory sphere. It enables accurate aggregation and disaggregation of non-financial data akin to financial data. At the same time, it enables nuanced analysis at all levels of the economy that can reflect the myriad different interpretations of non-financial data that are possible by each actor – without locking these interpretations into the core data in such a way that the interpretations of any actor are foisted upon other actors.

Economic actors have different interpretations of non-financial value compared to each other. The three-layer data architecture facilitates the production of multiple accounts concurrently, each reflecting one of the polyvocal voices of different stakeholders[11] – without corrupting the underlying data nor distorting the data by foisting biases of any one actor onto others. At the same time, actors with the same or an equivalent worldview, when applying the data architecture of Sumptuous Accounting™, can both codify their priorities and enumerate the results in a way that are consistent with each other, as well as being auditable and statistically rigorous.

Parallearthlings are pleased with the three-layer data architecture of Sumptuous Accounting™ – it means they can correctly price externalities.

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[10] See: Richter, Karl H. (2021). *Pain Spots and Opportunities Regarding Environmental, Social, and Governance (ESG) Data* (https://www.researchgate.net/publication/348310320) Richter builds upon analysis by the Aggregate Confusion Project at MIT (See Footnote 2) that studied the observable divergence between different sources of non-financial data (Environment Social Governance factors). They identified three categorical reasons for this divergence: (1) measurement, (2) scope, and (3) weight. These three categories map onto the three-layer architecture of Sumptuous Accounting™, which is presented as a solution to the problem of divergence identified by Berg et al. See also Richter, Karl H. (2018). *What is a market rate of return on our data?* (https://karlhrichter.com/2018/11/20/what-is-a-market-rate-of-return-on-our-data/)

[11] This provides a practical implementation of the recommendations by Gray et al, see Footnote 3.

Raw sumpt data about non-financial attributes

- Quantitative data are captured at each stage of a value chain and passed on to the next stage, and ultimately to end-consumers. This happens from materials origin through manufacturing to usage – and even disposal or recycling.
- For the market to efficiently price externalities, raw data about non-financial attributes must be available to all economic actors for them to use in decision-making, if they want.
- At this level in the data architecture, there can only be ***one incontrovertible datapoint for each attribute representing a single axiomatic fact without subjective qualification***. For example, the actual age of youngest employee at that point in time, avoiding relative concepts such as "child" or "adult", or even derivative concepts such as child-labour, which can have different interpretations in different jurisdictions.
- Data must be in primary units, such as mass of methane in kg, or age of youngest employee in years. Different analysts will readily concur about whether the data are correct or not.

WHY*? A common set of data must be available to the market so that all economic actors can use the same data, selecting those are relevant or most important to them. Actors are free to ignore these data but must be obliged to pass them on to other actors who may need the data. These data must be raw to avoid locking in bias or errors from incompatible normalisation.*

Formulation as sumpt values

- To guide the preparation of sumpt values, domain experts and standards bodies determine the units for processing raw data and normalising the data throughout value chains. This enables comparative analysis and allocation of values to materials, products, and services.
- This typically includes formulaic calculations, the application of accounting rules (which can change from time to time or by jurisdiction), and sometimes the addition of metadata deemed necessary to calculate a normalised unit of measure. The result is a sumpt value, such as kg of carbon dioxide equivalent (CO_2e) per physical unit of product, or kg CO_2e per monetary unit of purchase – or the amount of child labour in manufacture, and so on.
- Importantly, different computations for calculating sumpt values can be run in parallel based on the same underlying raw data, without degrading or corrupting the raw data. Therefore, ***several sumpt values are possible based on the same underlying raw data.***
- For example, several values of carbon dioxide equivalent (CO_2e) can exist in parallel for the same amount of harmful emissions depending on the value of global warming potential (GWP) used in the calculation. In the case of 100kg of methane emissions (MH_4), the CO_2e is simultaneously 8,400kg when considering its GWP over 20 years, 3,000kg CO_2e over 50 years, and 2,800kg CO_2e over 100 years[12]. Similarly, the specific quantum of child labour will vary between jurisdictions based upon the legal definition of a child versus an adult.

[12] The metric of carbon dioxide equivalent (CO_2e) is a derived comparative value – a normalised unit of measure. CO_2e is derived from both the quantity of emissions (the raw data of greenhouse gases such as CO_2, CH_4, and N_2O etc) and the intensity of global warming it causes. The mass of harmful gas is multiplied by its respective global warming potential (GWP) to produce the normalised value of CO_2e for comparative analysis. Furthermore, GWP is a dynamic and complex notion, reflecting both the intensity of global warming caused by each gas and its rate of degradation over time, resulting in different GWP values for the same gas over different time horizons (i.e. 20 years, 50 years, or 100 years). Therefore, the only way to compare CO_2e sumpt values are to use values that have been normalised according to the same time horizon for GWP. It will be erroneous to compare the CO_2e of two products if they were derived using the GWP of different time horizons – but this is often done.

