

31st European Systemic Functional Linguistics Conference
Social Semiotics and Sustainability

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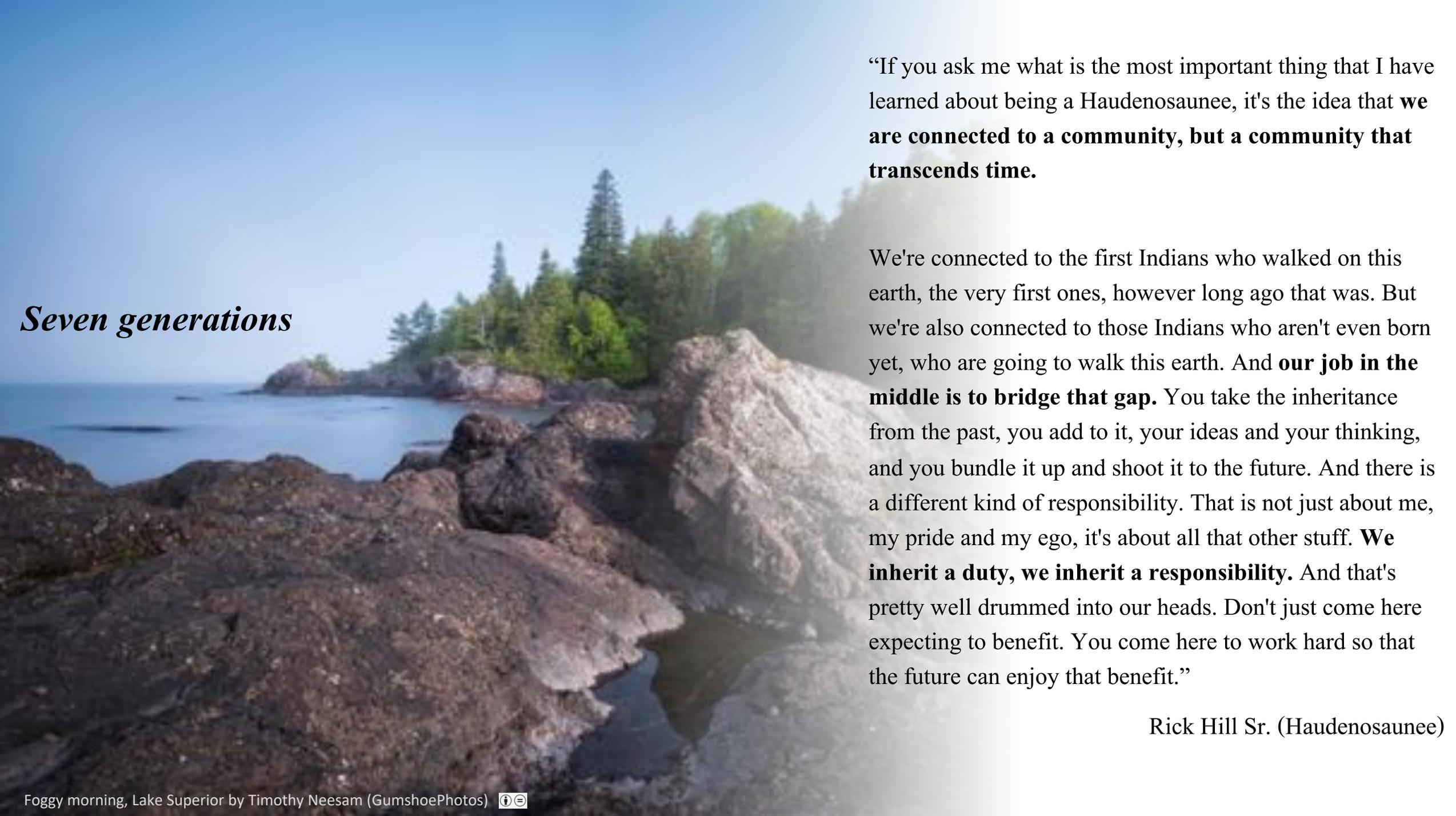
Resilience, the new sustainability:
exploring meaning potential



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Seven generations

“If you ask me what is the most important thing that I have learned about being a Haudenosaunee, it's the idea that **we are connected to a community, but a community that transcends time.**

We're connected to the first Indians who walked on this earth, the very first ones, however long ago that was. But we're also connected to those Indians who aren't even born yet, who are going to walk this earth. And **our job in the middle is to bridge that gap.** You take the inheritance from the past, you add to it, your ideas and your thinking, and you bundle it up and shoot it to the future. And there is a different kind of responsibility. That is not just about me, my pride and my ego, it's about all that other stuff. **We inherit a duty, we inherit a responsibility.** And that's pretty well drummed into our heads. Don't just come here expecting to benefit. You come here to work hard so that the future can enjoy that benefit.”

Rick Hill Sr. (Haudenosaunee)

Thank you to Dr Abid Mehmood

- Leader of the Cardiff University Sustainable Places Research Institute
- Expertise is in social innovation and sustainable development.
- Research experience in climate change, renewable energy transitions, international planning, and social cohesion for local and regional planning, policy and practice.

