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Five themes for ecostylistics

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Abstract: Fundamentally, meaning is organized along two dimensions, similarity and contiguity, corresponding to two areas of the brain primarily responsible for language processing, Wernicke’s area and Broca’s area, respectively. Modern culture has tended to overemphasize the similarity dimension through money/commodification in capitalism, and mathematics in science, with disastrous ecological consequences. Ecostylistics can celebrate and analyze themes and linguistic patterns of poetry and novels which challenge this overemphasis. Five such themes are suggested in this article. To counter overemphasis on similarity (1) individuation. To celebrate Broca’s area’s contiguity dimension (2) dynamic process, and (3) interrelatedness and communication with the natural world. However, concentration on local contiguities of time, manifest in the contemporary English-speaking novel, distracts from the global contiguities of (4) long-term ecological change. (5) The two dimensions are also manifest in metaphor, which challenges conventional similarity-based classification, and narrative, which expands the contiguity dimension beyond the clause. These themes are illustrated by poetic examples from Wordsworth and Edward Thomas, and detailed analysis of the following texts: Gerard Manley Hopkins’ “As Kingfishers Catch Fire” and “Nature is a Heraclitean Fire”; Edward Thomas’s “The Word”, Alice Oswald’s “Sonnet” and “Birdsong for Two Voices”, and, returning to a text whose analysis by Michael Halliday was seminal for Stylistics, William Golding’s The Inheritors. Transitivity analysis within the framework of Systemic Functional Grammar is used throughout, and connections are made with quantum physics, Daoism, and other process philosophies.

Keywords: cognitive semantics; contiguity; process philosophy; quantum theory; similarity; Systemic Functional Grammar

1 Introduction

Meaning is organized along two dimensions, similarity and contiguity, corresponding to two areas of the brain largely responsible for language processing,

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Wernicke’s area and Broca’s area (Goatly 2022; Jakobson 1987). Similarity is associated with abstraction, categorization, quantification, and metaphor, while contiguity is associated with the experience of cultural practice and activities in context, connectivity, and metonymy. Modern culture has tended to over-emphasize the similarity dimension through money/commodification in capitalism, and mathematics in science, with disastrous ecological consequences. Ecostylistics can celebrate and analyze themes and linguistic patterns of poetry and novels which challenge this overemphasis. This article aims to suggest five such themes.

This article is structured as follows: Section 2 attempts to bring diverse philosophical and linguistic approaches to ecostylistics together by using a cognitive linguistic framework. In Section 2.1, I introduce a framework first proposed by Roman Jakobson (1987) for understanding two dimensions of meaning, contiguity and similarity. After explaining these concepts I relate them to the structure of the noun-phrase and the clause. Then, in Section 2.2, I attempt to show how an overemphasis on the similarity dimension in economics and mathematics has posed threats to ecology. In Section 3, I suggest five possible themes in ecostylistics which challenge similarity and celebrate contiguity, especially the global contiguities that bind us together in the web of life. Section 3.1 discusses individuation, countering the noun-based categorizing tendencies of the similarity dimension. The text analyzed here is Gerard Manley Hopkins’ “As Kingfishers Catch Fire”, based on Duns Scotus’s concept of haecctitas (‘self-so’ or ‘nature’), which resembles the Daoist concept of 自然 (ziran, ‘self-so’ or ‘nature’). Section 3.2 focuses on dynamic process, celebrating the contiguity of verbs, and building on the insights of Daoism/Buddhism and quantum physics. The texts analyzed here are: Hopkins’ verb-dominated “Nature is a Heraclitean Fire and the Comfort of the Resurrection”, whose sequence of transmuting elements, derived from Heraclitus’ process philosophy, resembles the operation of 阴 (yin, ‘dark’) and 阳 (yang, ‘light’) in Daoism; the Alice Oswald poem “Birdsong for Two Voices”, which demonstrates the use of nominalization for emphasizing process; extracts from Wordsworth’s The Prelude which illustrate how grammar can be modified to turn phenomena in mental processes and tokens in relational processes into dynamic actors in material processes, and how ergative verbs impart energy to natural, even “inanimate” elements. Section 3.3 explores interrelatedness and communication with the natural world, recognizing contiguity within processes, again citing observations from quantum physicists, but also outlining the interconnectednesses of Gaia theory. Oswald’s poem “Sonnet” and extracts from Edward Thomas’s poetry show how personification and co-ordination of the natural, human and human-made blur the traditional animate/inanimate distinction. Interrelatedness involves communication, and Thomas’s fascination with birdsong and its ineffable
messages is exemplified in “The Word”. Section 3.4 addresses the ignoring of long-term ecological change, warning against the limitations of time and place in local contiguity, and advocating global contiguity. The local contiguities of the contemporary novel exclude global and epochal forces recognized in epics, and hence, as Amitav Ghosh (2016) points out, such novels are inadequate in addressing the problems of climate change. I propose William Golding’s *The Inheritors* as an example of a novel that is epochal, dealing with the Neanderthal-homo sapiens transition. Halliday’s seminal grammatical analysis showed how the mind-style and life-style of the Neanderthalers, reflected in intransitive verbs and animism/personification, contrasts with those of homo sapiens with its transitive verbs indicating a domination of nature that has led to our tragic ecological crisis. Section 3.5 deals with narrative and metaphor, relating to both contiguity and similarity. Narrative, an expansion of the textual contiguity of the clause, and the “stories-we-live-by” (Stibbe 2021: 6), which are more similarity-based and abstract, both attempt to make sense of events and solve problems. Metaphor is reliant on similarity, but it is an unconventional categorization, which highlights features that conventional categorization ignores. Several stories-we-live-by and metaphors for nature are evaluated in terms of their positive implications for ecology and society. Section 4 is the summary and conclusion.

## 2 Ecostylistics within a cognitive framework

The five themes illustrate diverse philosophical and linguistic approaches to ecostylistics but I have attempted to bring them together using a cognitive linguistic framework which suggests two vectors of meaning, contiguity and similarity, associated with two different language processing areas of the brain.

### 2.1 Two dimensions of language

Roman Jakobson (1987) used Saussure’s distinction between the paradigmatic axis and the syntagmatic axis (Saussure 1960) to suggest two axes or dimensions of meaning, similarity/metaphor and contiguity/metonymy.

The development of a discourse may take place along two different semantic lines: one topic may lead to another either through their similarity [paradigmatic] or through their contiguity [syntagmatic]. The metaphoric way would be the most appropriate term for the first case and the metonymic way for the second, since they find their most condensed expression in metaphor and metonymy respectively. (Jakobson 1987: 109–110)
Evidence for this distinction came from research into two kinds of aphasia, language impairments arising from brain injury. Injury to Wernicke’s area (in the temporal lobe) led to deficiencies in the paradigmatic selection axis (metaphor/similarity). Injury to Broca’s area (in the posterior inferior frontal lobe) caused deficiencies in the syntagmatic combination axis (metonymy/contiguity) (see Figure 1).

Figure 1: Areas of the brain associated with language processing.

Aphasics deficient on the paradigmatic axis (Wernicke’s area injury), in terms of selection and substitution, had to rely on the syntagmatic axis and metonymy. “Phrases like ‘knife and fork’, ‘table lamp’, ‘to smoke a pipe’, induced the metonymies fork, table, smoke; the relation between the use of an object (toast) and the means of its production underlies the metonymy eat for toaster” (Jakobson 1987: 105). The metonymies here depend upon contiguities in the context of activities like eating a meal, smoking, and preparing toast to eat, and in the first three examples these are reflected in typical textual adjacency/contiguity.

Conversely, aphasics deficient on the syntagmatic axis of contiguity and combination (Broca’s area injury) often utter one-word sentences, but can still select on the paradigmatic axis, relying on similarity/metaphor:

The patient confined to the substitution set (once contexture is deficient) deals with similarities, and his [sic] approximate identifications are of a metaphoric nature, contrary to the metonymic ones familiar to the opposite type of aphasics. Spyglass for microscope or fire for gaslight are typical examples of such quasi-metaphoric expressions [...]. (Jakobson 1987: 103)

Note that this compensation made by aphasics suffering from Broca’s area injury does not just involve metaphor, but the conventional similarity relationships of superordinate to hyponym, in this example fire for gaslight, since gaslight is a kind of fire.
With some reservations, Jakobson’s theory has been evidenced by later research. Uri (1992) and Aitchison (1994) support Jakobson’s distinction between the two aphasias and the impairments of contiguity and similarity dimensions. Aitchison (1994: 82–97), summarizing the research current at the time, showed that the most important psycholinguistic links between words are co-hyponymy (as in *butterfly* and *moth*, both flying insects), and collocation, i.e. typical co-occurrence in textual proximity (as in *blue moon* and *yellow fever*). Co-hyponymy depends upon similarity, since the co-hyponyms share the same superordinate – *flying insect* for *butterfly* and *moth* – and therefore belong to the same class. Whereas collocation reflects experience of textual contiguity – our frequent use of *blue* and *moon* or *yellow* and *fever* next to each other in text.

Later research also supports Jakobson’s distinction, with the significant addition that processing of nouns is associated with Wernicke’s area, and verbs and clauses with Broca’s area.

Increased activity is observed in the temporal lobe [the location of Wernicke’s area] while speaking or thinking in nouns, whereas speaking or thinking in verbs activates Broca’s frontal area (Raichle 1994). By the same token, impairments in finding nouns are associated with temporal lobe pathology, whereas impairments in finding verbs are associated with left frontal damage and Broca’s aphasia (Ardila and Rosselli 1994; Damasio and Tranel 1993). (Ardila 2010: 380–381)

The only reservation is that language production and grammar are not confined to these areas of the brain (Ardila 2021; Tremblay and Dick 2016).

Having established the similarity/contiguity distinction, we need to define or elaborate on what exactly we mean by these terms. Similarity I take to be the sharing of features. So, classifications, metaphors, superordinate-hyponym relations (e.g. *bird* – *penguin*) depend upon it. Contiguity means contextuality, and context is often that of action genres/action schemas. Literally, it means “touching” including relationships such as part to whole, place to object/event/person in that place. But also, by extension, time to object/person/event at that time, and cause and effect. Metonymy depends upon these relationships. Using the concepts of frame (for the stereotypical knowledge of objects) and schema (for the stereotypical knowledge of activities and events), contiguity might be defined in terms of intra- and inter-frame and schema relations (Goatly 2022).