***WHY**? Sumpt values are derived attributes that are meaningful to actors who share the same worldview or need to use the same formulation (i.e. calculation) of data. Actors with different worldviews or different priorities will need to have access to the underlying raw data. For example, both ocean acidification and global warming are affected by the amount of CO_2 in the atmosphere, but each has different dependencies and sensitivities, requiring different calculations to determine the resulting effects. A derivative value of CO_2e cannot be used as raw data because it could include some methane (MH_4) that has been normalised as CO_2e, which is irrelevant for this calculation and will only produce an erroneous result.*

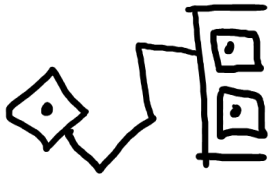
Weighting as normalised scores for value judgments (and calculating contextual VAT)

- Each sumpt value can theoretically have ***an infinite number of interpretations*** by each individual economic actor, or group of likeminded actors. Each actor will evaluate the non-financial attributes to be either positive or negative (or possibly irrelevant or neutral) based upon their individual bias, priorities, and ethical or moral context. Moreover, these interpretations can change over time or vary between different contexts of the same actor.
- These weighted interpretations are enumerated as a normalised score between -100 and +100, reflecting negative or positive evaluations respectively, with zero being neutral.
- Importantly, the score is primarily a function of the actor's reaction to the sumpt value – it is not an intrinsic part of the sumpt value itself. Each actor is free to evaluate the sumpt differently, from their own perspective, assigning different scores to the same underlying data. Arguably, the quantum of the score is not relevant per se, but it is a useful ancillary lens for comparative analysis. When scores have been derived and applied consistently, then they can help actors make decisions based upon relative differences or similarities. Each actor is free to aggregate, disaggregate, or average their own scores – or even change their scores over time or within different contexts – without affecting the underlying sumpt values nor raw data, and especially without skewing the scores used by other actors.
- For an end-consumer, a score reflects a codified version of the intuitive conclusion they reach in their mind when evaluating how, say, the provenance of a purchase aligns with their personal values. For example, a vegan with a zero tolerance of meat will assign a strongly negative score to a beef lasagne (say -100), whereas someone else may assign a positive score (say +76).
- Official bodies like national governments or city authorities can determine their own scores in parallel, based on how an item aligns with their policy priorities. Authorities have access to the same raw data and sumpt values and can easily determine whether the markets are naturally aligned with their policy priorities or not – and therefore if policy interventions are required or not. Practically, the scores of these bodies have primacy in markets.
- The scores out of 100 can be easily converted into percentages for determining contextual VAT rates. This results in a behavioural tax, either incentivising or disincentivising consumer demand based on net externalities as interpreted by the jurisdictional authority overseeing the purchase. Price subsidies as cash payments are also possible, if desired.

***WHY**? Separating the interpretive scores from both the raw data and formulated sumpt values means that all actors are free to interpret the underlying data in their own way –*

without being influenced by the bias or interpretations of a third party. In turn, when regulators and oversight bodies are assessing if markets are working efficiently or not, they are also free to use their own interpretive scores when designing incentive and disincentive structures that reflect their specific policy priorities. Other authorities can use their own scores to design different mechanisms that reflect their respective priorities and so on – all using the same underlying data.

***Specifically, why link to VAT**? The processes for calculating VAT and managing associated payments is well established both within the private and public sectors. Importantly, the World Trade Organisation (WTO) has established protocols for rebating VAT on exports even when VAT is charged internally within jurisdictions. This is important to achieve level playing fields both within internal markets and externally between markets. Rather than introduce a new mechanism, such as the EU's Carbon Border Adjustment Mechanism (CBAM)[13], amending VAT in the way advocated by this paper means that it can be implemented using current workflows and regulatory frameworks.*



[13] See https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en

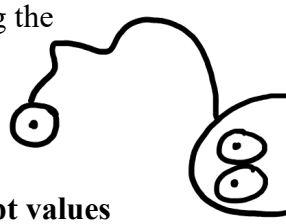
2) Sumpt data are passed through supply chains at every stage of the manufacturing process

- The Sumpt Ledger tallies the quantities of relevant non-financial attributes of goods and services. The totals are enumerated as sumpt values.

- Sumpt values combine data about both the directly generated attributes and the indirect attributes associated with the production of items (i.e. the amounts of each attribute generated at this stage of production are added to the amounts of this attribute that are embedded in the materials and components or services that went into making the item).[14]

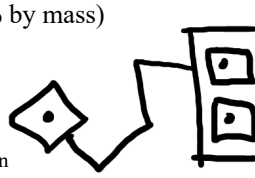
- Sumpt values are then allocated to the individual items sold, so that customers know the total amount of this attribute that is embedded in the item they purchase.

- The Sumpt Ledger follows familiar accounting principles and cost allocation logic so that all non-financial attributes can be independently audited. Accountants and auditors are likely to concur with each other about the resulting sumpt values when formulating the raw data in the same way, according to the same accounting rules.



Sumpt Ledger for CURV spaceships

Attribute	**Direct amounts** (for this stage of production)	+ ∑	**Indirect amounts** (cumulative, all previous stages)	=	**Sumpt values** (totals for each spaceship produced)
Greenhouse gas emissions [15]	36 kg CO_2e		−104 kg CO_2e		−68 kg CO_2e
Chemical effluent released into rivers/ oceans	0 m^3		30 m^3		30 m^3
Chemicals in manufacturing process that are harmful to workers. Measured in Toxic Units (TU) [16]	0 TU		3.4 TU		3.4 TU
Child labour [17]	0 hrs		0 hrs		0 hrs
Amount of imported materials/ components	56 kg		341 kg		397 kg (20 % by mass)



[14] The logic of ***direct values*** + ∑ ***indirect values*** = ***total values*** is based on: von Kalckreuth, U. (2024 Dec). *Harnessing the power of Input-Output analysis for sustainability*. IFC Working Papers No 24, Bank for International Settlements. https://www.bis.org/ifc/publ/ifcwork24.pdf and presentation for International Workshop on Carbon Content Measurement in Hamburg: von Kalckreuth, U. (2024.02.21–23). *Harnessing the Power of IO for Sustainability* Deutsche Bundesbank. https://www.bundesbank.de/resource/blob/926084/e12290f1753d11ba8db866c6a76da76d/mL/2024-02-21-carbon-content-kalckreuth-data.pdf.