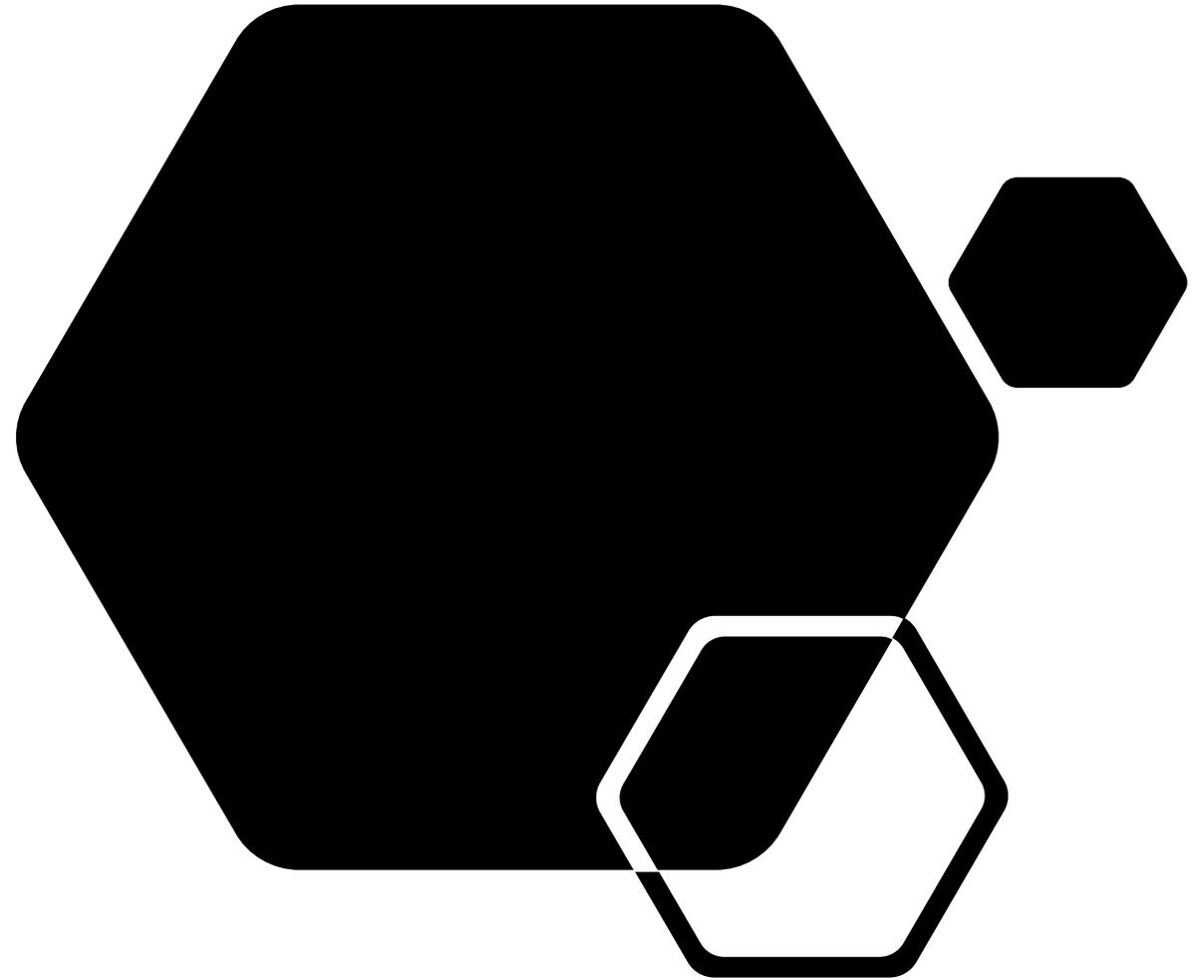




Outline

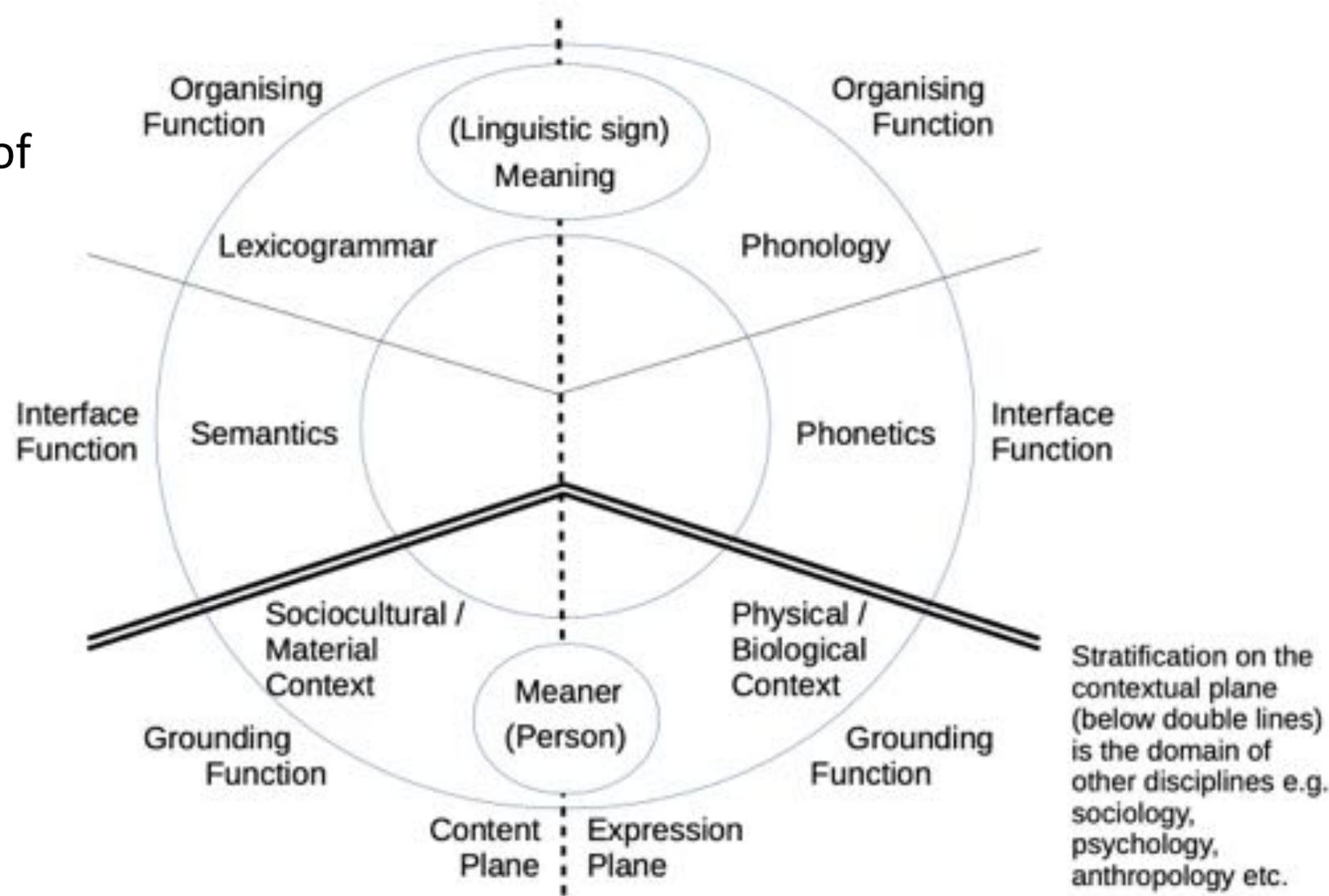
- The study of lexis in SFL, a brief overview
- Resilience as the new sustainability, what the literature says
- Towards a semantic profile of resilience
- Concluding remarks

Lexis in
context



Wegener's (2016 p. 238) model of stratification

(reproduced with permission)



A **stratified** language system is one which “consists of different coding levels” (Taverniers, 2011: 1102), where the relationship between the strata is accounted for by **realisation**.

Lexicogrammar

Lexicogrammar represents a “construct of wording” (Halliday 1981: 221). **The organising principle here is that of rank,** with the unit of the clause as the central or core unit.

“[T]he term ‘grammar’ is commonly used in the way in which I have defined it, to mean **the wording system**, the central processing unit of a natural language” (Halliday 1998: 369, emphasis added)

Lexicogrammar and rank

Halliday has five principles of the rank scale (see Halliday and Matthiessen 2014: 9-10). Here are the first two (emphasis in original):

- There is a **scale of rank** in the grammar of every language. That of English (which is typical of many) can be represented as:

clause
phrase/group
word
morpheme

- Each consists of **one or more** units of the rank next below.



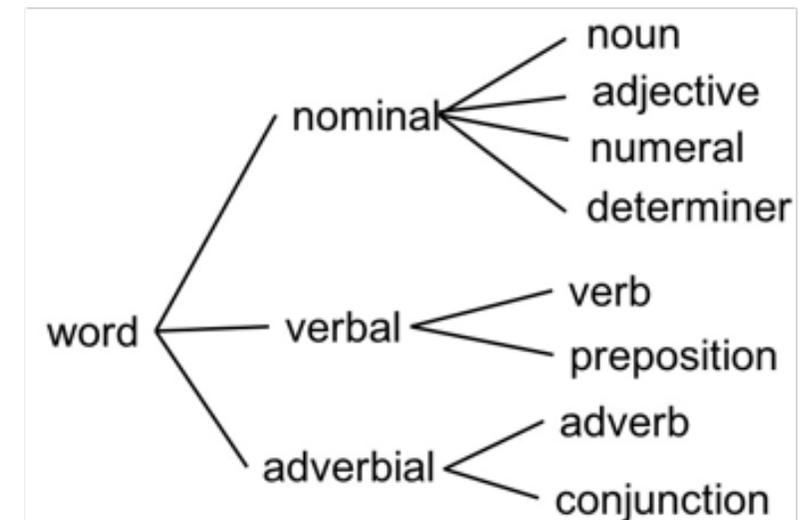


Word as a *class of unit* in the rank scale

A class is always defined with reference to the structure of the unit next above, and structure with reference to classes of the unit next below. A class is *not* a grouping of members of a given unit **which are alike in their own structure**. In other words, by reference to the rank scale, *classes* are derived “from above” (or “downwards”) and not “from below” (or “upwards”). (Halliday, 1961: 261, emphases in original)

See Berry 2017; Fontaine & Schönthal 2017; and Fawcett 2000 for discussions of the rank scale

The **class** of an item indicates in a general way its **potential range of grammatical functions**. (Halliday & Matthiessen, 2014: 76)



Word Classes in SFL, adapted from Halliday and Matthiessen (2014:75)

Lexicogrammar (stratum of wording)

Lexis

- Collocation (syntagmatic)
- Set (paradigmatic)
- Open sets
- Specific in meaning
- Not organised by rank
- Unrestricted grammatically

(Halliday 1961/2002)

“Because the two ends of the continuum are organized differently, when it came to describing them different techniques evolved.”
(Halliday & Matthiessen, 2014: 64)

Grammar

- Closed systems
- General in meaning structure
- Organised by rank
 - Clause
 - Group/Phrase
 - **Word**
 - Morpheme



How is lexis organized?



(Halliday & Matthiessen, 2014: 64)

Word vs lexical item (lexis)

- Halliday (1961/2002: 59): “the term lexical item is used in preference to word, ‘word’ being reserved as the name for a grammatical unit, that unit whose exponents, more than those of any other unit, are lexical items.”
- “The formal item of lexis, ***the lexical item****, is unrestricted grammatically; grammatical categories do not apply to it, and the abstraction of the item itself from a number of occurrences ... depends on the formal, lexical relations into which it enters.” (Halliday 1961/2002: 61, emphasis in original)

* Note that for Halliday ‘the lexical item’ is equivalent to what we now call the lexeme (see Halliday 1966/2002: 167: “The lexical item itself is of course the “type” in a type–token (item– occurrence) relation, and this relation is again best regarded as specific to lexis.”). However, the term is sometimes used ambiguously.