Cause and effect relationships, inter-schema, may depend upon the local contiguities of two action genres, but can also extend to global contiguities, which have enormous significance for ecology. A famous example comes from chaos theory, in which the schema of a butterfly flapping its wings in Brazil may cause, or at least affect the course of, a tornado in Texas.
The significance of these two dimensions can be observed in the elements of the noun phrase and the clause. In Table 1, we notice some elements that anchor the utterance of this noun phrase to the contiguities of physical context. These comprise most deictics, namely the specific ones including demonstratives and possessives, in this case *those*. In addition, attitudinal epithets, like *awful*, reflect the attitude of the speaker, part of the interpersonal context. The remainder of the elements reflect the similarity dimension by classification: through the noun-thing label (the exception being proper names), e.g. *train*; through sub-classification by the objective epithets, e.g. *old*; by classifiers, e.g. *diesel*; and by post-modifiers if they are restrictive, e.g. potentially *with dirty carriages* and *arriving at the station*. Note that once classes have been established by similarity, the members of those classes can then be quantified by numeratives.

In this article, the transitivity system within the framework of Systemic Functional Grammar (Halliday 1994; Halliday and Matthiessen 2004) is used throughout for text analysis. Transitivity concerns the type of process represented by the clause, the participants in this process, and circumstances associated with the process. Among the three components, the process is the central one. Halliday (1994) categorizes our experiences of the world into six major types of processes: the material, mental, verbal, relational, behavioral, and existential processes. For readers unfamiliar with the transitivity system, Table 2 shows the choice among process types and their corresponding participants.

The contiguity dimension of action genres is reflected in the textual contiguities of clauses, as in the material process clause in Table 3 (Broca’s area is associated with the processing of clauses as well as verbs). (1) The material process verb (*fried*) establishes a relationship between participants, actor (*I*) and goal (*the chicken*), a syntagmatic contiguity mirroring the contiguities or context of the cooking action genre. (2) The place circumstance (*on the new gas burner*) fills in another aspect of context and (3), the time circumstance (*Yesterday*), another. (4) The tense (*-ed*) also locates the action in a time prior to utterance.

<table>
<thead>
<tr>
<th>Pre modifiers</th>
<th>Head</th>
<th>Post modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>deictic</td>
<td>numerative</td>
<td>epithet</td>
</tr>
<tr>
<td><em>those</em></td>
<td><em>two</em></td>
<td><em>awful</em>, <em>old</em></td>
</tr>
</tbody>
</table>

Table 1: The structure of the noun phrase (after Halliday and Matthiessen 2004: 329).
It is worth highlighting important distinctions between nouns (associated with Wernicke’s area processing) and verbs (associated with Broca’s area processing) that are significant for the remainder of this article. As Langacker (1991) pointed out, nouns and verbs typically refer to objects and energetic processes or interactions, respectively (see Table 4). Noun referents are typically instantiated in space, are spatially compact, but temporarily unbounded, i.e. relatively permanent. Verb referents, by contrast, are instantiated in time, and are temporally compact, i.e. of brief duration, but spatially unbounded, i.e. having effects beyond themselves, perhaps, as in the butterfly-tornado example, even effects of global reach. Moreover, verbs, because, as we saw in clauses, they have to relate to noun phrases in syntax, are seen to be dependent on co-text, whereas nouns are regarded as independent or autonomous.

Table 2: A simplification of the transitivity process types and participants in the clause (excluding behavioral processes).

<table>
<thead>
<tr>
<th>Process</th>
<th>Meanings</th>
<th>Participants</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existential</td>
<td>existence</td>
<td>Existent</td>
<td>There are 6 moons of Uranus.</td>
</tr>
<tr>
<td>Relational</td>
<td>states, relationships</td>
<td>Token, Value:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>possession</td>
<td>– Carrier, Circumstance</td>
<td>The book is on the table.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Carrier, Attribute</td>
<td>Peter remained a teacher.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Identified, Identifier</td>
<td>Boris is the Prime Minister.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– Possessor, Possession</td>
<td>Paula has a cat.</td>
</tr>
<tr>
<td>Material</td>
<td>actions, events</td>
<td>Actor, Goal</td>
<td>Snow blocked the road.</td>
</tr>
<tr>
<td></td>
<td>perception</td>
<td>– Actor, Scope</td>
<td>John wrote a letter.</td>
</tr>
<tr>
<td>Mental</td>
<td>thought</td>
<td>Senser, Phenomenon</td>
<td>The cat saw the bird.</td>
</tr>
<tr>
<td></td>
<td>emotion</td>
<td>Phenomenon, Senser</td>
<td>He decided to go home.</td>
</tr>
<tr>
<td>Verbal</td>
<td>communication</td>
<td>Sayer, Receiver, Verbiage</td>
<td>Dogs always annoyed Matt.</td>
</tr>
</tbody>
</table>

Table 3: A typical material process clause displaying contiguity relations.

<table>
<thead>
<tr>
<th>Time circumstance</th>
<th>Actor</th>
<th>Material process</th>
<th>Goal</th>
<th>Place circumstance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yesterday</td>
<td>1</td>
<td>fried</td>
<td>the chicken</td>
<td>on the new gas burner</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
2.2 The overemphasis of the similarity dimension

During classification objects which are unalike in their particularities are included in an abstract similarity-based category. Consequently, all members of the class are felt to be somehow equivalent to another and therefore measurable/countable, realized in the clause by numeratives or other quantifiers. This section explores two areas in which contemporary capitalist and scientific culture have overemphasized the similarity dimension, with harmful consequences for the environment: monetization and mathematics.

Once countable or measurable, noun phrase referents can attract a monetary value, which equates objects with each other. For instance, 20 dollars establishes a most abstract category which includes all the goods in their various numbers and quantities that can be bought for 20 dollars: 2 meters of X, 2 kilos of Y, or 150 Zs now all belong to the abstract category 20 dollars. Or to put it another way, these quantities of X, Y, and Z belong to the same category because they are similar in sharing an identical value of 20 dollars. “As Marx noted, money reduces the use values of the multidimensional ecosystem, human desires and needs, and subjective meanings to a common measurable objective standard which everyone can understand” (Harvey 1996: 150–151). Of most significance in this quote is the phrase “multidimensional ecosystem”, because it implies a reduction of many dimensions to a single monetary one, with qualitative differences ignored in favor of an abstract similarity. Or as Schumacher (1999 [1973]) puts it:

In the market place, for practical reasons, the innumerable qualitative distinctions which are of vital importance for man [sic] and society are suppressed; they are not allowed to surface. Thus the reign of quantity celebrates its greatest triumphs in “The Market”. Everything is equated with everything else. To equate things means to give them a price and make them exchangeable. (Schumacher 1999 [1973]: 30)

If we believe in market economics enough, we maximize its efficiency by commodification, bringing as many objects as possible, belonging to noun-based

<table>
<thead>
<tr>
<th>Instantiated</th>
<th>Objects</th>
<th>Energetic interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension</td>
<td>In space</td>
<td>In time</td>
</tr>
<tr>
<td></td>
<td>Spatially compact</td>
<td>Temporally compact</td>
</tr>
<tr>
<td></td>
<td>Temporally unbounded</td>
<td>Spatially unbounded</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autonomy/Dependence</th>
<th>Objects</th>
<th>Energetic interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomous</td>
<td>Dependent</td>
</tr>
<tr>
<td></td>
<td>Noun</td>
<td>Verb</td>
</tr>
</tbody>
</table>

Table 4: The contrasting cognitive aspects of noun and verb referents.
quantifiable classes, into the money-based system. Market capitalism has increasingly turned humans and nature into market commodities. Think of blood banks, gene banks, sperm banks, and stem cell banks. Or consider the ways in which elements of the environment/ecology have been commodified. Before imperialist invasion, the idea of ownership of land was alien to native Americans and Africans, but now land is a commodity. Water can be owned by the state for the common good, or shared for free by local communities, but increasingly it is privatized, as in France and England. Plants foraged and used in traditional medicine, such as the neem tree in India, have now been patented by corporations. And one such corporation, Monsanto, has patented seeds which, subjected to terminator technology, only produce plants with sterile seeds, so that farmers have to buy new seeds from Monsanto every year. Some environmental economists have even suggested that the best way to ensure the survival of a sustainable environment is to put a price on nature, a movement labeled the Natural Capital Agenda. The various flaws in this approach have been cataloged by Harvey and Monbiot (Goatly and Hiradhar 2016), the most obvious being the idea that nature can be separated into independent parts, and the ironic assumption that we can save nature by recourse to the same capitalist system that is causing its destruction.

The monetary measure of economic well-being, gross domestic product (GDP), is often at odds with well-being, physical and ecological. If I walk to work, this contributes nothing to GDP. If I go by car, or “better still” sit in a traffic jam with my engine running, this counts as contributing to GDP. But walking to work is far better for my health and for our ecology, though it counts for little. I was shocked when, after the Kobe earthquake, economists welcomed the increase in GDP that would accrue from building reconstruction. It caused enormous human suffering: 6,433 people died, nearly 27,000 people were injured, and more than 45,000 homes were destroyed.1 At this point, I realized that human happiness had been severed from economics.

The second and related area where qualitative differences have been subsumed under quantitative similarities is mathematics. It began with Pythagoras, who discovered that the qualitative differences between musical notes from a single vibrating string depend on the length of the string: the shorter the string the higher the note. A difference in quality is explained by a difference in quantity. “If the ultimate nature of things depends on mathematical relationships, then it follows that the world as perceived by our senses must be logical and intelligible as mathematics” (Habgood 2002: 6–7).

Following Pythagoras, mathematics has been the benchmark for science. Galileo exhorted “measure what can be measured, and make measurable what cannot be measured” (Gaarder 1996: 203). Aldous Huxley pointed out that the scientist selects “from the whole of experience only those elements which can be weighed, measured, numbered, or which lend themselves in any other way to mathematical treatment” (Peat 1996: 239). In 1998, at an event in the White House, Stephen Hawking made the following prediction: “We shall have to rely on mathematical beauty and consistency to find the ultimate Theory of Everything. Nevertheless, I am confident we will discover it by the end of the 21st century, and probably much sooner” (Gleick 2021: 36). Gleick (2021: 36) responded: “Why should the universe, which grows more gloriously complex the more we see, be reduced to one set of equations and formulae?”

To put this in context, we might, following Habgood (2002), posit a ladder of academic disciplines investigating different kinds of reality (see Figure 2). Explaining one level in terms of another is distorting. “At each stage entirely new laws, concepts and generalizations are necessary […] Psychology is not applied biology, nor is biology applied chemistry” (Anderson 1972: 393). And none of the disciplines above it is simply applied mathematics.