[15] In this case, the amount of emissions is normalised as carbon dioxide equivalent (CO_2e). To be consistent with the principles of Sumptuous Accounting, the underlying raw data also need to be included (i.e. amount of individual gas, such as CO_2, MH_4, N_2H, etc), and the resulting CO2e value should specify the duration considered when applying values for global warming potential (GWP i.e. over 20 years, 50 years, or 100 years).

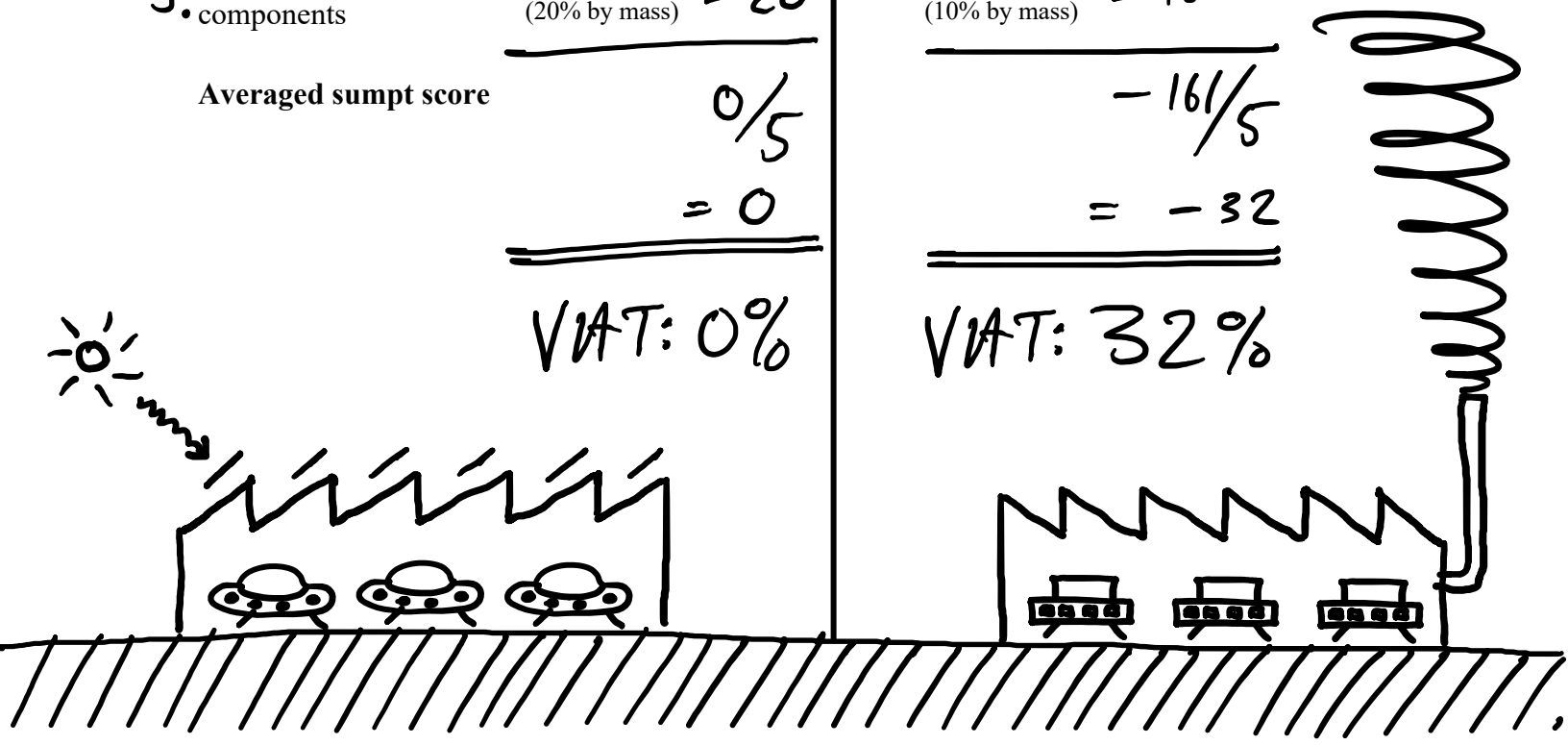
[16] TU = Toxic Units. https://en.wikipedia.org/wiki/Toxic_unit

[17] Similar how the raw data is required for emissions (see Footnote 15), the raw data is required about the actual age of youngest employees and the amount of time worked, not only the derivative concept of "child labour".

3) Using the sumpt values to calculate contextual VAT

- The local authorities determine the sumpt score for each attribute, based upon the sumpt values that are in turn based upon the underlying raw data.
- This derives the VAT for each spaceship to be as follows:

	Roundland Attribute	CURV Sumpt values (totals for each spaceship)	CURV Sumpt score	BOXY Sumpt values (totals for each spaceship)	BOXY Sumpt score
1.	Greenhouse gas emissions	-68 kg CO_2e	90	526 kg CO_2e	−60
2.	Chemical effluent into rivers/ oceans	30 m^3	−40	0.4 m^3	10
3.	Harmful chemicals used in manufacturing	3.4 TU	−30	0.7 TU	−1
4.	Child labour	0 hrs	0	10 hrs	−100
5.	Amount of imported components	397 kg (20% by mass)	−20	192 kg (10% by mass)	−10
	Averaged sumpt score		0/5 = 0		−161/5 = −32
			VAT: 0%		VAT: 32%