Lexis and grammatical categories

- Recall: “the lexical item, is unrestricted grammatically; grammatical categories do not apply to it.” (Halliday, 1961/2002: 61)
- e.g.: “*Strong, strongly, strength* and *strengthened* can all be regarded for this present purpose as the same item; and *a strong argument, he argued strongly, the strength of his argument* and *his argument was strengthened* all as instances of one and the same syntagmatic relation.” (Halliday 1966/2002: 161)
 - Lexeme: [STRONG], [ARGUE]
 - Lexical item* (or token): {*strong, strongly, strength, strengthened*}; {*argued, argument*}

e.g. “*strong* is a member of that set of items which can be juxtaposed with *argument*” (ibid.)

Collocations as lexical functions

heavy casualties, heavy traffic, heavy fog, ...

- The meaning of *heavy* in these examples is “intensification”. Its use depends on the base, i.e. it is **part of** the meaning of the base (*casualties, traffic, fog, etc.*). (Mel’čuk & Polguère, 2018, emphasis added)
- In this view, collocations are not only syntagmatic but also paradigmatic
- We might say that the base forms a set and members have the semantic potential of intensification.
- “[I]t is **part of** the meaning of *strong* that it collocates with *tea*.” (Halliday 1966/2002: 170, emphasis added)



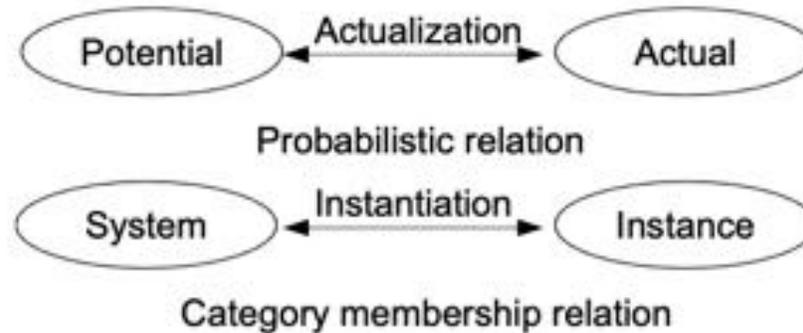
What do we mean by ‘**part of**’ the meaning?

Collocation and Set

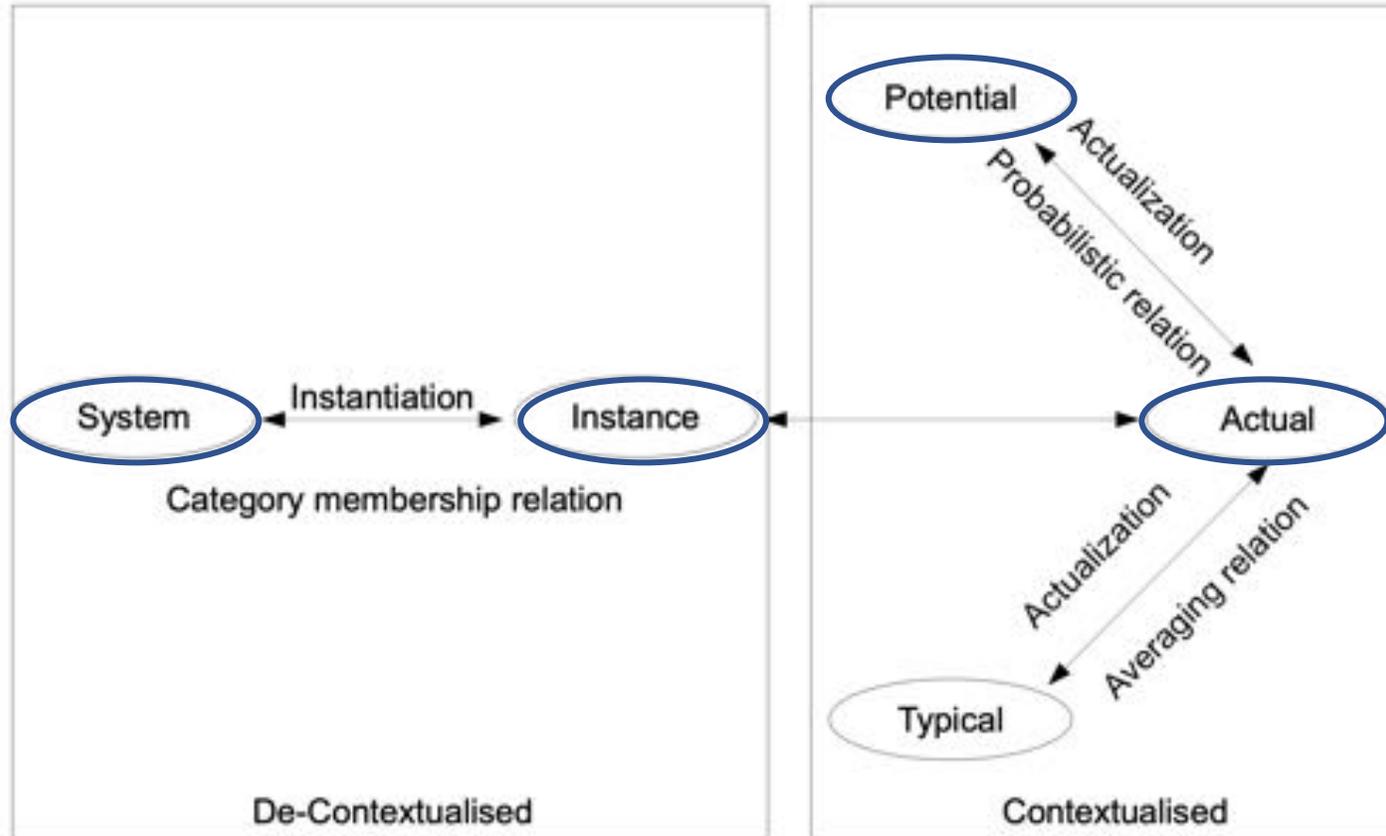
- For lexis, “two fundamental categories are needed, which we may call collocation and set.” (Halliday 1961/2002: 60)
 - **Collocation** is syntagmatic
 - **Set** is paradigmatic: “the set is the grouping of members with like privilege of occurrence in collocation.” (ibid: 163)
- “A set is a set of formal items and a collocation is a collocation of formal items; therefore no exponence scale (exponence there is, of course, but it is a simple polarity).” (ibid.)
- *The paradigmatic relations have “various dimensions” (Halliday, 2006/2013: 91) ⇒ **set** is a key concept that needs to be revisited and perhaps expanded.

Actualisation

- “defined as the relation between the actual and either the potential or the typical.” (Wegener 2011:98)



“[I]t may be that an uninstantiated class in a system is the ultimate example of choice or potential. ... Because [instantiation] is intrastratal it does not reach the actual. The actual is interstratal and thus is contextualised. Instantiation is the relation that exists between the theoretical abstract and an instance of that abstraction.” (Wegener, 2011: 95)



The relationship between instantiation, potential, typical and actual (Source: Wegener 2011: 95, reproduced with permission)

See also Williams, Russell & Irwin (2017) for a useful discussion of abstraction in SFL

Meaning potential and words/lexis

- “[S]trictly speaking, words in isolation have meaning potential rather than meaning, and that actual meanings are best seen as events, only coming into existence when people use words, putting them together in clauses and sentences”. (Hanks 2013, p.65)
- “The meaning potential is all the information that the word has been used to convey. ... Whether or not linguistically triggered, the activation of a meaning potential always takes place in a context which creates certain conditions for the activation. ” (Alwood, 2003: 16)
“The notion is also very close to that of “meaning potential” as used by Halliday (1976).” (ibid.)

See Fontaine (2017) for preliminary ideas about lexis and meaning potential in SFL.

How do we model lexis and meaning potential?