Figure 2: Ladder of academic disciplines.
Of most importance is the danger of the potential hegemony of mathematics over ecology/biology. Ilya Prigogine, the founder of chaos theory, in fact, wished to work in the opposite direction, towards a biological view of physics rather than a mathematical one (Horgan 1998). The problem is that it is distorting to employ numerical models to measure nature and ecological crises. “Verification and validation of numerical models of natural systems is impossible” (Oreskes et al. 1994: 641) since natural systems are always open, making our knowledge of them incomplete, or, at best, approximate, and factoring out the unknown and unmeasurable. These mathematical models might be thought of as a work of fiction (Horgan 1998: 202–203).

An obvious danger in emphasizing the similarity dimension is its disregard for diversity. Directly or indirectly, the embrace of the capitalist system and mathematics in interaction with science/technology, have led to a catastrophic decline in bio-diversity. Industry depends upon standardization, interchangeability for a specific purpose, and increasingly nature has been industrialized leading to monocultures (Josephson 2002). Moreover, biodiversity loss seems to correlate with language attrition, in which languages and cultures which have been sustainable over millennia are dying, along with the diverse forms of flora and fauna which sustained them and which they respected.

We cannot be reminded of biodiversity loss too often. The last few million years of life on earth have produced the greatest biodiversity ever. There may now be up to a trillion species, 9 million of them macroscopic. But now we humans have arrived, ushering in the Holocene extinction event. Tragically, 300 years ago our modern, noun-based, similarity-based, and mathematically-based science facilitated the technology of the Industrial Revolution using fossil fuels, whose exploitation also allowed an explosion of human population. The result is that more than one in five species on Earth now faces extinction, and that may rise to 50% by the end of the century. The following groups of species are most at risk: amphibians, 40%; conifers, 34%; reef corals, 33%; sharks and rays, 30%; mammals, 25%; and birds, 14%. The current rate of extinction is up to 10,000 times higher than the average historical extinction rate and may eliminate most species on the planet Earth within 100 years (‘Biodiversity’, 2 ‘Species Extinction Rate’ 3).

2.3 Problems with local contiguity

It is worth warning, therefore, about the problems and distortions brought about by overemphasis of the similarity dimension through monetization/commodification, mathematics, and the capitalist-industrial complex. But celebrating local contiguity has its own dangers. Our local experience of contiguity begins with the primary scenes of infancy when, in Western culture, we participate in action schemas like eating in the high chair, going for a ride in the car, changing diapers, feeding ducks at the pond, building a block tower, taking a bath, putting away the toys, feeding the dog, going grocery shopping (Bruner 1983). And the repertoire of culturally-recognized action genres we participate in expands beyond these as we become adults.

However, it is limiting to think of contiguity only in terms of our immediate sensory perceptions of material process activities in a specific time and place with specific props and co-participants. It is only by moving away from the local contiguities of experience that we can appreciate the ultimate interconnectedness, the web of global contiguity which binds us together with each other and the universe. Scientific experimentation with measuring instruments and apparatus expands our perceptions, and these instruments can be conceived as extensions of our nervous systems (Bateson 1975).

They may, of course, introduce an extra level of distortion of everyday experience in doing so. The distortion introduced by the microscope and telescope was objected to by Alexander Pope: “Why has not man a microscopic eye? For this plain reason, man is not a fly.” (Pope 1867 [1734]: 18), and satirized by Swift in Gulliver’s Travels. However, only by the de-contextualization of natural phenomena in the lab, and by introducing elaborate stagings of artificial scientific apparatus which take us beyond the limitations of our perceptual faculties are we able to develop quantum theory, Gaia theory, both discussed below, or to understand the phenomenon of climate change. And the measurements made by such apparatus are necessarily reported in mathematical, statistical terms.

Our perceptual apparatus is very attuned to change, but within a very short time frame. Climate includes abstract temperature and precipitation patterns, and climate change is slow and involves considerable day-to-day variation. This means climate and climactic changes are difficult to perceive – “weather” refers to what is perceptible in our commonsense world of local contiguities.

3 Themes for ecostylistics

I have sketched a framework for cognitive semantics based on two dimensions of meaning based on the distinct areas of the brain, Wernicke’s and Broca’s, important for language processing: similarity-metaphor-classification-nouns-autonomy-permanence;
contiguity-metonymy-context-verbs-dependency-transitoriness. I now proceed to
discuss five possible themes for ecostylistics within this framework, with ex-
amples mainly from poetry, but also novels. I will relate these to process phi-
losophies, Daoism/Buddhism, as well as scientific theories such as quantum
and Gaia theory.

3.1 Theme 1: Countering the overemphasis on similarity and
classification – indviduation

The medieval philosopher Duns Scotus, along with his theory of the Logos,
developed the notion of haecctitas. This concept is a challenge to the similarity
dimension of meaning with its classifications, because it is defined as the features
in a particular object that make it different from other members of its class.

*Haeccitas* inhered in every created thing, inanimate, animal or human. It was the mark of its
Creation by God, and it was active. So it was lived out in action and in movement: each thing
veered towards a particular destiny or purpose. This process involved the will, the expression
of individuality. ⁴

It is interesting to observe some obvious parallels between Duns Scotus and
Daoism, between the concepts of divine creative force and the Dao on the one
hand, and *haeccitas* and *ziran* on the other. Dao is the force at the root of creation
and the cycles of nature, the mother of all that keeps nature and society in har-
mony. As humans we need to live in harmony with the Dao, by adopting 无为
(*wuwei*, ‘inaction’)– going along with the grain of the Dao in spontaneous non-
action or minimal interference (Kohn 2001). *Wuwei* allows each being to unfold
according to its own nature and connection with the Dao, so as to realize its *ziran*
(Konjathy 2014). “*Ziran* is best understood as ‘suchness’ or ‘being-so-in-itself’ […]
it is simultaneously one’s natural condition and the manifestation of the Dao
through one’s being” (Konjathy 2014: 85).

Gerard Manley Hopkins, the nineteenth century Jesuit priest and poet, studied
Duns Scotus (cf. the poem “Duns Scotus’ Oxford”) and adopted his concept of
*haeccitas*. William Blake had earlier resisted the worldview of universal mathem-
atical laws, seeing “infinity in a grain of sand and eternity in an hour”, and
pleading “May God us keep from Single vision and Newton’s sleep” (Lent 2017:
361): in his engraving Newton is measuring with dividers or compasses.⁵ But

Hopkins is significant for his emphasis on individuality and process philosophy, important themes of this article. He developed the concepts of inscape and instress. *Inscape*, synonymous with *haeccitas*, is the uniqueness of all natural phenomena, whether leaf, snowflake, or fingerprint. Every individual, including humans, the most fully individuated, actively expresses its identity, “selves”. *Instress* is the interaction between selving and the human response to it, the reaching out in love to this uniqueness. Hopkins believed that instress was a response to the divine, since the individuation of inscape derives from God as creator (Goatly 2022).

These ideas are most clearly expressed in the poem “As Kingfishers Catch Fire” (Hopkins 1967: 90).

As kingfishers catch fire, dragonflies draw flame;  
As tumbled over rim in roundy wells  
Stones ring; like each tucked string tells, each hung bell’s  
Bow swung finds tongue to fling out broad its name;  
Each mortal thing does one thing and the same:  
Deals out that being indoors each one dwells;  
Selves – goes itself; myself it speaks and spells,  
Crying What I do is me: for that I came.  
I say more: the just man justices;  
Keeps gráce: that keeps all his goings graces;  
Acts in God’s eye what in God’s eye he is –  
Christ. For Christ plays in ten thousand places,  
Lovely in limbs, and lovely in eyes not his  
To the Father through the features of men’s faces.  
(Hopkins 1967: 90)

It is difficult to express individuation using words, as their senses inevitably involve categories, but by stressing the “each” Hopkins is attempting to point to the uniqueness of every member of the category. Each different plucked string, swung bell, indeed every mortal, impermanent, transitory thing expresses its individuated essence, selves its inscape, thereby fulfilling its divine purpose. The instress response to dynamic divine creativity is to recognize Christ in these selving objects and in the ten thousand different faces or unique features of every human face. Notice the predominance of verbs (in bold) in this active process of selving, which brings us to the topic of the following section.

### 3.2 Theme 2: Celebrating verb-based process and the dynamism of nature

In Hopkins’ poem, individuation is dependent on dynamic processes both for inanimate objects like bells and stones, and animate kingfishers and dragonflies.
Such an emphasis, reflecting Broca’s area activity in processing verbs, is fundamental in quantum physics, Buddhism and Daoism. For quantum physics, considers these quotes and Figure 3.

Actually, relativity implies that neither the point particles nor the quasi-rigid body can be taken as primary concepts. Rather these have to be expressed in terms of events and processes. (Bohm 1980: 123–124)

The best image of process is perhaps that of the flowing stream whose substance is never the same. On this stream one may see an ever-changing pattern of vortices [...] which evidently have no independent existence as such. Rather they are abstracted from the flowing movement, arising and vanishing in the total process of the flow. (Bohm 1980: 48)

Figure 3: Process abstracted as “thing” in a whirlpool.

Impermanence and process are fundamental to Daoism, too.

Finally the Dao is understood as the universe as cosmological process, specifically as expressed in the constant patterns of oscillation between yin and yang. In this sense the Dao is the universe, but it is a universe of constant change and transformation. (Konjathy 2014: 98)

The processes recognized in quantum physics and Daoism depend on energy inherent in what we regard as objects. Matter changes spontaneously and is incredibly dynamic at the molecular, the atomic, and the subatomic levels. Molecules are not rigid and motionless, but their atoms oscillate according to their temperature and in harmony with the thermal vibrations of their environment. Within the vibrating atoms, the electrons are bound to the nuclei by electric forces which keep them as close as possible, and responding to this confinement whirl around extremely fast. And in the nuclei, the protons and neutrons are squeezed into a minute volume by the strong nuclear forces, and consequently race about at unimaginable speeds (Capra 1982).
Modern physics, then, pictures matter not at all as passive and inert, but as being in a continuous dancing and vibrating motion whose rhythmic patterns are determined by the molecular, atomic and nuclear structures. This is also the way in which the eastern mystics see the material world. They all emphasise the universe has to be grasped dynamically, as it moves, vibrates and dances; that nature is not in a static, but in a dynamic equilibrium. (Capra 1982: 215)

In Daoism, this spontaneous dynamic process is what gives rise to individuation, the ziran we mentioned earlier. “But […] Dao is also order – clearly manifest in the rhythmic changes and patterned processes of the natural world […] Its patterns are what the Chinese call ‘self-so’ or ‘nature’ [ziran], the spontaneous and observable way things are naturally” (Kohn 2009: 23). And, again, we are reminded of “As Kingfishers Catch Fire” with its concentration on what objects and humans do, the processes by which they selve: “catch fire”, “draw flame”, “ring” “fling out broad [their] name”, and the coinage of the denominal verb “justices”.