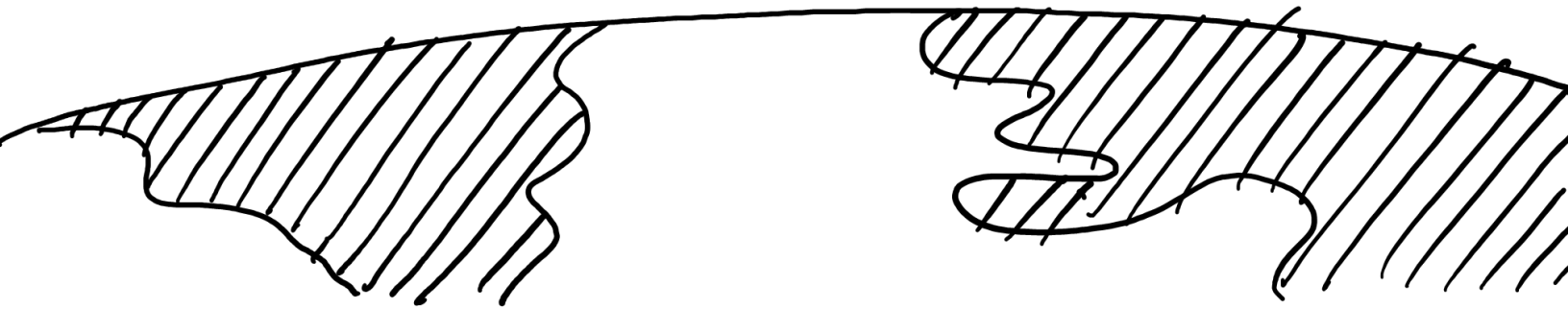


Scene 4:

INTERNATIONAL TRADE

&

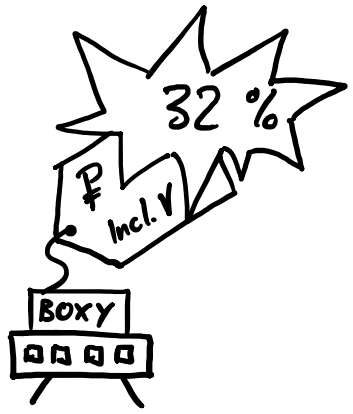
COMPARATIVE ADVANTAGE



1) A common approach across multiple jurisdictions, with different outcomes that reflect different policy priorities

- Let's expand our scenario with more detail – on Parallearth there are two countries, Roundland and Edgeland. Previously, Cal and D'gas purchased spaceships in Roundland.
- Next, we'll study how Cal and D'gas consider purchasing the same CURV and BOXY spaceships in Edgeland. The spaceships have been imported from Roundland.
- We'll see how the authorities in Edgeland are free to apply different sumpt scores to reflect their different policy priorities compared to those in Roundland. This results in different contextual VAT rates in each jurisdiction.
- Importantly, the authorities in both jurisdictions use the same underlying sumpt values that enumerate the non-financial attributes. They also use a common methodology for calculating the contextual VAT, which is applied consistently to all spaceships, whether manufactured locally or imported.
- Both the underlying sumpt values, as well as the methodology for assigning sumpt scores and calculating contextual VAT, can be independently audited and verified.
- Before proceeding, here is a reminder of the VAT rates and prices on Roundland:

Base price:	£ 19.50
Shipping costs:	£ 0.50
VAT: (0%)	£ 0.00
Final retail price:	£20.00



Base price:	£14.63
Shipping costs:	£ 0.50
VAT: (32%)	£ 4.87
Final retail price:	£20.00

2) VAT can be different across different jurisdictions

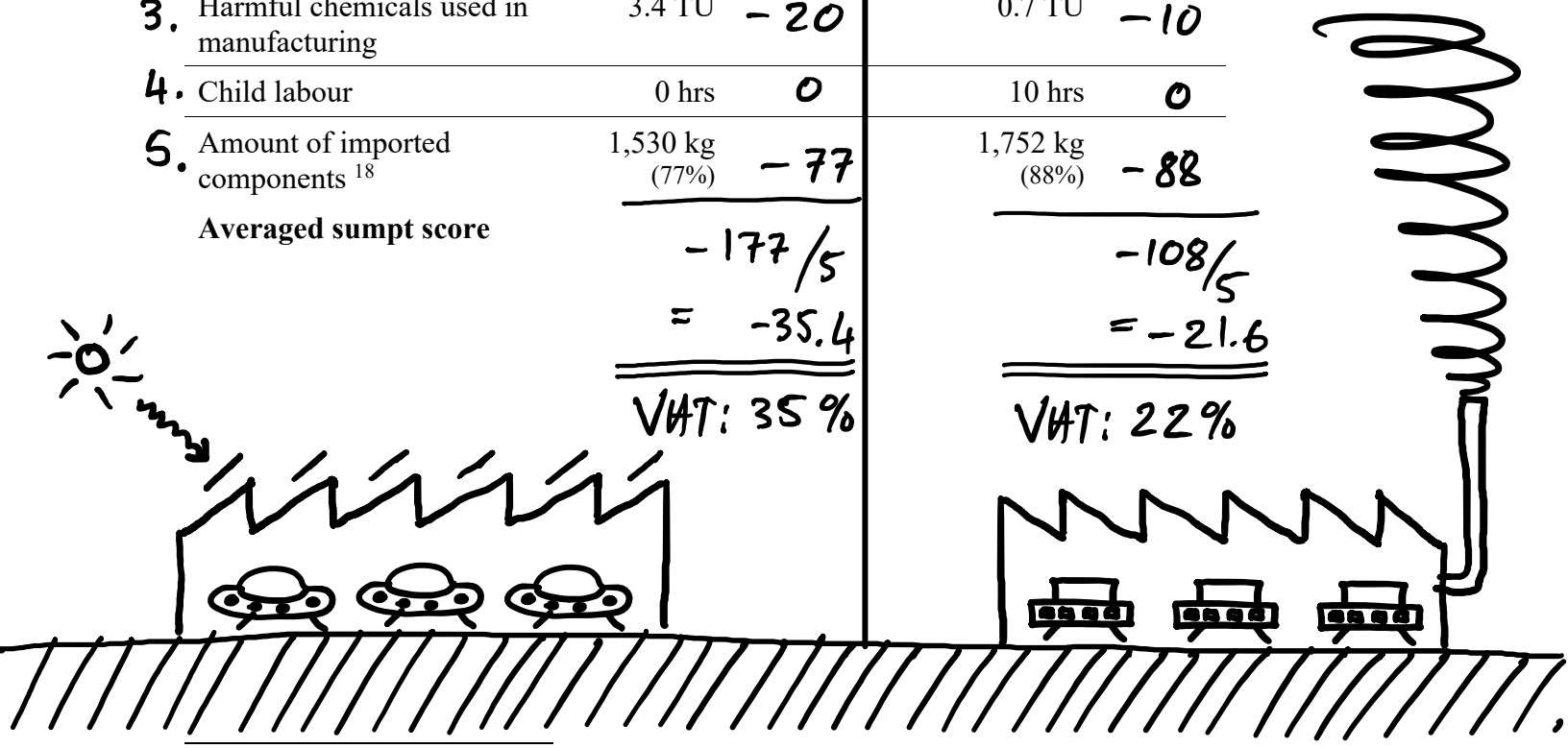
- Legislative authorities in different jurisdictions are free to determine their own VAT rates they want to charge for each product, provided the calculations are applied consistently based on the same sumpt values.