“For the moment it seems better to treat lexical relations, where even the identification of the items concerned by grammatical means is extremely complex, as **on a different level**, and to require **a different theory** to account for them.” (Halliday, 1961/2002: 54, emphasis added)

[sets]
[collocation]

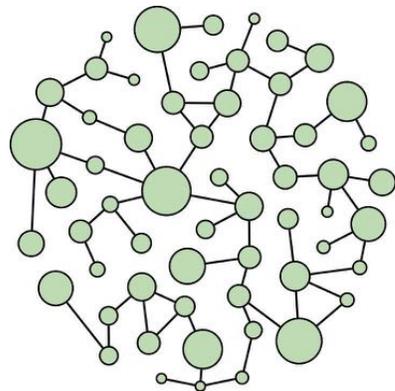
Lexis



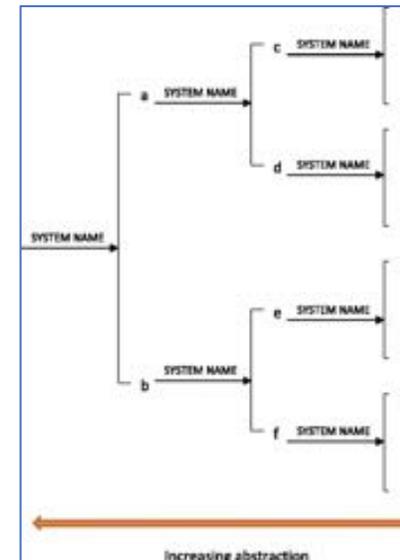
Grammar

[units]
[rank]

?



Lexical meaning potential



(Source: Williams, Russell & Irwin 2017)



Brief review of the literature

Mostly on urban
resilience

Resilience is a good thing, right?

Conventional views see resilience “as a self-help ‘bounce back’ mechanism” (Mackie et al 2022), but this is problematic.

“Resilience may not always be desirable — witness dictatorships that are resilient across generations. It may also run counter to sustainability goals: for instance, efficiency reduces diversity and redundancy, both of which are key features of resilience.” (Elmqvist 2017)

According to Redman (2014), the problem with combining sustainability science and resilience theory is that there have been “fundamental assumptions within each approach [that] differed and even contradicted each other” ... “one commonly invoked outcome for [a] sustainable city is maximum efficiency via minimizing energy and material use, but that positive outcome could result in the unintended consequence of reducing the systems resilience.”

There appears to be a lack of reliability in the use of both resilience and sustainability: “A quick review of the burgeoning literature on resilience and sustainability reveals considerable variation in the definitions and uses of these concepts” (Redman 2014)

Views on urban sustainability vs urban resilience (Elmqvist et al 2019 p. 269)

Urban Sustainability

Policy documents:

- Increase in efficiency of resource use, optimization, important dimensions of equity and social justice sometimes not included.

Academic literature:

- Active process of synergetic integration and co-evolution between the subsystems making up a city without compromising the possibilities for development of surrounding areas and contributing by this means towards reducing the harmful effects of development on the biosphere.

Urban Resilience

Policy documents:

- Recovery from disaster events.

Academic literature:

- The ability of an urban system and all its constituent socio-ecological and socio-technological networks across temporal and spatial scales-to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change and to quickly transform systems that limit current or future adaptive capacity.

Resilience compared to Sustainability

Redman (2014)

Resilience Theory Approach	Sustainability Science Approach
Change is normal, multiple stable states	Envision the future, act to make it happen
Experience adaptive cycle gracefully	Utilize transition management approach
Origin in ecology, maintain ecosystem services	Origin in social sciences, society is flawed
Result of change is open ended, emergent	Desired results of change are specified in advance
Concerned with maintaining system dynamics	Focus is on interventions that lead to sustainability
Stakeholder input focused on desirable dynamics	Stakeholder input focused on desirable outcomes

“Resilience is the capacity of a system to experience shocks while retaining function, structure, feedback capabilities, and therefore identity (Walker et al. 2006, Walker and Salt 2006). Resilience theory emphasizes that change is as normal a condition for social-ecological systems as stability, and a system may exist in multiple stable states.”

‘desired’ and
‘undesired’
dimensions”
of resilience
(Elmqvist et
al. 2019)

- “urban systems are open systems and have multiple scales from household to neighbourhood and from city to region. The current focus on a single scale may, for example, lead to efforts to build resilience in a particular neighbourhood, without considering effects on other neighbourhoods within a city, such as building flood walls to protect high value real estate in one neighbourhood of a coastal city that could increase flood risk in other unprotected vulnerable neighbourhoods.”
- Different types: “For example, resilience to climate change could mean social resilience or community resilience, or technological infrastructure resilience or ecological resilience if applied through a framing where social, ecological and technological sub-systems may differ in ways that challenge any kind of general system level resilience.”

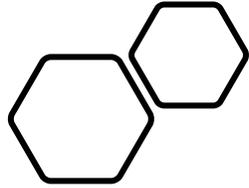
Urban resilience as market-based (Mackie et al 2022)

“Inspired by ecological perspectives and promoted by international donor agencies, a resilient city is seen as one that can positively respond to, and recover from, crises. **Urban resilience in this case becomes a market-based mechanism with a diminished role of nation states in which people are left managing their own risks** (Walker and Cooper 2011; Meriläinen 2019). Such views also generally lack the capacity and capability aspects of people and places (Mehmood 2016; Mehmood et al. 2020). Moreover, **they often fail to recognise that cities are complex adaptive environments** (Meerow et al., 2016) that require a more nuanced consideration of variation across urban social spaces, spatial patterns and socio-spatial interactions.”



It's all semantics!

- The United Nations unanimously adopted the New Urban Agenda in Quito, Ecuador in October 2016.
- However, according to Elmqvist (2017): “[this policy document] interchangeably [uses] two quite different concepts — sustainability and resilience.”
- Elmqvist (ibid.) expresses concern “that policymakers confuse the two because academics do, which hampers implementation.”
- “The research community needs to be clear about the differences and synergies between sustainability and resilience. Only with clarity can such concepts be applied in policy and practice.”



Towards a semantic
profile of *resilience*

Word history: de-adjectival nouns with a verb root

sustainability

Etymology (att. 1835) :

< *sustainable* adj. + *-ity* suffix: see *-bility* suffix (formed by derivation)

- Verb root (*sustain*) is transitive
- To support, maintain, uphold.
- To maintain (a person, etc.) in life and health
- To support the efforts or cause of; to give assistance to, back up

resilience

Etymology (att. 1626):

< post-classical Latin *resilientia* fact of avoiding (probably borrowed whole)

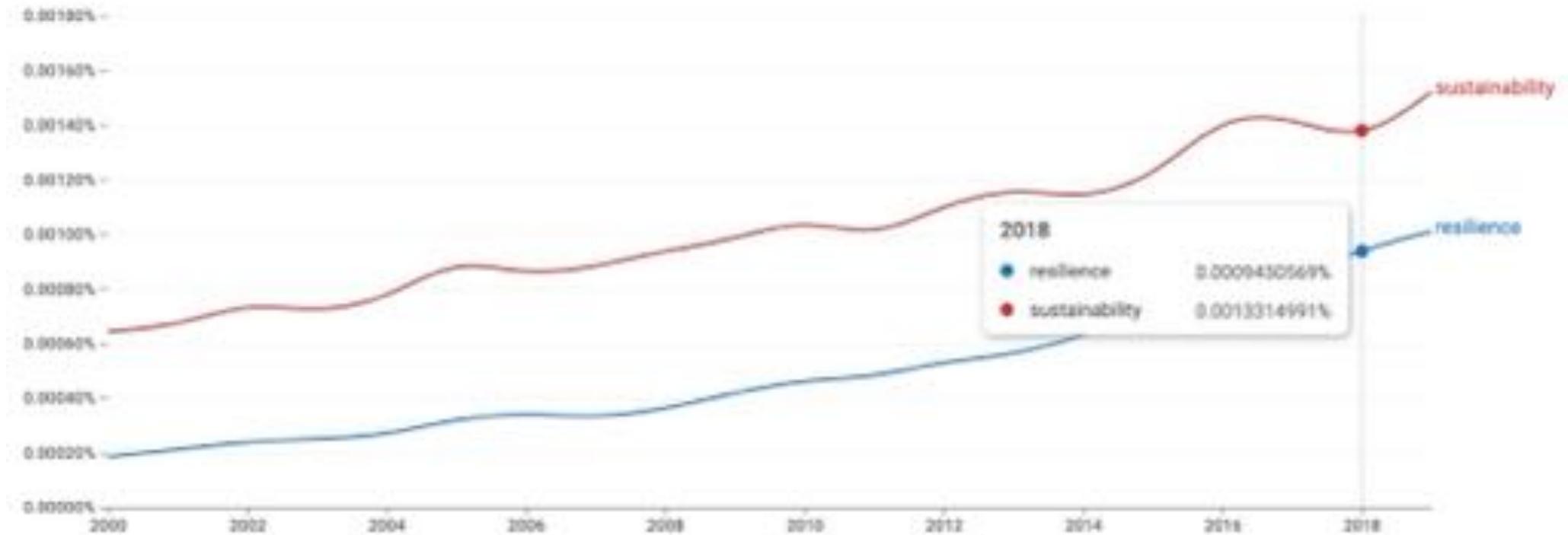
- Verb root (*resile*) is intransitive (see Crispin (2022), intransitive verbs tend to express activities)
- Action of springing back; elasticity
- To ‘bounce back’ > restore
- To ‘recover from’ > transform