The cosmic transforming energy of the Dao can take creative or destructive forms. In a creative sequence wood produces fire, fire produces earth, earth produces metal, metal produces water, and water produces wood. In the destructive sequence wood is cut by metal, metal is melted by fire, fire is extinguished by water, water is dammed by earth, and earth is plowed by wood (Kohn 2001). These creative and destructive sequences are balanced through yin and yang (Goatly 2022). Yin and yang in their creative and destructive processes can be understood by referring to Table 5.

<table>
<thead>
<tr>
<th>Yin/yang</th>
<th>Phase</th>
<th>Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>lesser yang</td>
<td>wood</td>
<td>spring</td>
</tr>
<tr>
<td>greater yang</td>
<td>fire</td>
<td>summer</td>
</tr>
<tr>
<td>yin-yang</td>
<td>earth</td>
<td>fall</td>
</tr>
<tr>
<td>lesser yin</td>
<td>metal</td>
<td></td>
</tr>
<tr>
<td>greater yin</td>
<td>water</td>
<td>winter</td>
</tr>
</tbody>
</table>

Besides Duns Scotus, another philosopher who informs Hopkins’ work is Heraclitus. Heraclitus’ description of logos is almost identical to the concept of the Dao as the principle of maintaining the balance and harmony of natural processes:

All things are in flux; the flux is subject to a unifying measure or rational principle. This principle (logos, the hidden harmony behind all change) bound opposites together in a
unified tension, which is like that of a lyre, where a stable harmonious sound emerges from
the tension of the opposing forces that arise from the bow bound together by the string.\textsuperscript{6}

Also prominent in Heraclitus are the transformations of elements by their inter-
action, as in \textit{yin} and \textit{yang} (Table 5), though in his system wood disappears and
metal is replaced by air as an element. A relevant quote is “Fire lives in the death of
earth, air lives in the death of fire, water lives in the death of air, and earth lives in
the death of water”.\textsuperscript{7}

This brings us to an analysis of Hopkins’ poem “That Nature is a Heraclitean
Fire and of the Comfort of the Resurrection” (Hopkins 1967: 105–106) where the
parallels with Daoism are striking.

Cloud-puffball, torn tufts, tossed pillows | flaunt forth, then chevy on an air-
Built thoroughfare; heaven-roysterers, in gay gangs | they throng; they glitter in marches.
Down roughcast, down dazzling whitewash, | wherever an elm arches,
Shivelights and shadowtackle in long | lashes lace, lance, and pair.
Delightfully the bright wind boisterous | ropes, wrestles, beats earth bare
Of yestertempest’s creases; | in pool and rutpeel parches

\textbf{Squanderings} ooze to squeezed | dough, crust, dust; stanches, starches
Squadroned masks and manmarks | treadmill toil there
Footfrettet in it. Million-fuelled, | nature’s bonfire burns on.
But quench her bonniest, dearest | to her, her clearest-selved spark
Man, how fast his firedint, | his mark on mind, is gone!
Both are in an unfathomable, all is in an enormous dark

\textbf{Drowned.} O pity and indign | nation! Manshape, that shone
Sheer off, disseveral, a star, | death blots black out; nor mark
Is any of him at all so stark
But vastness blurs and time | beats level. Enough! The Resurrection,
Heart’s clarion! Away grief’s gasping, | joyless days, dejection.
Across my foundering deck shone
A beacon, an eternal beam. | Flesh fade, and mortal trash

\textbf{Fall} to the residuary worm; | world’s wildfire, leave but ash:
In a flash, at a trumpet crash
I am all at once what Christ is, | since he was what I am, and
This Jack, joke, poor potsherd, | patch, matchwood, immortal diamond
Is immortal diamond.
(Hopkins 1967: 105–106)

Significantly, Gardner’s (1948) commentary on this poem shows that, besides
fire, the transformations and differentiations involve water, earth, and air, and are

\textsuperscript{6} \url{http://www.gerardmanleyhopkins.org/lectures_2000/heraclitus.html} (accessed September 20,
2020).

\textsuperscript{7} \url{https://www.ourcivilisation.com/smartboard/shop/warnerr/presoc/hrclts.htm} (accessed September
20, 2020).
achieved by opposing forces in strife with each other (as, we might add, by yin and yang).

Air and water give us the “Cloud-puffball etc.” of the opening lines. Clouds turn to rain, so that water and earth give us “pool and rut” – the mud which is parched, peeled, squeezed and then dust-blown by the boisterous wind; moreover the principle of change through strife is clearly suggested in the words “ropes, wrestles, beats earth bare”. The obliteration of man’s footprints in the mud affords a natural transition to the more vital symbol – the fourth element, fire. In the general flux, the mental image [the inscape, nature’s clearest-selved spark] of the dead man fades from the mind of the living as surely as the diversely active, adventurous body [“world’s wildfire”] is reduced, as in cremation, to a handful of ash.

(Gardner 1948: 162–163)

So, water creates air in clouds, air in the form of wind dries up the water and the earth, water quenches fire, and fire destroys wood in the form of matchwood, while it also creates earth in the form of ash and diamond. In the sequence in the poem, as in Heraclitus and Daoism, there is the sense of processual change through the conflict or balance of opposing forces.

A stylistic analysis reveals an emphasis on material process verbs, marked in bold, and participial adjectives, underlined. They only give way to relational process verbs, italicized, in the last four lines, with their intimations of immortality transcending change, symbolized by the indestructible diamond emerging from fire (For these process types see Table 2).

One stylistic device that may be used to convey the primacy of process is nominalization (Goatly 2007). Though it may have negative effects, such as hiding responsibility for ecological destruction or pollution by omitting agents, and smuggling in presuppositions (Goatly and Hiradhar 2016), it may equally well blur the distinction between nouns and verbs. Like metaphors, it can work in two directions. Processes can be seen as things, but things as processes. Particularly impressive are poems where a nominalization becomes an actor in a material process interacting with other nominalizations as goals of the action. This represents the world of interacting processes discovered by Daoism, Buddhism, and quantum physics. There is not the space to unpack the nominalizations in “Nature is a Heraclitean Fire”: “puffball”, “thoroughfare”, “roysterers”, “marches”, “roughcast”, to mention just a few, all at least partially derived from verbs (in bold). Instead, I will examine the power of nominalizations (in bold) in a poem by Alice Oswald, “Birdsong for Two Voices” (Oswald 2008).

a spiral ascending the morning,
climbing by means of a song into the sun,
to be sung reciprocally by two birds at intervals
in the same tree but not quite in time.
a song that assembles the earth
out of nine notes and silence.
out of the unformed gloom before dawn
where every tree is a problem to be solved by birdsong.

Crex Crex Corcorovado,
letting the pieces fall where they may,
every dawn divides into the distinct
misgiving between alternate voices

sung repeatedly by two birds at intervals
out of nine notes and silence.
while the sun, with its fingers to the earth,
as the sun proceeds so it gathers instruments:

it gathers the yard with its echoes and scaffolding sounds,
it gathers the swerving away sound of the road,
it gathers the river shivering in a wet field,
it gathers the three small bones in the dark of the eardrum;

it gathers the big bass silence of clouds
and the mind whispering in its shell
and all trees, with their ears to the air,
seeking a steady state and singing it over till it settles
(Oswald 2008: 8)

“Birdsong” is a nominalization of (birds) sing. Moreover, as expressed here “a song to be sung” (2–3), the thing has no existence independent of the process sing and is a scope, one kind of goal (see Table 2). As a transitive actor birdsong is powerful, because it “assembles the earth” (5), solves the problems of the tree (8), and lets “the pieces fall” (10). Song and sun are blended, phonologically, “by means of a song into the sun to be sung”, and because the spiral of the song climbs into the sun (2), so the sun is “singing” as well (24) accompanied by its “instruments” (16). The sun, merged with the song, is a powerful transitive actor: it, with the birdsong, “gathers [...] instruments [...] the yard with its echoes and scaffolding [...] the swerving away sound of the road [...] the river [...] silence of clouds [...] the mind [...] all trees [...] bones in the [...] eardrum”, the last emphasizing nature’s power over humans.

Besides “birdsong” other nominalizations emphasize process — “misgiving” (12), the lack of synchronization of the corncrakes’ singing, “scaffolding” (17), the assembly/disassembly of scaffolding that produces sounds, “echoes” (17) and “swerving” (18). Note that in these last three examples in lines 17–18 we have one process, birdsong merged with the sun, interacting with other nominalized processes, very much in tune with quantum theory and Daoism. The nominalizations of the form -ing have their form repeated in present participles: “shivering”, “whispering”, “seeking” and “singing” suggesting continuing repeated processes. One might conclude that this poem uses nominalization to emphasize the process
basis, the vibrations as instruments producing sounds, reflecting post relativity or string theory.

But matter is not only process in Daoism/quantum theory: it is also dynamic process, that is, it has an incredible inherent energy. I explored elsewhere (Goatly 2007; Goatly and Hiradhar 2016), the methods by which poetry might acknowledge this dynamism. Obviously, natural elements can be represented as actors in transitive material process clauses, for instance the sun/birdsong in “Birdsong for Two Voices”. More subtly poetry might use grammatical metaphors that represent the “environment” or observed phenomena as actors. Or employ ergative verbs which recognize the energy inherent in “inanimate” objects. A few examples from Wordsworth’s The Prelude (1970) will illustrate.

Firstly, we can metaphorically reconstruct experiences in mental process clauses as though they were actors in material processes, activation of phenomena e.g. I noticed the river → the river arrested my gaze, or we love the forest → the forest touches our hearts. Let’s call this activation of experiences. Here are some examples from Wordsworth’s The Prelude:

- Oh there is blessing in this gentle breeze,/A visitant that while it fans my cheek/Doth seem half-conscious of the joy it brings/From the green fields, and from yon azure sky. (cf. I enjoyed the breeze fanning my cheek)
- […] my favourite grove,/Tossing in sunshine its dark boughs aloft,/As if to make the strong wind visible,/Wakes in me agitations like its own (cf. I fear my favourite grove/my favourite grove worries me)
- Yet, hail to you/Moors, mountains, headlands, and ye hollow vales,/Ye long deep channels for the Atlantic’s voice,/Powers of my native region!/Ye that seize/The heart with firmer grasp! (cf. ? I adore/love/worship/am obsessed with the moors, mountains, headlands etc.)