- The authorities in Roundland and Edgeland have different policy priorities that reflect their different ethical perspectives, cultural context, and political landscapes. Therefore, their sumpt rates and resulting VAT are different.

- The effect is to either incentivise or disincentivise different combinations of attributes in a way that aligns with respective policy priorities in each jurisdiction.

- Previously we studied the VAT calculations in Roundland – now let's study the VAT calculations for the same CURV and BOXY spaceships purchased in Edgeland.

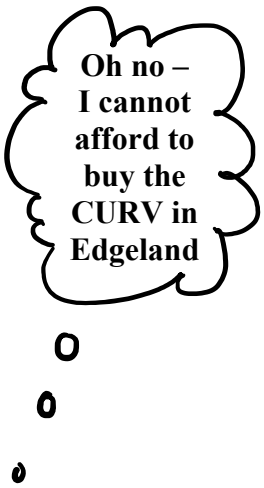
	Edgeland	**CURV**		**BOXY**	
	Attribute	**Sumpt values** (totals for each)	**Sumpt score**	**Sumpt values** (totals for each)	**Sumpt score**
1.	Greenhouse gas emissions	-68 kg CO_2e	0	526 kg CO_2e	-10
2.	Chemical effluent into rivers/ oceans	30 m^3	-80	0.4 m^3	0
3.	Harmful chemicals used in manufacturing	3.4 TU	-20	0.7 TU	-10
4.	Child labour	0 hrs	0	10 hrs	0
5.	Amount of imported components [18]	1,530 kg (77%)	-77	1,752 kg (88%)	-88
	Averaged sumpt score		-177/5 = -35.4		-108/5 = -21.6
			VAT: 35%		VAT: 22%



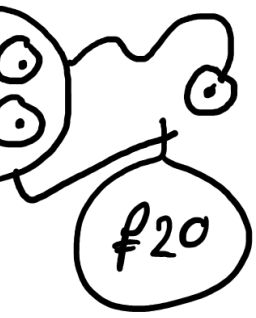
[18] The local materials percentage is contextual. In this case, the materials for both spaceships are predominantly sourced in Roundland.

3) Resulting prices in Edgeland (after VAT)

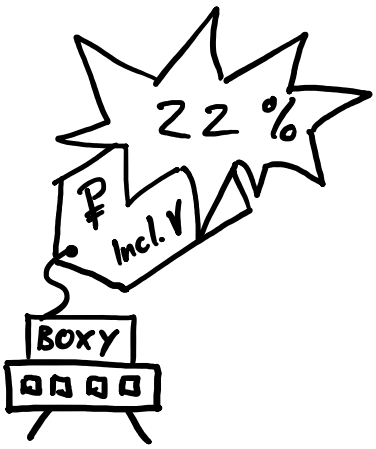
- Cal and D'gas travel from Roundland to Edgeland and consider purchasing the same spaceships as they did in Roundland



- The CURV was built with love potion and magic materials. This increases the cost of manufacturing.
- The CURV is made with almost no local components.
- On Edgeland these attributes are considered net negative externalities. On balance, a VAT charge of +35% is applied.



Base price:	£19.50
Shipping costs[19]:	£ 2.00
VAT: (35%)	£ 7.61
Final retail price:	£29.11



- The BOXY was built using elf slaves and burning hamster oil. This reduces the cost of manufacturing.
- The BOXY is made with almost no local components.
- On Edgeland these attributes are considered net negative externalities. On balance, a VAT charge of 22% is applied.

Base price:	£14.63
Shipping costs[19]:	£ 2.00
VAT: (22%)	£3.59
Final retail price:	£20.22

[19] The CURV and BOXY spaceships are both manufactured in Roundland, therefore shipping costs are greater when purchased in Edgeland compared to Roundland.