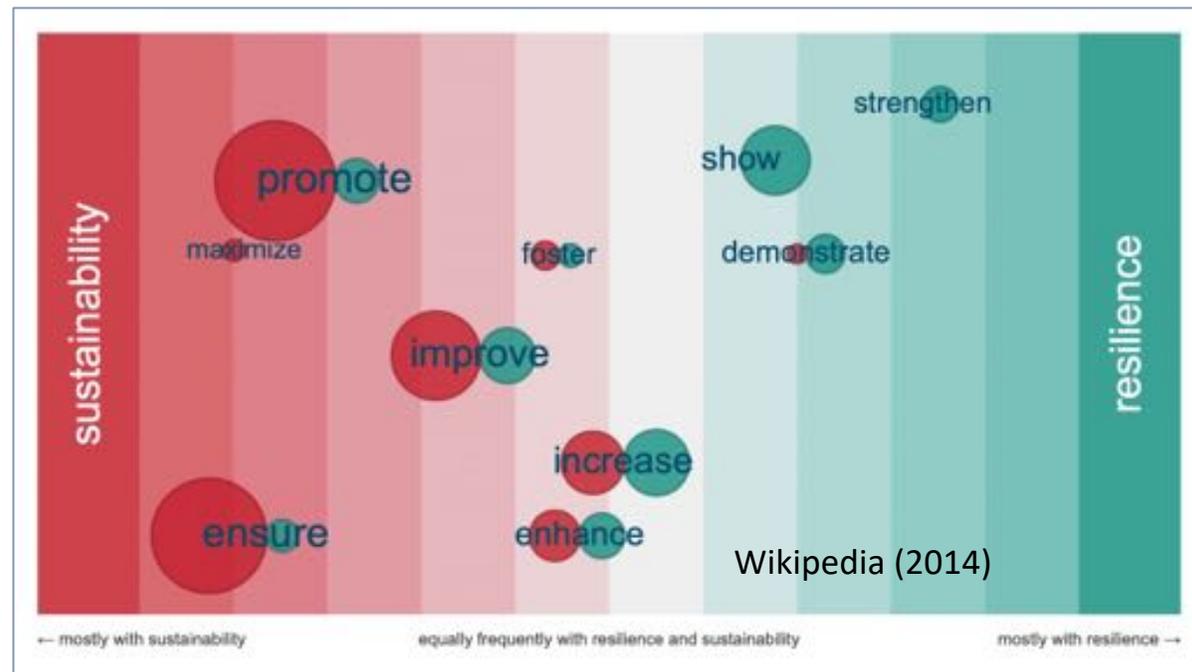
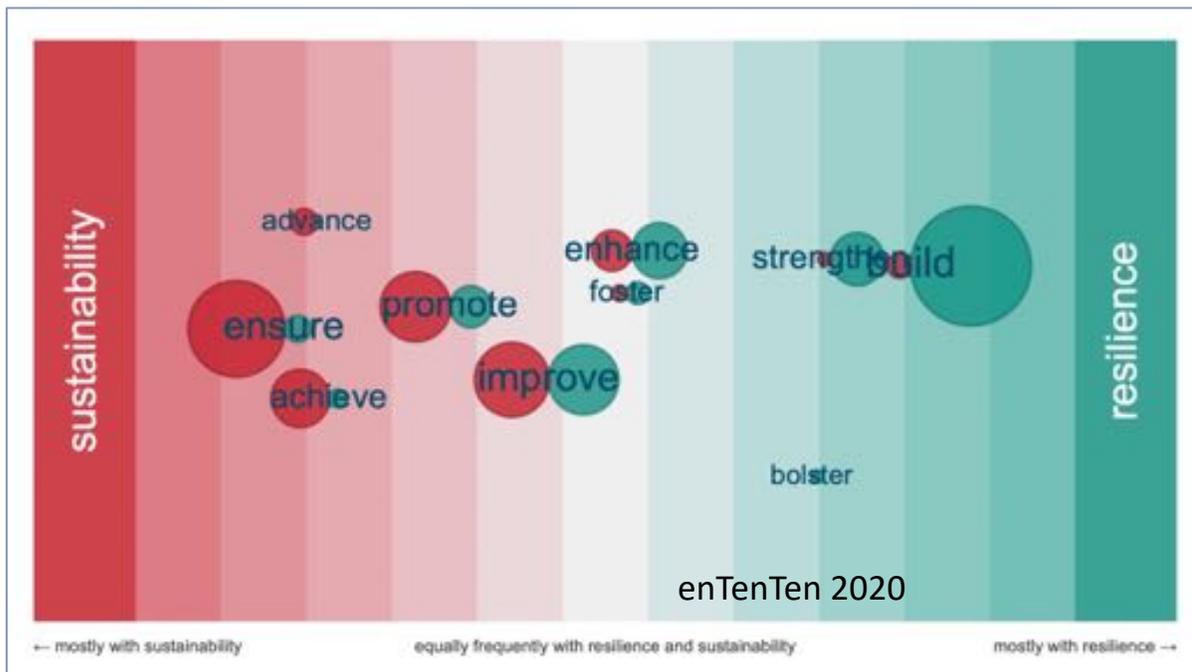
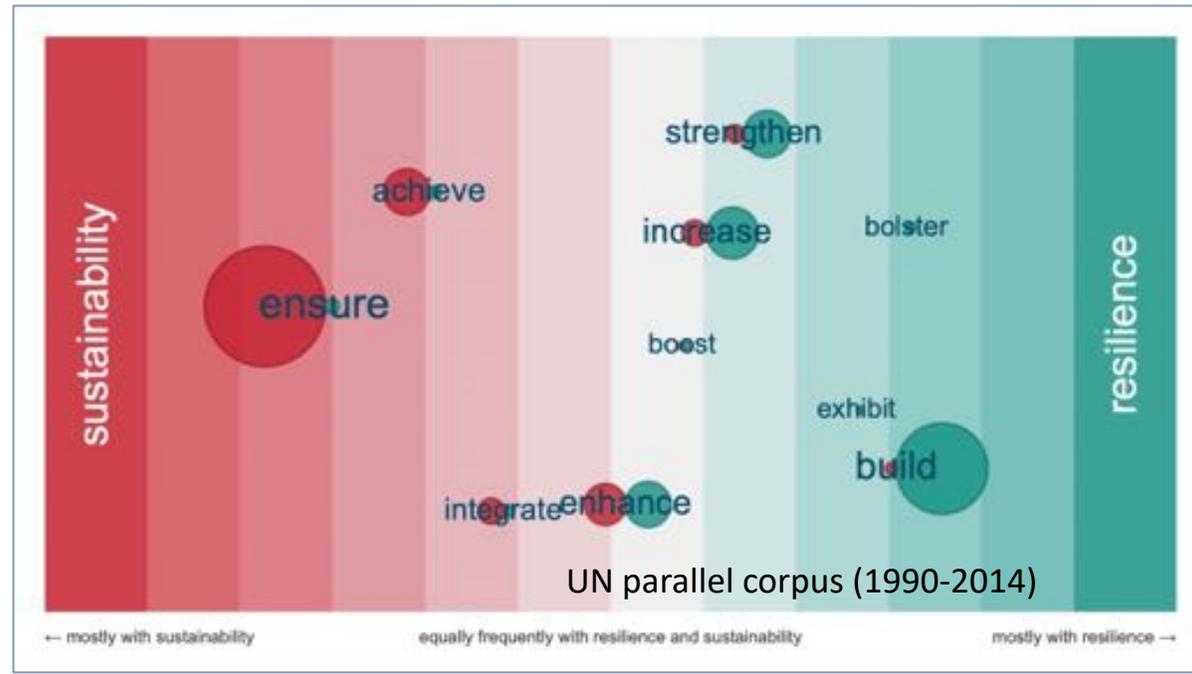
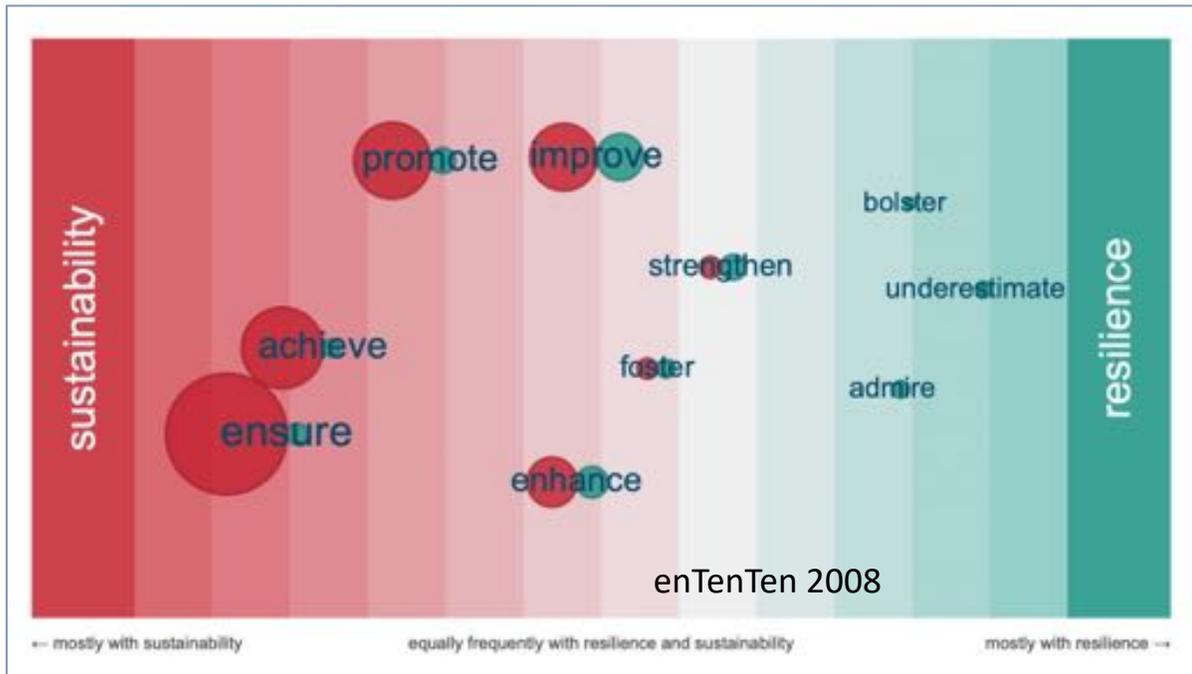