Secondly, to insist on nature’s dynamism we can metaphorically reconstruct relational and existential processes into material ones. These activations of tokens or existents turn nature from static environment to active participant. For example: five trees are in the valley → five trees stand in the valley, there is a boulder on top of the hill → a boulder tops the hill. Again from The Prelude:

- The beacon crowning the lone eminence
- The garden lay/Upon a slope surmounted by a plain/Of a small bowling-green;
- There rose a crag,/That, from the meeting-point of two highways/Ascending, overlooked them both

Instead of ‘being at the top of’ an eminence or slope or two highways, the plain or beacon or crag “crowns”, “surmounts”, or “overlooks” them (Goatly and Hiradhar 2016).
Thirdly, we may employ ergative verbs. The difference between ergative verbs and non-ergative verbs is that when two participants actor/instigator and goal/medium are involved, in other words in the transitive or effective version, the clause is extended in a different directions (Table 6). With non-ergatives the clause is extended to the right, with ergatives to the left.

Table 6: Ergative and non-ergative clauses.

<table>
<thead>
<tr>
<th>Intransitive/middle</th>
<th>Non-ergative</th>
<th>Ergative</th>
</tr>
</thead>
<tbody>
<tr>
<td>John (Actor)</td>
<td>swallowed</td>
<td>The cloth (Medium)</td>
</tr>
<tr>
<td>Paul (Instigator)</td>
<td>tore the cloth</td>
<td></td>
</tr>
</tbody>
</table>

Ergative verbs without an object, i.e. intransitive or middle, represent changes to an object, the medium, as self-generated. For example “the door opened” locates the energy for this process in the door. When so-called inanimate natural objects are agents in such clauses they suggest they are dynamically active. Consider the use of ergative verbs sweep, spin, wheel, ring, and tinkle in this famous passage, which describes the young Wordsworth ice-skating (the mediums are underlined).

So through the darkness and the cold we flew,
And not a voice was idle; with the din
Smitten, the precipices rang aloud;
The leafless trees and every icy crag
Tinkled like iron;
[...] and oftentimes,
When we had given our bodies to the wind,
And all the shadowy banks on either side
Came sweeping through the darkness, spinning still
The rapid line of motion, then at once
Have I reclining back upon my heels,
Stopped short; yet still the solitary cliffs
Wheeled by me even as if the earth had rolled
With visible motion her diurnal round!
Behind me did they stretch in solemn train,
Feebler and feebler, and I stood and watched
Till all was tranquil as a dreamless sleep.
(Wordsworth 1970: 14)

The passage and the highlighted clauses in the last ten lines illustrate a dynamic interaction between humans and nature, as though the skater’s movement makes him aware of an energy inherent in the banks and cliffs.
Mühlhäusler (1996: 123) suggests that the use of middle ergative verbs is one of the features of Australian aboriginal languages which reinforces the identity between people and things. The ergative verbs of these languages are usually middle, making human agency a special case. The inseparability of humans from nature as they co-evolve and co-exist in local and global contiguity is the theme of the next section.

3.3 Theme 3: Celebrating contiguity and interrelatedness

Global contiguities, recognized for centuries in Daoism and Buddhism, have increasingly become apparent in the theories of quantum physics and in Gaia theory. The Dao is “the ongoing flux of life in which everything is relative and related to everything else” (Kohn 2001: 21). The unity of the Dao is the underlying unity of existence, and *qi*, the sum of the matter/energy of the universe, is the unitary force behind body and mind. In this holographic universe, the whole is enfolded and manifests in the smallest part. Everything is interrelated and affecting everything else, including one’s own *qi* which should be in harmony with the notes of the Dao (Kohn 2001). The experience of oneness with the surrounding environment is the main characteristic of Daoist meditation. In a meditative state, every form of fragmentation has ceased, fading away into undifferentiated unity (Kohn 2001).

The holographic notion takes us to quantum theory’s emphasis on interrelatedness. David Bohm used the hologram as an analogy for the whole of the universe being enfolded in each of its parts. If any part of the hologram is illuminated the entire image will be reconstructed (Bohm 1980). To underline the point: “Inseparable quantum interconnectedness of the whole universe [global contiguity] is the fundamental reality, and [...] relatively independently behaving parts are merely particular and contingent forms within this whole” (Bohm and Hiley 1975: 102).

Since, as ecostylisticians, we are particularly interested in ecology, it is worth concentrating on Gaia theory’s conception of interrelatedness. The Gaia hypothesis states that the world, including the atmosphere, the oceans, the living things, the rocks and minerals of the crust, functions as one large self-regulating organism. Global contiguities include “non-living” parts of the biosphere.

Specifically the temperature, oxidation state, acidity [...] are at any time kept constant, and that this homeostasis is maintained by active feedback processes operated automatically and unconsciously by the biota [...] Life and its environment are so closely coupled that evolution concerns Gaia, not the organisms or the environment taken separately. (Lovelock 1988: 19)
The homeostasis in dynamic equilibrium of the Gaia organism is observable in the various cycles: water, nitrogen, sulphur, etc. In the latter, sulphur is washed by rivers into the sea. Algal seaweed produces dimethyl-sulphide. The sulphur element rises into the atmosphere, where it is oxidized into sulphuric acid. This provides the condensation nuclei, the seeds, for cloud formation and consequently the rain, which then washes it back to earth (see Figure 4). Weather functions as part of a larger organism, of which only one part, the algae, are traditionally viewed as living (Lovelock 1988: 140–145).

What can literature due to reflect this inter-relatedness? I suggest two techniques to blur the distinction between the human and non-human elements of nature, employed by Edward Thomas and Alice Oswald: (1) personification and dis-personification and (2) co-ordination of the natural, human and human-made.

In the poems of Edward Thomas (Thomas 1949), activation of tokens, already noted in Wordsworth, often overlaps with personification, problematizing the human/non-human distinction. For instance, in the examples below he uses the verbs stand and lie to activate natural elements that would otherwise be tokens in relational clauses meaning ‘is at/on/in’, with these rather conventional personifying metaphors revitalized by “idle”, “ankle-deep” and “naked”:

- The moon and I/Live yet and here **stand idle** over a grave
- Some ash trees **standing ankle-deep** in brier/And bramble act the parts
- The roads **lay** as the ploughland rude/Dark and **naked**, on the hill.

Personification is more common than other kinds of metaphor in Thomas (Goatly 2017). It is noticeable that it is applied to what might conventionally be regarded as inanimates – landscape, and weather:

- On all sides then, as now, paths **ran** to the inn;
- And now a farm-track **takes you** from a gate.
- All day the air triumphs with its two **voices**/Of wind and rain:/As loud as if in anger it **rejoices**
- As if the mighty sun **wept tears of joy**.
- When mist **has been forgiven**/And the sun has **stolen out**
However these are less frequent than the personification of birds by verbal process verbs:

- With loud long laughter then a woodpecker/Ridiculed the sadness of the owl’s last cry.
- [T]he small brown birds/Wisely reiterating endlessly/What no man learned yet, in or out of school.
- I tasted deep the hour/Between the far Owl’s chuckling first soft cry/And the first star.

Another poem by Alice Oswald, “Sonnet”, illustrates the personification of chalk, like landscape, part of the biosphere’s mineral crust thought of as inanimate, though, like sulphur, intimately involved in Gaia.

towards winter flowers, forms of ecstatic water,
chalk lies dry with all its throats open.
winter flowers last maybe one frost
chalk drifts its heap through billions of slow sea years;
rains and pools and opens its wombs,
bows its back, shows its bone.
both closing towards each other
at the dead end of the year – one
woken through, the others thrown into flower,
holding their wings at the ready in an increasing state of crisis.
burrowed into and crumbled, carrying
these small supernumerary powers founded on breath:
chalk with all its pits and pores,
winter flowers, smelling of a sudden entering elsewhere
(Oswald 2008: 28)

All the italicized vocabulary personifies the chalk. “Pits” (13) is a conventional metaphor for small depressions in the skin, but here the direction of metaphorical application is reversed. Even “supernumerary” (12) is part of this personifying pattern meaning a temporary employee or extra member of a social group. The chalk/body is often sexualized. So “breath” (12) is ambiguous – is it the heavy breathing of the chalk through its open throats waiting for the penetration by flowers? Or, less of a personification, is it the carbon dioxide which forms the basis of the calcium carbonate of the chalk; and also the gas which the flowers take in and photosynthesise into oxygen, the kind of processes Lovelock highlights in Gaia theory (Goatly and Hiradhar 2016)?

Incidentally, we observe some of the grammatical tricks and patterns discussed in earlier sections. In the context of so much sexualized personification “lies” (2) activates “chalk” from a token into an intransitive actor, as though lying
on a bed. “Last” (3) might be seen as an activation of an existent – “continues to exist”. “Drifts” (4) is an instance of the conversion of an intransitive verb into an ergative effective verb (see Table 6). As we perceive the chalk and its shapes and formations it is static. But from the perspective of billions of years of geological processes, “drifts”, “rains”, “pools”, “opens its wombs”, and “bows its back” make us see the shapes of the chalk as active. This is a kind of radical activation of nature. A more familiar candidate for activation of tokens is “closing” (7) equivalent to the less active meaning that the flowers and the chalk ‘are close’.

We noted the use of participles in “Nature is a Heraclitean Fire” as indicators of processes. In ‘Sonnet’ the past participles “woken”, “thrown”, “burrowed”, “crumbled”, and “founded” are worth discussing. The actors here can be inferred from the context in most cases – it is probably the flowers that have woken, burrowed, and crumbled the chalk. But the actor who threw the flowers and founded the chalk is less certain. This conforms to a pattern common in Thomas where the frequent use of passives and past participles suggests a force (Logos, the Dao?) behind the natural world (Goatly 2017). A similar effect comes from the nominalization, “entering” (14). We are not sure what is doing this entering – water entering the chalk perhaps, or flowers the chalk? Counter-intuitively, it seems to be the flowers, traditionally seen as female, that are more like males entering the throat or womb of the chalk. The fact that we cannot easily attach a specific actor to these past participles or to “entering” perhaps hints at the primacy of process, as in quantum physics and Daoism.