4) Comparative retail prices in Roundland and Edgeland

Roundland:

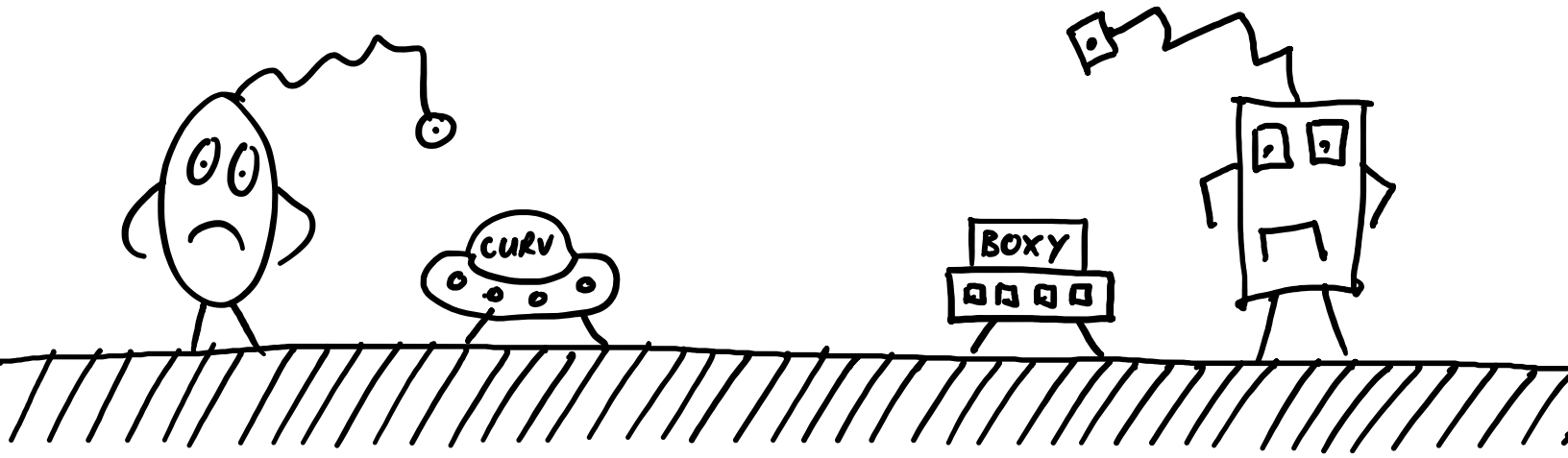
	CURV		BOXY
Base price:	₣ 19.50		₣ 16.17
Shipping costs:	₣ 0.50		₣ 0.50
VAT:	(0%) ₣ 0.00	(32%)	₣ 4.87
Final retail price:	₣20.00		₣20.00

Edgeland:

	CURV		BOXY
Base price:	₱19.50		₱16.17
Shipping costs:	₱ 2.00		₱ 2.00
VAT:	(35%) ₱7.61	(22%)	₱3.59
Final retail price:	₱29.11		₱20.22

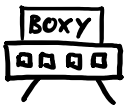
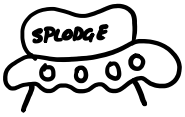
- With ₱20 in their wallets, neither Cal nor D'gas can afford to buy the spaceships in Edgeland, even though they can afford them in Roundland.

- However, Cal and D'gas have other options available on Edgeland – they decide to look at spaceships manufactured locally on Edgeland to see if those are affordable …

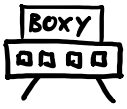


5) More purchase options available

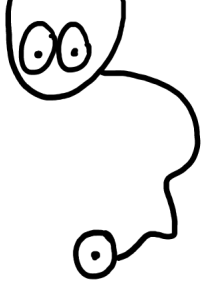
- In Edgeland, there are also two local spaceship manufacturers, SPLODGE and SPIKY.
- Cal and D'gas notice that they could both afford to buy either a SPLODGE or SPIKY spaceship, both have a retail price less than ₽20.
- Let's compare the retail prices and VAT of all four spaceships in Edgeland:

Edgeland:	**CURV**	**BOXY**	**SPLODGE**	**SPIKY**
				
Base price:	₽19.50	₽14.63	₽19.18	₽15.26
Shipping costs:	₽ 2.00	₽ 2.00	₽ 0.50	₽ 0.50
VAT:	(35%) ₽ 7.61	(22%) ₽ 3.59	(8%) ₽ 1.50	(4%) ₽ 0.66
Final retail price:	₽29.11	₽20.22	₽21.18	₽16.42

- Cal and D'gas had never considered buying a SPLODGE or SPIKY in Roundland because they are so expensive there – but in Edgeland they are affordable.
- For completeness, let's look at the retail prices of all four spaceships in Roundland too:

Roundland:	**CURV**	**BOXY**	**SPLODGE**	**SPIKY**
				
Base price:	₽19.50	₽14.63	₽19.18	₽15.26
Shipping costs:	₽ 0.50	₽ 0.50	₽ 2.00	₽ 2.00
VAT:	(0%) ₽ 0.00	(32%) ₽ 4.87	(31%) ₽ 6.52	(55%) ₽ 9.46
Final retail price:	₽20.00	₽20.00	₽27.70	₽26.72

See Appendix 1 for a detailed breakdown of all non-financial attributes, sumpt values, and VAT calculations for each scenario.



6) Rules for international trade

- On Parallearth, **international trade is regulated** by the Worthwhile Trade Organisation (WTO)[20], an international body and legal framework built upon the Great Agreement on Tariffs and Trade (GATT)[21]. These names are uncannily similar to equivalents on Earth.

- WTO rules prohibit nations like Roundland and Edgeland from discriminating against imported products, or unfairly protecting domestic products. For example, **nations may not tax imported products differently to local products**.