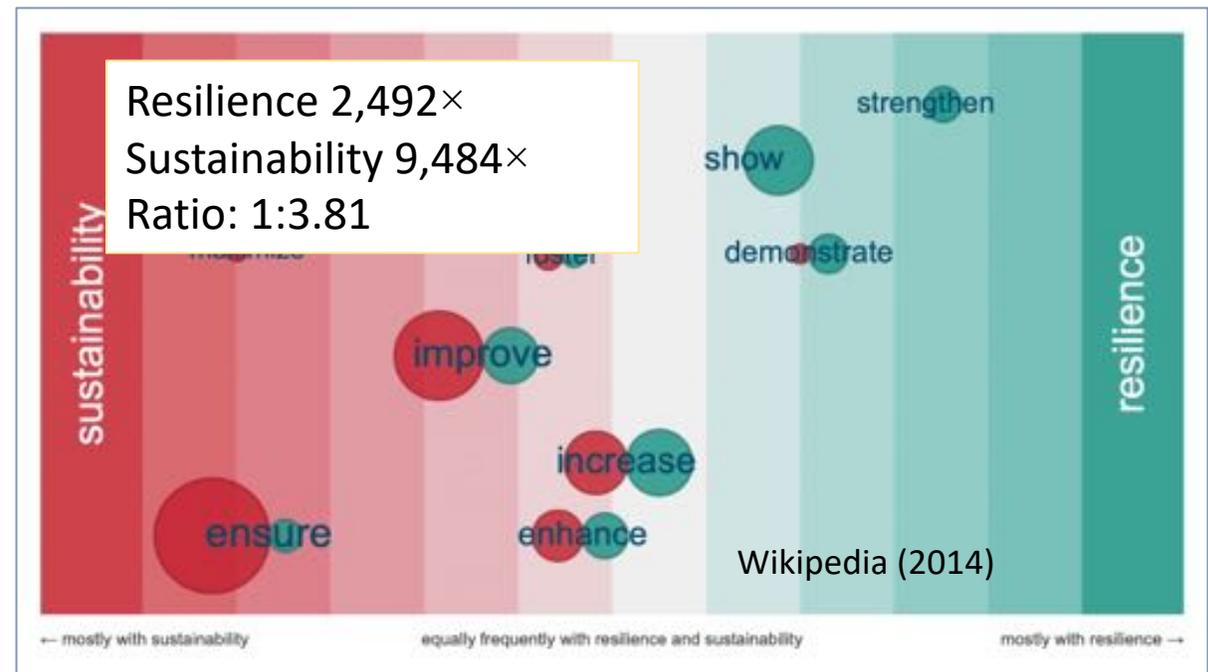
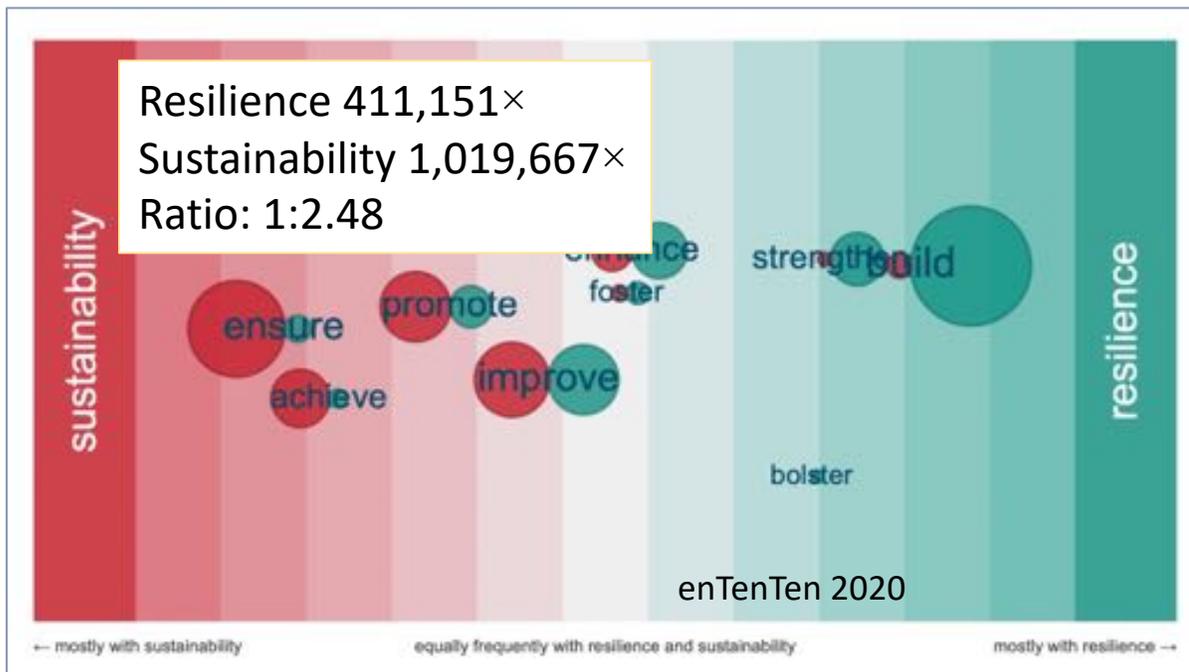
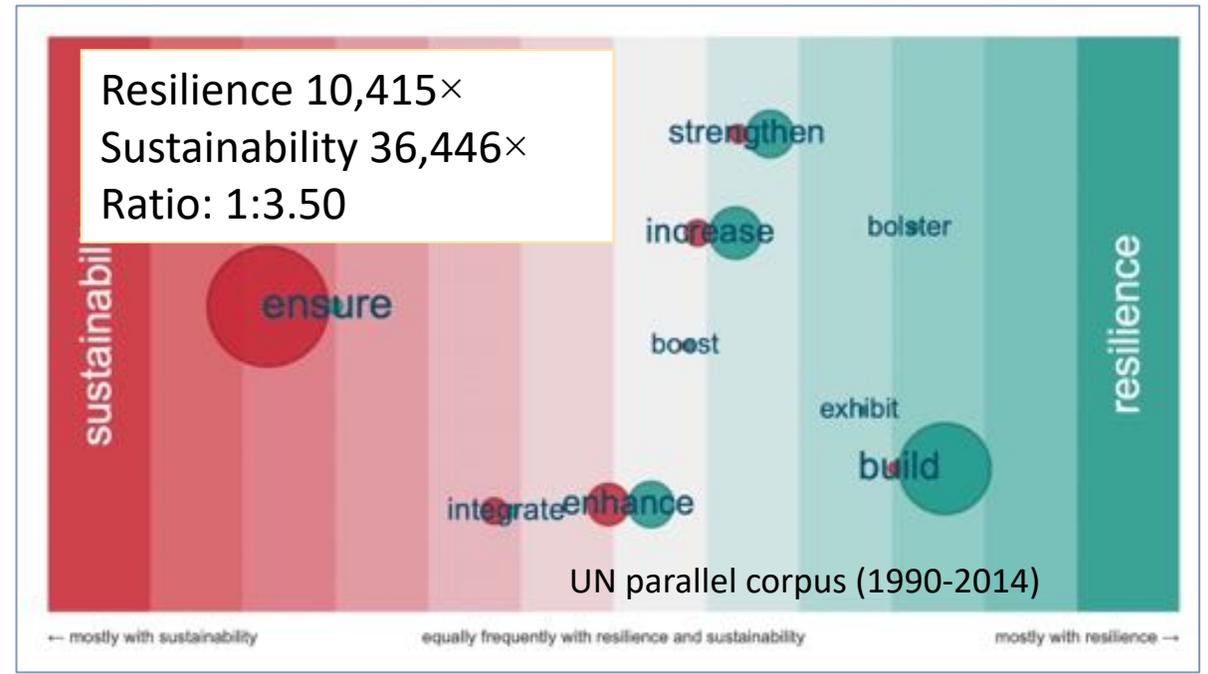
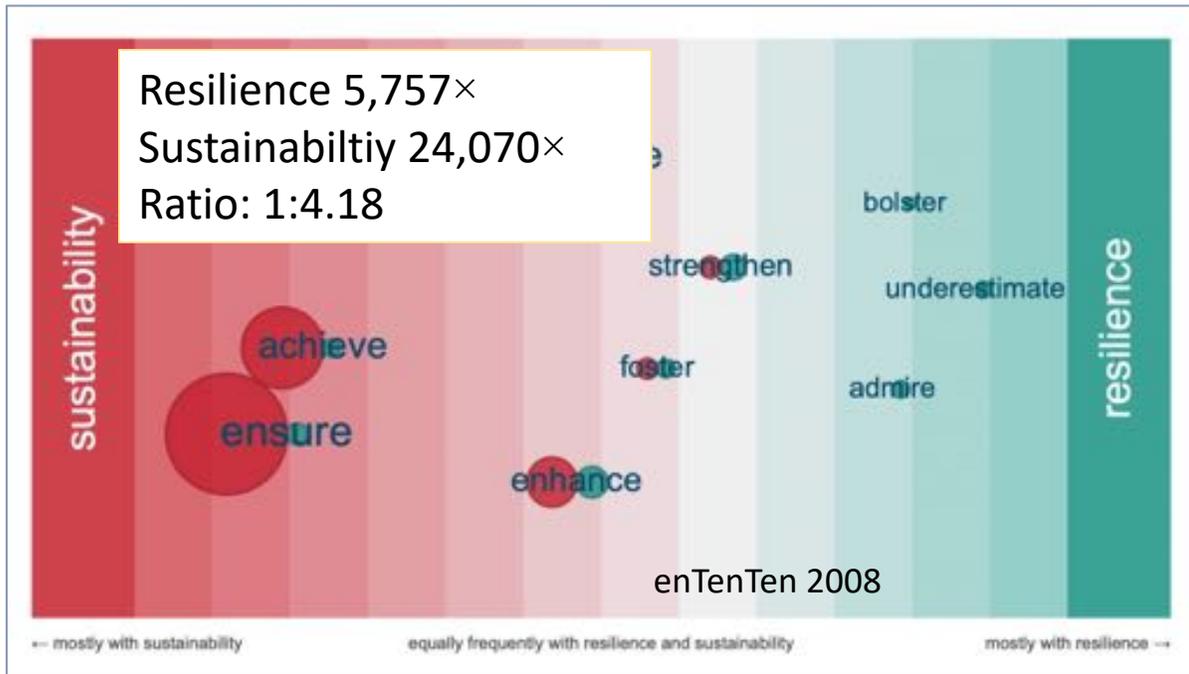
Data and method