Oswald’s “Birdsong for Two Voices”, discussed earlier, also shows personification problematizing the human/non-human distinction. The sun has “fingers”, with which it gathers instruments to accompany the song (15–16). The river is “shivering” (19), and the trees have “ears” (23). But we have dis-personification, too, where the mind whispers in its “shell” (22), presumably the human skull.

A second pronounced stylistic feature in Thomas is the co-ordination of human, natural, and human-made elements in noun phrases. Often the co-ordination/ listing involves the persona, “I”, who may be variously included with machines, planets, weather, trees, animals, and especially birds:

- And but the moon and I/Live yet and here stand idle over a grave
- And I and star and wind and deer./Are in the dark together
- So that I seem a king/Among man, beast, machine, bird, child
- As if the bird or I were in a dream.
- Naught’s to be done/By birds or men.
- I never knew a voice,/Man, beast, or bird, better than this.
- ‘Twas home; one nationality/We had, I and the birds that sang.
The poem “Aspens” exemplifies an especially interesting instance of coordination working in tandem with personification/dis-personification (Goatly 2017).

Whatever wind blows, while they and I have leaves
We cannot other than an aspen be
That ceaselessly, unreasonably grieves,
Or so men think who like a different tree.
(Thomas 1949: 157)

Teasing out the metaphorical structure into source and target levels reveals that one of the co-ordinated noun phrases or one part of the inclusive “we” has a literal relationship (target) with the rest of the clause, while the other has a metaphorical relationship (source):

TARGET They have leaves/I have (leaves ‘paper’)
SOURCE leaves
TARGET They [we] cannot other than an aspen be/I
SOURCE cannot other than an aspen be
TARGET An aspen /I unreasonably grieve
SOURCE unreasonably grieves

“Aspens” as also “Birdsong for Two Voices” exemplify the fact that, if we are so closely inter-related with nature, then we might expect this to involve communication of some kind, with nature as a sayer. An analysis of all the clauses with natural elements as participants in Thomas’s Collected Poems reveals birds as by far the most important sayers, with weather/seasons and months a long way behind in second place (Figure 5).

![Figure 5](image-url)

**Figure 5:** Natural elements as Actors and Sayers in Edward Thomas’s *Collected Poems* (Goatly 2017: 99).
For Thomas, birdsong had a religious element. In “March 3rd”, he claims “the birds’ songs have/The holiness gone from the bells.” It was a special language, “The thrush sings well/His proverbs untranslatable” (Thomas 1949: 122), which imparts knowledge beyond human education or even understanding. In “Sedge Warblers”, we hear “the small brown birds/Wisely reiterating endlessly/What no man learnt yet, in or out of school.” (Thomas 1949: 113) Unlike human language, birdsong reveals to the few initiates esoteric secrets that escape ordinary language.

[…] and if I could sing
What would not even whisper my soul
As I went on my journeying,
I should use, as the trees and birds did,
A language not to be betrayed;
And what was hid should still be hid
Excepting from those like me made
Who answer when such whispers bid.
(Thomas 1949: 100)

In “The Word”, Thomas recounts an experience of a thrush’s song which is a name without referent, “an empty thingless name” pointing to a pure, transcendent, immortal reality, beyond betrayal.

There are so many things I have forgot,
That once were much to me, or that were not,
All lost, as is a childless woman’s child
And its child’s children, in the undefiled
Abyss of what can never be again.
I have forgot, too, names of the mighty men
That fought and lost or won in the old wars,
Of kings and fiends and gods, and most of the stars.
Some things I have forgot that I forget.
But lesser things there are, remembered yet,
Than all the others. One name that I have not –
Though ’tis an empty thingless name – forgot
Never can die because Spring after Spring
Some thrushes learn to say it as they sing.
There is always one at midday saying it clear
And tart – the name, only the name I hear.
While perhaps I am thinking of the elder scent
That is like food, or while I am content
With the wild rose scent that is like memory,
This name suddenly is cried out to me
From somewhere in the bushes by a bird
Over and over again, a pure thrush word.
(Thomas 1949: 154)
Besides the obvious participant role of birds as sayers here, nature is also a phenomenon to the receivers of the verbiage, the thrush word. In fact receivers might be thought of as a subset of sensors, with the verbiage a kind of phenomenon. In the poem, I have underlined the phenomena/verbiage.

The question that will exercise us in the next section is how we can sense the phenomena of nature and respond to its messages if we are confined temporally and spatially to local contiguities, and how this might affect narrative fictions.

3.4 Theme 4: Long-term and global ecological change

My examples so far have all come from poetry. I turn now to discussion of literary narrative. Narrative fiction, using Labov’s model of narrative structure (Labov 1972), can be seen as an expansion and repetition of the textual contiguity found in the clause. The orientation in narrative, which describes the location and time setting, is an expansion of circumstantial adjuncts, and involves relational clauses. The complication and resolution are a succession of material, verbal, and sometimes mental process clauses. The characters are the participants in these clauses, mainly actors and goals, sayers and receivers, or sensors and phenomena.

The question is whether the contiguities manifest in the clauses and expanded in literary narrative reflect local or global contiguities. In Section 2, we noted the dangers of limiting ourselves to the local contiguities of a specific location and time, with specific individual participants, contiguities available to our immediate naked sensory and perceptual experience unaided by scientific instruments.

According to Amitav Ghosh in The Great Derangement: Climate Change and the Unthinkable (2016), the contemporary novel’s restriction to these local contiguities has amounted to a failure of imagination, a failure to recognize the possibilities of a different way of living that recognizes the non-human epochal and global forces involved in climate change.

The great, irreplaceable potentiality of fiction is that it makes possible the imagining of possibilities. And to imagine other forms of human existence is exactly the challenge that is posed by the climate crisis: for if there is any one thing that global warming has made perfectly clear it is that to think about the world only as it is amounts to a formula for collective suicide. We need, rather, to envision what it might be. But […] this challenge has appeared before us at the very moment when the form of imagining that is best suited to answering it – fiction – has turned in a radically different direction. (Ghosh 2016: 128–129)

There are several reasons for its inadequacy. Firstly, limitation to specific places and times excludes “forces of unthinkable magnitude that create unbearably intimate connections over vast gaps in time and space” (Ghosh 2016: 63). This
contrasts with epics. *The Odyssey* ranges over wide spaces, *The Ramayana* over eras and epochs. This is an extract from the sixteenth-century Chinese folk epic 西游记 (*Xiyouji*, ‘*The Journey to the West*’):

> At this point the firmament first acquired its foundation. With another 5,400 years came the Tzu epoch; the ethereal and the light rose up to form the four phenomena of the sun, the moon, the stars, and the heavenly bodies. […] Following P’an Ku’s construction of the universe […] the world was divided into four great continents […] Beyond the ocean there was a country named Ao-lai. It was near a great ocean, in the midst of which was located the famous Flower-Fruit Mountain. (Ghosh 2016: 61)

In contemporary novels, no one mentions how the continents were created or refers to the passage of thousands of years (Ghosh 2016: 61–62). Contrast this with Alice Oswald’s “Sonnet” which recognizes geological time as “chalk drifts its heap through billions of slow sea years”.

Secondly, time is conceived as linear where change equals a “progress” brought about by separation of humans from the rest of the planet and its history (cf. Hegel and Marx). Concentrating on the avant-garde erases “every archaic [traditional] reminder of Man’s kinship with the nonhuman” (Ghosh 2016: 70).

Thirdly, then, there is no place for the non-human in the modern novel. “Nature remains off-limits to Culture, the knowledge of which is consigned entirely to the sciences” (Ghosh 2016: 71). Gosh was shocked that during a period of surging carbon emissions “very few of the literary minds […] were alive to the archaic voice whose rumblings, once familiar, had now become inaudible to humanity: that of the earth and its atmosphere” (Ghosh 2016: 124). Ghosh tried to give an example of a different contemporary fiction in *The Hungry Tide* (2004) in which the typhoon and its tidal surge, along with the Sundarbans mangrove forest on the Bay of Bengal become important protagonists (Zurru 2017).

Instead of the forces of nature or collective social forces, contemporary novels fixate on the individual characters and their moral choices, reflecting John Updike’s view of the novel as an “individual moral adventure” (Ghosh 2016: 77). But, individual moral choice is an impotent response to climate change. The tragic irony is that just as we realize “global warming is in every sense a collective predicament, humanity finds itself in the thrall of a dominant culture in which the idea of the collective has been exiled from politics, economics, and literature alike” (Ghosh 2016: 80–81).

Ghosh concludes that the contemporary novel is failing us by ignoring climate change, pollution, and resource depletion, and by missing the opportunity to address ecological problems with collective action, and to imagine a different world that takes into account global and epochal forces beyond individual moral choice.
Ghosh suggests that science fiction might provide a better narrative than the contemporary realistic novel. However, I shall briefly consider a novel which, I think, does avoid some of the problems Ghosh laments, namely William Golding’s *The Inheritors*. This novel is familiar because Halliday’s (2002 [1971]) analysis of it was one of the founding texts of literary stylistics. Consideration of this novel will also remind us of themes and philosophies sketched earlier which I believe ecostylistics can usefully take into account.

The novel is about the encounter between Neanderthals and homo sapiens/new people. *Homo sapiens*, like us, have technology – bows and arrows, daggers, sailboats – religion, alcohol, clothes, complex sex, etc. Most of the novel is seen through the eyes of the Neanderthal Lok, who, gentle and generous, does not understand the behavior of the new people, especially their aggression. *Homo sapiens* directly or indirectly bring about the death of all the members of the Neanderthal tribe except Lok and the baby, whom they kidnap and adopt. During the course of the novel the ice begins to melt and the ensuing flood of melt water sweeps away a fleeing member of the Neanderthal tribe. The climax of the novel is when Lok discovers the burnt bones of his dead daughter, Liku, whom the homo sapiens have sacrificed to appease their fear of Lok’s tribe. Deprived of his tribe, Lok simply lies down and dies. At the end of the novel the homo sapiens tribe, with the baby, sail upstream away from the Neanderthals they feared. The novel can be read as an account of the fall of man from the simple and innocent Neanderthal to the complex, violent, and technologically advanced homo sapiens, set at a time when the world was coming out of the ice age and changing to a warmer climate.