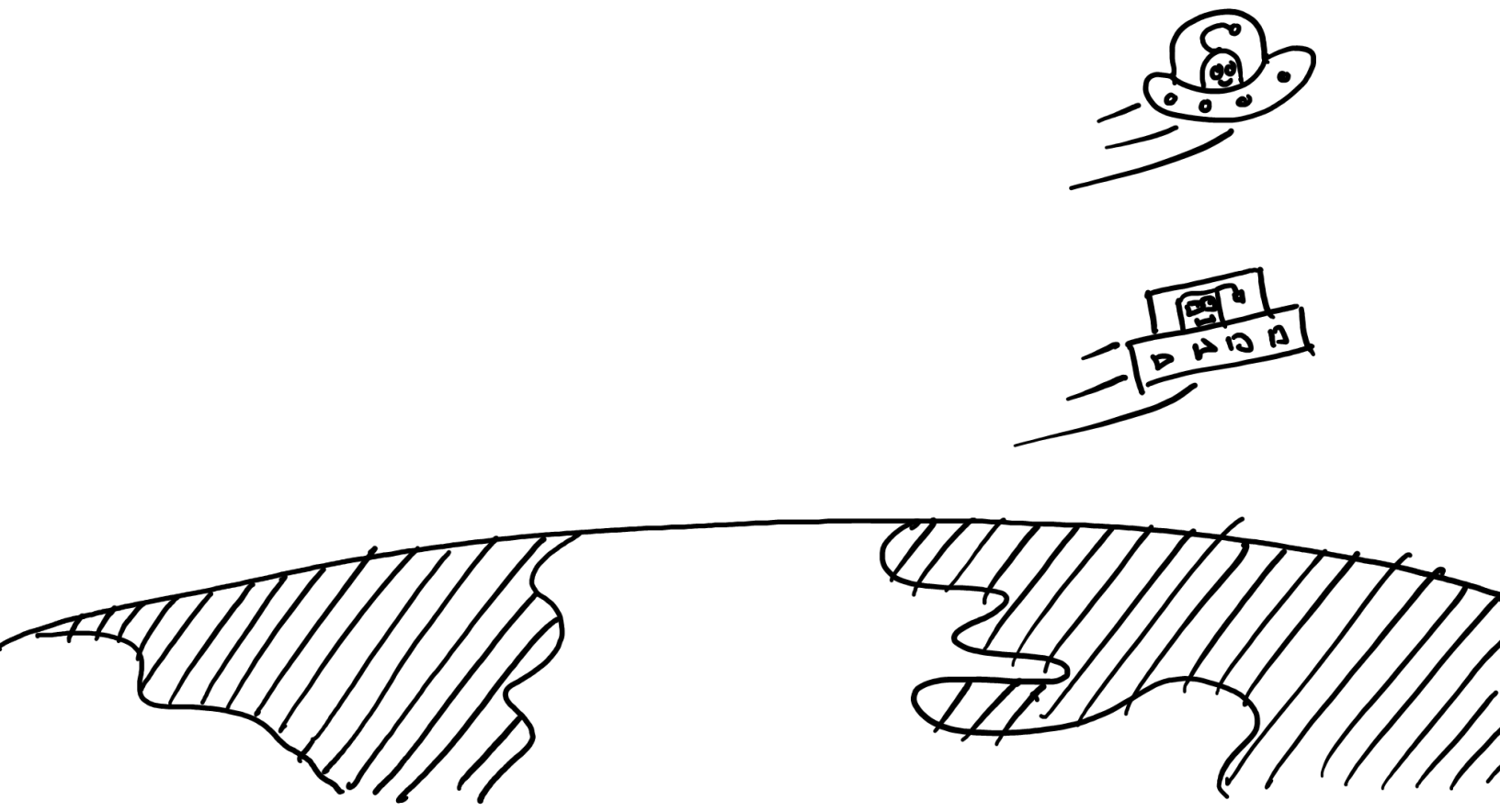
- There was some debate on Parallearth when agreeing the rules for a dynamic VAT system using sumpt values and scores. The WTO does not permit the differential treatment of products based on production methods, only based on product characteristics. In the end, it was agreed that some non-financial attributes can be considered embedded characteristics of the products themselves when these do not explicitly dictate the manufacturing process. In this case, they are like a quality grade of product. For example, taxing the cumulative embedded emissions of a product does not explicitly define how it must be made, nor does taxing the amount of child labour on its own discriminate between manufacturing process that are labour intensive versus mechanically automated. Ultimately, **the WTO endorsed dynamic sumpt-based VAT because of its procedural consistency, transparency, and non-discriminatory application**. Parallearthlings also concluded that there are negligible technical barriers because, in practice, implementing dynamic VAT is not much different to traditional VAT– therefore this system does not discriminate against nations that are small or poor.

- Dynamic VAT on Parallearth helped settle a series of trade wars that had escalated too far. Previously, several countries had tried to apply different types of border tariff on each other. Some tried to implement a Contamination Border Adjustment Mechanism (CBAM)[22] and others applied general tariffs on all their trading partners. Eventually, all nations realised that **badly designed tariffs cause their economies more pain than benefit** – they either make prices more expensive for local citizens, or make exports more expensive, or both. They concluded that tariffs do not work well as a general tool and ought to be used only in exceptional circumstances, in very targeted ways.

- On the other hand, dynamic sumpt-based VAT offers nations domestically the perceived advantages of tariffs whilst benefitting from international WTO rules that allow VAT rebates on exports – unlike tax, tariffs may not be rebated on exports because this would be deemed a prohibited export subsidy. Therefore, **dynamic VAT ensures a fair balance between domestic policy priorities and international competitiveness**. The resulting exports are not unnecessarily expensive when traded with other nations and allow nations to apply a different combination of policy priorities via their respective dynamic VAT.

[20] Similar to the World Trade Organisation (WTO) on Earth, see https://www.wto.org/
[21] Similar to the General Agreement on Tariffs and Trade (GATT) on Earth, see https://www.wto.org/english/docs_e/legal_e/gatt47_e.htm
[22] Similar to the Carbon Border Adjustment Mechanism (CBAM) proposed by the European Union on Earth. Some countries on Earth are considering reciprocal mechanisms, evaluating the pros and cons of implementation as a tariff or tax. See https://www.niskanencenter.org/carbon-border-adjustment-bills-how-do-the-u-s-proposals-compare-to-the-eu-one/

Everyone on Parallearth lived happily ever after.