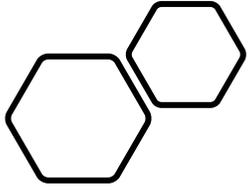
- Used various sources to get a sense of whether *resilience* is a term increasing in frequency (e.g. Google Ngram Viewer, various corpora in SketchEngine (Kilgarriff et al 2014)).
- Based SketchEngine word sketches, compared *resilience* and *sustainability*
- Selected a random sample of 200 instances of *resilience* which collocated with BUILD from English Timestamped JSI corpus for a more detailed analysis
- Compared this with all instances of *resilience* in the UN's *New Urban Plan* policy document, focusing on the semantics of the noun and its grammatical context.

Google Books Ngram Viewer 2000 - 2019







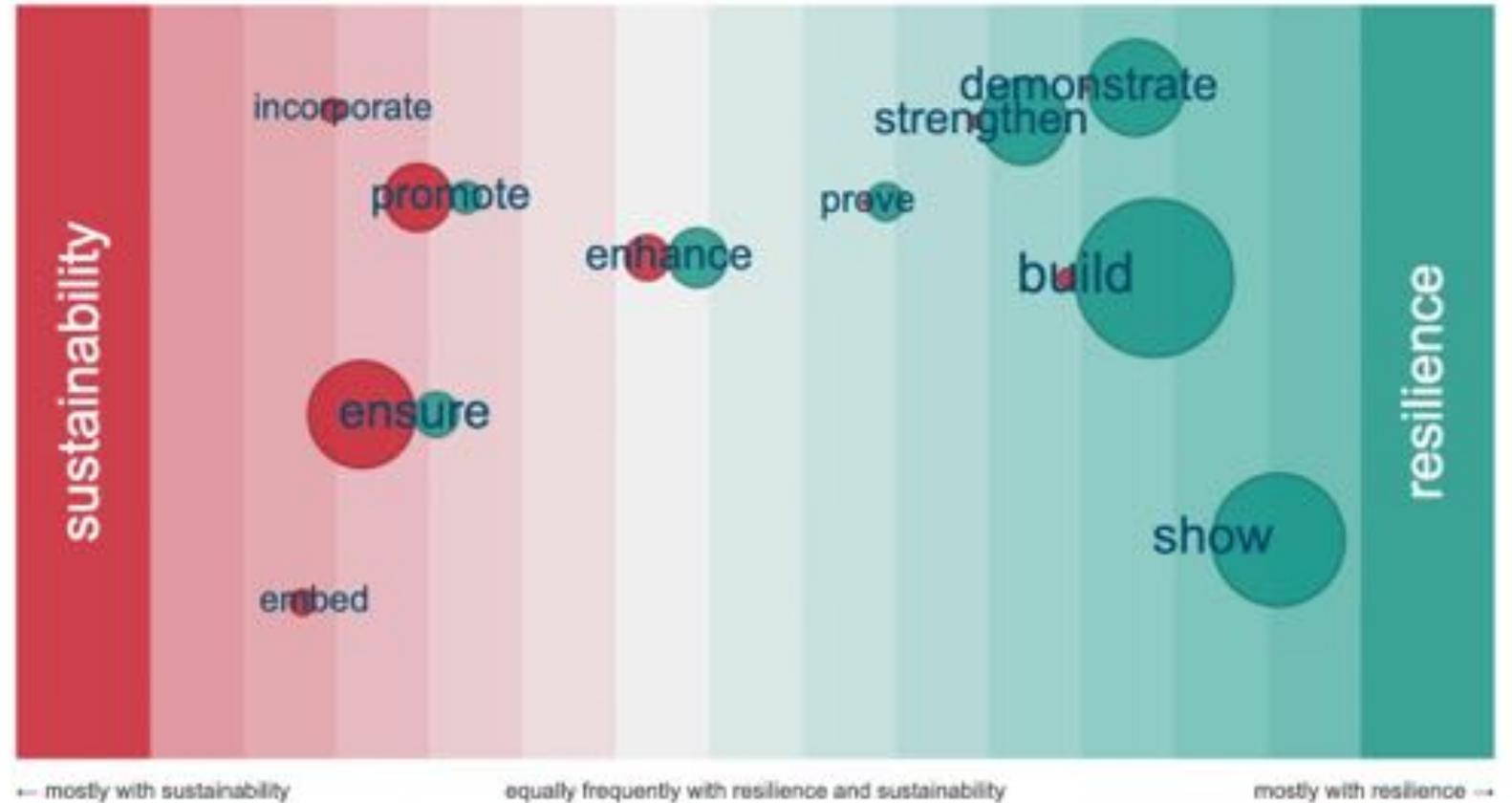


Timestamped JSI 2021-03

Resilience 27,412

Sustainability 41,753

Ratio: 1:1.52





What might we predict?