It is clear from this plot outline that the novel does not fall prey to the inadequacies that Ghosh lamented. Though restricted in place, it is epochal in time. It gives a double sense that it represents two distinct eras: first the era of the Neanderthals being replaced by the era dominated by homo sapiens; second, the ice-age era transitioning to a post-ice-age climate. Though the novel involves individual characters with moral or intellectual choices, they also represent types, Neanderthals and homo sapiens, like the fall of man in the biblical Genesis story where Adam represents the whole of humanity. The moral choices made and the ways of thinking and acting of the old people and the new people are representative of the two sub-species of hominids.

The grammatical correlate of these different ways of thinking and acting was the topic of Halliday’s seminal article, which I will now briefly summarize. The grammatical style of the novel in pages 1–216 – Language A, contrasts with that in pages 223–233 – Language C. In Language A, we see the world from the point of view or mindstyle (Leech and Short 1981) of Lok the Neanderthal. It is sufficiently strange to us that we may not at first realize, in the extract of passage A below, that the homo sapiens man is turning sideways, pulling on his bowstring so that the
bow bends, and firing an arrow that hits the tree and sticks in it, an arrow with a flight of goose feathers and a poisoned bone tip. In Language C, our more comprehensible language, we are seeing the world from the point of view of the new people/homo sapiens.

Halliday (2002 [1971]) took a representative sample from each section and analyzed the grammatical patterns or norms summarized here.

**Sample of Language A:**
The bushes twitched again. Lok steadied by the tree and gazed. A head and a chest faced him, half-hidden. There were white bone-things behind the leaves and hair. The man had white bone things above his eyes and under the mouth so that his face was longer than a face should be. The man turned sideways in the bushes and looked along his shoulder. A stick rose upright and there was a lump of bone in the middle. Lok peered at the stick and the lump of bone and the small eyes in the bone things over the face. Suddenly Lok understood that the man was holding the stick out to him, but neither he nor Lok could reach over the river. He would have laughed if it were not for the echo of the screaming in his head. The stick began to grow shorter at both ends. Then it shot out to full length again.
The dead tree by Lok’s ear acquired a voice.
“Clop!”
His ears twitched and he turned to the tree. By his face there had grown a twig: a twig that smelt of other, and of goose, and of the bitter berries that Lok’s stomach told him he must not eat. This twig had a white bone at the end. There were hooks in the bone and sticky brown stuff hung in the crooks. His nose examined this stuff and did not like it. He smelled along the shaft of the twig. The leaves on the twig were red feathers and reminded him of goose. He was lost in a generalized astonishment and excitement. He shouted at the green drifts across the glittering water and heared Liku crying out in answer but could not catch the words, They were cut off suddenly as though someone had clapped a hand over her mouth. He rushed to the edge of the water and came back. On either side of the open bank the bushes grew thickly in the flood; they waded out until at their farthest some of the leaves were opening under water; and these bushes leaned over.
The echo of Liku’s voice in his head sent him trembling at this perilous way of bushes towards the island. He dashed at them where normally they would have been rooted on dry land and his feet splashed. He threw himself forward and grabbed at the branches with hands and feet.
He shouted:
“I am coming!”
(Golding 1961 [1955]: 106–107)

Firstly, Halliday (2002 [1971]) noted that human actors are often in intransitive clauses, not affecting their environment, e.g.
- Lok steadied by the tree […]
- The man turned sideways in the bushes […]
- […] he turned to the tree.
- He rushed to the edge of the water and then rushed back.
- He dashed at them […]
- He […] grabbed at the branches with hands and feet.
Secondly, parts of the body are frequently *actors (sayers)*, rather than the whole person, e.g.

- His ears twitched […]
- A head and chest faced him, half-hidden.
- […] the bitter berries that Lok’s stomach told him he must not eat.
- […] his feet splashed.

Thirdly, actors are just as likely to be non-animate as animate, e.g.

- The bushes twitched again.
- A stick rose upright and there was a lump of bone in the middle.
- The stick began to grow shorter at both ends. Then it shot out to full length again. (Compare “Someone pulled the bow back”)
- The dead tree by Lok’s ear acquired a voice. (Compare “The arrow hit the tree and made a noise”)
- The bushes grew thickly in the flood; they waded out until at their farthest some of the leaves were opening under water; and these bushes leaned over.

What is clear here is that the animate/inanimate distinction is not made by Lok/the Neanderthals. They are part of the whole of nature, not separate or different. Nor do they dominate it or have much effect on it.

**Sample of Language C:**

The sail glowed red-brown. Tuami glanced back at the gap through the mountain and saw that it was full of golden light and the sun was sitting in it. As if they were obeying some signal the people began to stir, to sit up and look across the water at the green hills. Twal bent over Tanakil and kissed her and murmured to her. Tanakil’s lips parted. Her voice was harsh and came from far away in the night.

“Liku!”

Tuami heard Marlan whisper to him from by the mast.

“That is the devil’s name. Only she may speak it.”

Now Vivani was really waking. They heard her huge, luxurious yawn and the bear skin was thrown off. She sat up, shook back her loose hair and looked first at Marlan then at Tuami. At once he was filled again with lust and hate. If she had been what she was, if Marlan, if her man, if she had saved her baby in the storm on the salt water—

“My breasts are paining me.”

If she had not wanted the child as a plaything, if I had not saved the other as a joke—

He began to talk high and fast.

“There are plains beyond those hills, Marlan, for they grow less; and there will be herds for hunting. Let us steer in towards the shore. Have we water— but of course we have water! Did the women bring the food? Did you bring the food, Twal?”

Twal lifted her face towards him and it was twisted with grief and hate.

“What have I to do with food, master? You and he gave my child to the devils and they have given me back a changeling who does not see or speak.”
The sand was swirling in Tuami’s brain. He thought in panic: they have given me back a changed Tuami; what shall I do? Only Marlan is the same – smaller, weaker but the same. He peered forward to find the changeless one as something he could hold on to. The sun was blazing on the red sail and Marlan was red. His arms and legs were contracted, his hair stood out and his beard, his teeth were wolf’s teeth and his eyes like blind stones. The mouth was opening and shutting.

“They cannot follow us, I tell you. They cannot pass over water.”

(Golding 1961 [1955]: 228–229)

Halliday (2002 [1971]) made two important observations about Language C. Firstly, the majority of the clauses (48 out of 67) have a human subject, e.g.

- the people began to stir, to sit up and look across the water at the green hills.
- Twal bent over Tanakil and kissed her and murmured to her.
- Now Vivani was really waking. They heard her huge luxurious yawn. She stood up, shook back her loose hair and looked first at Marlan then at Tuami.
- If she had saved her baby in the storm on the salt water –
- He thought in panic: they have given me back a changed Tuami; what shall I do?
- He peered forward to find the changeless one as something he could hold on to.

Secondly, most of these are material actions and transitive verbs with a goal. Human agents are acting on external objects and other people, e.g.

- Twal […] kissed her
- If she had saved her baby in the storm […]
- they have given me back a changed Tuami
- He peered forward to find the changeless one as something he could hold on to.

In step with its epochal scope, this novel represents the transition from the Neanderthal mind style and life style to that of homo sapiens. This amounts to a technological revolution, a beginning of the process taken to disastrous extremes during the last 300 years in Europe, and now spread to much of the rest of the world. The technological advances of the Industrial Revolution allowed the mass production of manufactured goods and their distribution through transport systems like railways. From the 1920s capitalist manufacturing industry became organized around highly mechanized Fordist production lines. Its massive capital investment favored over-production, necessitating persuasion to consume: in the last seventy years electronic mass media – radio, TV, internet, etc. – facilitated widespread advertising, the whole population was targeted as potential
consumers. Latterly capitalism has embraced globalization, seeking out locations for production which are cheaper, because of weak labor and environmental regulations, in order to maximize profits. The ecological downsides to this technological domination, exploitation, and industrialization of nature, obsession with profit and with economic growth include massive carbon footprints and pollution, the using up of non-renewable resources, and problems of waste-disposal in a finite environment (Goatly and Hiradhar 2016). Additionally, our technological prowess has given us the doubtful benefits of nuclear energy, and the tools for genetic modification, which also pose serious dangers to our future.

Our human ability to act on our environment and other people is frightening. It is usually put to misuse even in the novel, through magic and witchcraft used for oppression, drunken sexual orgies, and pre-meditated murder. Unlike the Neanderthals, who have a taboo on killing animals, homo sapiens are hunters and meat-eaters. After this fall of man, we are enslaved to the erroneous idea that we can dominate and separate ourselves from nature, rather than live in harmony with it. However there is also a redeeming intimation that art may be more important than violence: Tuami, one of the homo sapiens, fashioning a dagger at the end of the novel, wonders whether the intricate ivory carving of the handle is more important than the blade.

While this section is attempting to demonstrate that novels may escape the limitations of time and individuality of local contiguity which Ghosh deplores, it also happens to demonstrate two important themes from previous sections of this chapter. First, the interconnectedness of humans and nature, through the animistic beliefs of Lok. These are not personifications for him, as his mind-set accepts that bushes can literally “wade” and “lean over” just as humans can. Second, we see exemplified in Lok’s lifestyle, and the intransitive clauses representing it, the Daoist notion of wuwei, non or minimal interference. Note, incidentally, that according to my analysis of Thomas’s poems (Figure 5) for 10 out of 15 of the nature categories intransitive actors are more frequent than transitive. It is as though nature can be observed and celebrated doing its own thing without impact beyond itself. I do not have the space here for another section entitled “in praise of intransitivity”. Daoism had its origins in the Warring States period and might have developed as a resistance to the use of technology for war where actions have literal impact on others. The sympathy for the Neanderthals in this novel may have similar origins in Golding’s distaste for violence, primitive or nuclear, displayed in *Lord of the Flies*. 
3.5 Theme 5: Narrative and metaphor

In Arran Stibbe’s book *Ecolinguistics: Language, Ecology and the Stories We Live By* (2021: Ch. 10), narrative takes on a wider sense than the narrative literary fictions discussed above. I have associated narrative with an expansion of the clause along the contiguity dimension. However, narratives have a point or sometimes even a moral and thereby illustrate abstract themes (Goatly 2022). On the similarity dimension, they could, like proverbs, be specific hyponymic illustrations of a general superordinate theme. In the Labovian model of narrative (Labov 1972), the coda, if it contains a moral, as in a fable, and more especially the abstract which comes at the beginning, indicate the point of the story and this larger more abstract sense we can make of it. In the core of the narrative, we move from orientation/complication, which represents a problem, to a resolution/coda that represents its solution. By contrast, many of these “stories-we-live-by”, unlike narratives in the literary sense, are expressed in abstract, nominalized terms: profit and success, economic growth, technological progress. They are, nevertheless, like narrative fiction, attempts to both make sense of events, and also to illustrate solutions to problems.