THE END

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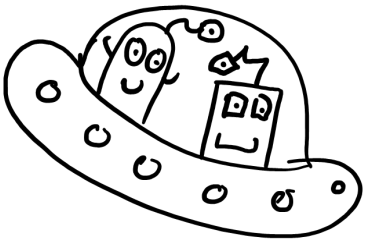

About the author

Karl H Richter – Founder of iSumio, which creates software for organisations to calculate their effect on people and planet, such as carbon footprint and labour conditions. Executive Director of EngagedX, which specialises in providing consultancy, thought leadership, advocacy and policy work. Karl works internationally across private, public, and social sectors. Experienced entrepreneur, leader, and business executive. Lectures part-time at the Frankfurt School of Finance and Management.

Previous engagements include: a 12 month assignment as Head of Research and Knowledge for the UNDP SDG Impact Finance initiative (UNSIF), where he led research to improve the analytical framework for social impact investing; member of Groupe d'Experts de la Commission sur l'Entrepreneuriat Social (GECES) of the European Commission to advise on its Social Business Initiative; part of the OECD expert group on social impact investing. Currently Senior Fellow of the Finance Innovation Lab; and Adviser to several organisations.

Karl has been invited by civil society organisations, academia, governments and the media across Europe, Asia and USA to speak on social impact investing. He has guest lectured at the Universities of Oxford and Cambridge; advised HM Treasury on EU social investment regulations; was invited to submit evidence for alternative finance to the UK's Parliamentary Commission on Banking Standards; been asked by the UK Cabinet Office to represent the UK on social investment at EU level; was invited by US Secretary of State to be a plenary panellist at the Global Impact Economy Forum in 2012.

Appendix 1

		Roundland								Edgeland							
		CURV 		**BOXY** 		***SPLODGE*** 		***SPIKY*** 		**CURV** 		**BOXY** 		**SPLODGE** 		**SPIKY** 	
		assembled in Roundland with mostly local components		assembled in Roundland with mostly local components		*(imported from Edgeland)*		*(imported from Edgeland)*		*(imported from Roundand)*		*(imported from Roundand)*		assembled in Edgeland with mostly local components		assembled in Edgeland with mostly local components	
NON-FINANCIAL ATTRIBUITES	**Units**	**Sumpt values**	**Sumpt score**	**Sumpt values**	**Sumpt score**	***Sumpt values***	***Sumpt score***	***Sumpt values***	***Sumpt score***	***Sumpt values***	***Sumpt score***	***Sumpt values***	***Sumpt score***	**Sumpt values**	**Sumpt score**	**Sumpt values**	**Sumpt score**
Cumulative across entire supply chain for each spaceship																	
Greenhouse gas emissions	kg CO_2e	-68	90	526	-60	*-50*	*85*	*600*	*-85*	*-68*	*0*	*526*	*-10*	-50	0	600	0
Chemical effluent into rivers/ oceans	m^3	30	-40	0	10	*5.4*	*-40*	*0.1*	*-1*	*30*	*-80*	*0*	*0*	5.4	-15	0.1	-1
Harmful chemicals used in manufacturing	TU	3.4	-30	0.7	-1	*3*	*-3*	*0.9*	*-1*	*3.4*	*-20*	*0.7*	*-10*	3	-20	0.9	-10
Child labour	hrs	0	0	10	-100	*12*	*-100*	*12*	*-100*	*0*	*0*	*10*	*0*	0	0	12	0
Amount of imported materials *(Total weight = 2,000 kg)*	*kg*	*397*		*192*		*1920*		*1743*		*1530*		*1752*		*57*		*198*	
as % of total weight (alternatively by value for services)	%	20%	-20	10%	-10	96%	-96	87%	-87	77%	-77	88%	-88	3%	-3	10%	-10
Total sumpt score			**0**		**-161**		**-154**		**-274**		**-177**		**-108**		**-38**		**-21**
Divide by number of sumpt attributes			5		5		5		5		5		5		5		5
Total averaged sumpt score/ unit			**0**		**-32.2**		**-30.8**		**-54.8**		**-35.4**		**-21.6**		**-7.6**		**-4.2**
Contextual Value Adjustment Taxt (VAT) rate			**VAT 0%**		**VAT 32%**		**VAT 31%**		**VAT 55%**		**VAT 35%**		**VAT 22%**		**VAT 8%**		**VAT 4%**
FINANCIAL COSTS			**Paralls (₽)**		**Paralls (₽)**		**Paralls (₽)**		**Paralls (₽)**		**Paralls (₽)**		**Paralls (₽)**		**Paralls (₽)**		**Paralls (₽)**
Wholesale price (i.e. aggregate cost of manufacture)			₽ 19.50		₽ 14.63		₽ 19.18		₽ 15.26		₽ 19.50		₽ 14.63		₽ 19.18		₽ 15.26
Shipping costs			₽ 0.50		₽ 0.50		₽ 2.00		₽ 2.00		₽ 2.00		₽ 2.00		₽ 0.50		₽ 0.50
Wholesale retail price (incl. shipping)			₽ 20.00		₽ 15.13		₽ 21.18		₽ 17.26		₽ 21.50		₽ 16.63		₽ 19.68		₽ 15.76
Value Adjustment Tax (VAT)		VAT 0%	₽ 0.00	VAT 32%	₽ 4.87	VAT 31%	₽ 6.52	VAT 55%	₽ 9.46	VAT 35%	₽ 7.61	VAT 22%	₽ 3.59	VAT 8%	₽ 1.50	VAT 4%	₽ 0.66
FINAL RETAIL PRICE (Incl. VAT)			**₽ 20.00**		**₽ 20.00**		**₽ 27.70**		**₽ 26.72**		**₽ 29.11**		**₽ 20.22**		**₽ 21.18**		**₽ 16.42**