- *Sustainability* is something that is ensured (by someone) and *resilience* is something that is built (by someone) but what kind of nominal do we find?
- According to Elmqvist et al (2019 p. 269) policy documents such as New Urban Plan, might not include “important dimensions of equity and social justice”.
- If it is the case that *resilience*, as a concept, is not always ‘good’, should we expect to find it qualified in some way, e.g. use of modifiers?

Lexical aspect of nouns

Carr (2022) analysed 5000 nouns from the British National Corpus (2020) from five text types:

- The method drew on previous studies using lexical aspect and ontological status (Balvet et al, 2011; Dowty, 1979; Barque et al, 2009) combined with an SFL experiential analysis.
- From his data: 78.1% Count vs 21.9% Mass and 58.4% concrete vs 41.6% abstract
- He found that [abstract/concrete], [count/mass], and word formation type held a strongly significant relationship with lexical aspect (activity, accomplishment, etc.)
- In particular, [abstract/concrete] held the strongest influence over semantic behaviour
 - count/mass status held a greater influence over the semantic expression of abstract nominals than concrete nominals

Mass nominals and de-adjectival nouns

- Carr (2022) also found that mass nominals expressed unbounded atelic situations, which confirms many other reports in the literature
- A large proportion of the de-adjectival nouns in his study expressed stative meanings
- Following on from Carr's work, we would expect a de-adjectival noun such as *resilience* (but also *sustainability*) to appear as a stative abstract mass noun (ie ontologically a state, rather than an event or object).

Resilience as abstract mass nominal

Timestamped JSI

- Of the 200 instances, 2 errors
- 27,412 instances of *resilience* (23.85 per million tokens or 0.0024%)
- All instances were:
 - Atelic
 - Unbounded
 - Mass
 - Abstract

New Urban Plan

- 16,076 words in the document
- 14 instances of *resilience* (12 instances of *resilient* were not analysed)
- All instances were:
 - Atelic
 - Unbounded
 - Mass
 - Abstract

A functional description of the referring expression

(Fontaine, Jones and Schönthal in press, adapted from Ghesquière 2014)

Determination zone	Modification zone		Categorisation zone		Qualification zone
	Degree	Description			
Primary determiner Secondary determiner	Noun intensifier Adjective intensifier	Subjective Objective	Classifier	Type	By intrinsic relation By schematic relation By situation

Secondary	Primary	Secondary	Noun intensifier	Adjective intensifier	Subjective	Objective	Classifier	Thing
	<i>a</i>				<i>boring</i>		<i>train</i>	<i>journey</i>
<i>all</i>	<i>those</i>				<i>beautiful</i>			<i>hills</i>
	<i>a</i>		<i>total</i>					<i>mess</i>
	<i>your</i>	<i>other</i>						<i>choice</i>
<i>such</i>	<i>a</i>				<i>wonderful</i>			<i>evening</i>
	<i>her</i>			<i>very</i>		<i>long</i>		<i>hair</i>

See Ghesquière (2014) for more detail

Determination zone	Modification zone		Categorisation zone		Qualification zone
	Degree	Description			
Primary determiner Secondary determiner	Noun intensifier Adjective intensifier	Subjective Objective	Classifier	Type	By intrinsic relation By schematic relation By situation

<i>resilience</i>
<i>urban resilience</i>

the
the UK's

resilience of urban inhabitants
resilience to future pandemics

Most instances of *resilience* occurred without any determiners, modifiers or qualifiers:

- 71.7% (JSI corpus)
- 78.60% (NUP document)

The frequency of determiner + type + qualifier:

- 3.5% (JSI corpus), but 11.6% with a qualifier, with or without a determiner
- 21.4% (NUP)

Resilience as
bare nominal

- The vast majority of uses of *resilience* were as a bare nominal (no determiner), an abstract mass noun
- Modifiers of *resilience* are extremely rare
- A list placement is common:
*and by fostering energy efficiency, renewable energy, **resilience**, productivity, environmental protection and ...*
- However, these uses are difficult to unpack:
 - e.g. be efficient with energy, energy that is renewable, producing things, protecting the environment
 - What does it mean to foster the state of being resilient?
 - If *resilience* presents semantically as a state, at least in its inherent temporality, what does it mean to foster resilience?

What do we learn from its experiential meaning?

- In SFL terms, with the event BUILD we would expect, typically, a material clause, where the Complement would be a Goal; ie *resilience* is a participant “to which the process is extended” (Halliday & Matthiessen 2014, p. 226). The inherent agency (Actor) is part of what hides the meaning of resilience: if *resilience* is a property of a complex system, it becomes a bit difficult to understand human involvement.
- For Halliday & Matthiessen (ibid., pp 230-6), BUILD is associated with the creative type of material clause, but with *resilience* as the object, such clauses appear more related to the transformative type of material clause (elaborating: size) e.g.
 - ***strengthening the resilience of cities and human settlements***
 - ***improving the resilience of cities to disasters and climate change***
 - ***foster resilience***
 - ***build up some resilience to get them through this time.***

The role of human agency

- According to Carr (2022) “associations of human agency with nominal temporal structure played a large role in the ability of syntactic constructions to coerce certain semantic readings from these nominals.”
- “While nominal events/states which involve human agency appear more semantically flexible, [those that do not] are seemingly more stable in their expression of temporal semantics.” (ibid.)
- There is no ‘resiler’ in *resilience*; i.e. in the construction [RESILIENCE of X], X has no agency.
 - e.g. *The initiative aims to promote sports and related activities to prevent crime and to effectively build **resilience of at-risk youth**.*
 - We cannot really say that at-risk youth are resiling, and they have the least agency in the systems in which they exist.

Concluding remarks

The semantic profile of *resilience*

- Abstract mass de-adjectival noun
- I was surprised to find that it seems to be semantically underspecified, perhaps this is what makes it easily exploited by stakeholders (e.g. “neoliberal self-help framing of resilience” (Mackie et al 2022))
 - This point would need further investigation
- In the data under consideration, it avoids Subject/Theme position, avoids modifiers and tends to occur as a bare nominal.
- The bare nominal construction “construes the entity in question as unbounded (nondiscrete) and internally homogeneous.” (Croft, 2000)

Resilience requires contextual translations

“[G]iven that **resilience and sustainability require contextual translations** to inform better urban policy and planning, we propose knowledge co-production with multiple urban actors as a process to invite, facilitate and **enable locally informed** and **globally related meanings** of urban resilience and sustainability. Such a process could be **particularly important for exploring where designed redundancy and diversity would make most sense**, for example, opening up for flexible contracts for co-management of urban commons and thus mobilizing different types of knowledge and promoting multiple alternative opportunities for learning about the system. Such intentional redundancies may provide the necessary enabling institutional context for transformation trajectories towards sustainable outcomes and help avoid lock-in and efficiency traps in urban development.” (Elmqvist et al 2019, p. 171)

A transdisciplinary approach is needed [1/2]

- We need “new forms of activity which are thematic rather than disciplinary in their orientation” (Halliday, 1990 p. 141).
- “Drawing on disciplinary knowledge from outside of the study of language brings with it huge challenges which are non-trivial. In addition to an investment of time, a whole new discourse has to emerge in order to facilitate the thematic orientation.” (Fontaine and McCabe, in press)
- Keep an eye out for ***The Routledge Handbook of Transdisciplinary Systemic Functional Linguistics***. (Wegener, McCabe, Sellami Baklouti, & Fontaine, in preparation)

A transdisciplinary approach is needed [2/2]

- “Context can, and should, be used to understand the linguistic process; the design of research questions, the collection, storage and analysis of data and the interpretation and representation of results. In this sense it is both theory and method.” (Wegener & Fontaine, in press),
- SFL is well-placed to take on the sustainability challenges we face, including, as the conference organisers have pointed out, how we can meet “the needs of the present without compromising the ability of future generations to meet their own”.

Mange tak!
Thank you for listening!

***Enjoy the conference, we will all learn so much from
each other!***

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