Stibbe (2021: 2) alludes to these stories-we-live-by, which present illusory solutions to problems. In the profit and success story poverty is a problem and a sign of failure. Individually we can rise above poverty and become rich and successful by our own efforts in creating profitable businesses. This is a harmful solution because (1) money is the most extreme form of reducing complexity to make everything equivalent to everything else in market exchange and (2) it suggests individuals exist and succeed separate from the rest of society and the environment – the success of the individual often depends on educational and other social resources and leads to exploitation of others.

In the economic growth story, poverty and the misery caused by it are a problem for large sections of society. It can be solved by increasing economic activity measured in terms of growth to GDP which will make people happier. This is a harmful solution because (1) beyond a certain level of GDP increasing it does not make people happier (Seligman 2002) (2) as pointed out earlier, GDP is not a good measure of happiness or health (3) increasing growth/GDP in mature economies is like a cancer destroying the environment and, in the medium-to-long term, threatening people’s lives and making them poorer (Goatly and Hiradhar 2016), and (4) GDP (and money) cannot be applied to natural ecological systems, and therefore exclude them (Harvey 1996).

In the technological progress story lack of civilization in primitive societies is a problem. The solution is to become civilized by using technology to control
elements of nature, e.g. clothes and shelter against cold weather, skyscrapers against gravity, dams against seasonality of rains/flooding, using (up) natural resources (e.g. fossil fuels) for heating, cooking, building, and industry. In this story, any problems we encounter or create, e.g. climate change, lack of energy supplies, or resource depletion can have a technological fix. These solutions are harmful because (1) nature is just as powerful as us (2) the resources of this globe are finite (3) we do not understand the natural world sufficiently to predict the effects of technology (4) nature has evolved over billions of years into a diverse world of trillions of interdependent species; interfering with this partially-understood process is destroying natural abundance and our own life support systems, and (5) technological fixes (e.g. recycling to combat resource depletion) only partially solve the problems we have created. Witness the transition from Golding’s technology-free Neanderthals to the technologically minded homo sapiens.

Flat figures, let alone objects, have to depend on more than one dimension. So the similarity dimension, whatever its dangers if overemphasized, is essential to language and discourse and literature: words cannot have meaning unless they establish classes of entities. Metaphor, even more than “stories-we-live-by”, belongs to this dimension, but it is important because a variety of metaphors suggests alternative classifications which allow a diversity in ways of thinking and acting. If haecctitas insists on the qualities which are ignored in classification, metaphor’s alternative classifications (Glucksberg and McGlone 1999) may recognize these qualities. Similarly, a diversity of languages is also vital as their categories may not match our first language, and may be radically different (see my discussion of Blackfoot in Goatly 2007, 2022).

Harré et al. (1999) discussed various metaphors for nature and our interaction with it and what follows relies heavily on them. They start with a historical European perspective. In the Middle Ages, the seventh to fourteenth centuries AD, nature was regarded as a book written by God, for human instruction about the nature of the divine. The role of humans was to understand the signs in this book, not to rewrite or improve it, which suggests positively an attitude similar to wuwei, and an openness to nature as sayer or communicator. Nature is created for mankind and a means of bodily salvation/healing, just like a religious text is a means of spiritual salvation. The questions we might ask about this metaphor and its implications are whether nature needs to point beyond itself in order to have value, and if the point of nature is its value to humans (God).

In the Renaissance, the fourteenth to seventeenth centuries, the natural universe (the macrocosm) corresponded to a human body (microcosm) or the state (the body politic). The macrocosm has an intimate cause-effect relationship with the human-body (and human society). Human body and nature are reflections of
each other, e.g. the aging of the earth produces wrinkles on its surface, the water cycle is like the circulatory system of blood, e.g. veins of the earth.

This conception of nature is still observable in current English lexis. It is quite common to personify places, especially natural landscapes, using as metaphors parts of the human body. From the top downwards: head ‘upper part’ (the head of the valley), fringe ‘edge of an area’, face ‘front slope of a hill or mountain’, mouth either ‘estuary of a river’ or ‘entrance to a cave’, arm/finger ‘promontory’, backbone/spine ‘central row of hills or mountains’, foot ‘lower part’.

Actions performed on the landscape are metaphorically actions on a human body, often violent, not environmentally-friendly: gash ‘deep trench’, scar ‘scrape the vegetation off’, rape ‘environmental destruction’. Verbs and adjectives personify the landscape: as we saw in Thomas, lie, sit and stand can all mean ‘be situated or positioned’; bald/bare can mean ‘without vegetation’, hospitable ‘with good living and growing conditions’, virgin ‘unused, uncultivated’, treacherous ‘very dangerous’ (this swamp is very treacherous, keep to the path).

Conversely, metaphors may dispersonify. Types of soil or rock are applied to humans as evaluative nouns or adjectives: grit ‘bravery’, clod ‘stupid person’, flinty ‘severe and hostile’, gravelly ‘rough and low (of a voice)’. The shape of land dispersonifies the human body and its parts: contour ‘shape of the body’ (your bikini shows off your contours wonderfully), furrow ‘lines or wrinkles in the forehead’, and by implication, stubble ‘short growth of beard’ which grows out of the skin as cereal crops from the ground (Goatly and Hiradhar 2016).

We already noted the positive aspects of these personifications and dispersonifications in blurring the boundary between the human and non-human, suggesting that we are intimately connected and cannot be separated. In addition, personification allows environmental destruction to be seen in terms of morality (for example rape of the countryside) (Harvey 1996: 389).

In this metaphorical pattern, the correspondences between the macrocosm and microcosm also hint at, at least, a holographic universe. Moreover, and as a consequence, this and the book of God metaphor also positively encourage us to look at nature as a phenomenon or sayer, as Thomas does, rather than a goal.

From the Enlightenment onwards, the seventeenth century to the present, nature has often been metaphorized as a machine – for instance a clock, steam engine, or computer. Nature as machine seems to be one of the most dangerous and misleading metaphors. Unlike the earlier metaphors, nature/human body are no longer givens (book/macrocosm-microcosm) but invented. Machines are created to produce standardized outputs, according to mathematically-based science and technology, and can therefore be understood in mathematical terms. But, as we discussed in Section 1 of this article, biological systems cannot be understood by or reduced to mathematics. Because machines are made for a
purpose they have built in controls, but nature is not controllable – it breaks free into spontaneous change, according to Daoism, quantum theory, and the Gaia hypothesis. Machines can be improved and bring about “progress” – so, according to this metaphor, humans can improve nature. However, our technology has not brought ecological progress. Machines have parts and can be taken apart to see how each operates independently. But nature is a whole and parts of it cannot be ultimately considered separately or, as discussed, valued in isolation (Harvey 1996). The only positive I can see to this metaphor is the idea that the “parts” of nature are all connected to each other, as in a machine.

Harré et al. (1999) go on to discuss more modern metaphors for nature. One such is our environment as a tapestry or the web of life (web originally meaning ‘weaving’). They suggest positive grounds for this metaphor: they are a mixture of the natural and human-made, compare Thomas’s co-ordination of human, natural, and the human-made; both do well if not interfered with too much by humans, compare the concept of wuwei; they are used and are trodden on and made dirty and they may need cleaning occasionally; both are finite in area and lifespan; only the surface is visible; they are quicker and easier to destroy than to create; different kinds of carpet/environment are suitable for different locations; parts are “woven” together and interdependent – destroying one part risks destroying the whole (Harré et al. 1999: 101). The problem with such metaphors is that the intended positive grounds may also allow negative ones: if a carpet wears out we can replace it; we own carpets and they have a monetary value; they are manufactured by us.

The same problems arise with the metaphor of earth as our home, inherent in the etymology of ecology. Positive grounds are that we care for a home because it is the place where we live most comfortably. But negative grounds are that we may own the earth (in fact we may just rent or lease it), so we have the right to do with it what we want, even sell it; that though we are in it we are separate from it and can leave it if need be; and that only tame and domesticated animals and small plants can live within it (Meisner 1995).

Besides the uncertainty of grounds, there is the problem that ways of referring to nature may be influenced by cognitively entrenched lexicalized metaphors of which we are often unaware, reflecting a latent ideology. Environment means surroundings, and therefore tends to be interpreted according to the metaphor theme IMPORTANT IS CENTRAL: central means ‘most important’ (investment was central to our economic success), centrepiece ‘most important, interesting or attractive feature’, center ‘the place which exerts the most important influence’ (Boston became a center for genetic modification), core ‘most basic and important’. By contrast, the unimportant or less important elements are peripheral, marginal, or fringe. The implication of the term environment is that humans are central and thus more important than nature. This idea is reinforced by grammar, in which the
environment is very often represented as a circumstance (circum- echoing the metaphor of being around). Anthropocentrism is not always ecologically positive: putting nature center stage is.

4 Summary and conclusion

In Section 2, I introduced Jakobson’s theory that meaning is organized along two dimensions, similarity and contiguity corresponding to the two areas of the brain largely responsible for language processing: Wernicke’s area and Broca’s area. The former concentrates on the processing of nouns, the latter of verbs and clauses. I demonstrated how these dimensions are instantiated in the classificatory and deictic elements of the noun phrase, and how clause structure establishes contingencies of text reflecting contingencies in action genres or schemas. I proceeded to sketch how overemphasis of the similarity dimension through money and mathematics has had adverse effects on ecology, as market capitalism has led to increasing commodification of humans/nature, and mathematics has established hegemony over other disciplines.

In Section 3, I suggested five themes for ecostylistics which could resist or modify, to a greater or lesser extent, this overemphasis, and celebrate aspects of contiguity, and I introduced relevant poetic and novel texts that might exemplify this resistance.

– (1) Individuation, countering classification, as celebrated in the Daoist concept of ziran, and Duns Scotus’s concept of haecctitas, is manifest in the Gerard Manley Hopkins poem “As Kingfishers Catch Fire”.

– (2) Dynamic process, celebrating verbs, is associated with quantum physics, doctrines of Buddhism/Daoism, and the philosophy of Heraclitus, remarkable in its resemblance to Daoism’s balancing of yin and yang. The texts illustrating this theme, Hopkins’s “Nature is a Heraclitean Fire and the Comfort of the Resurrection”, and Alice Oswald’s “Birdsong for Two Voices” were analyzed for their emphasis on verbs, and nominalizations, the latter especially significant when both actor and goal depict nature as interacting processes. Grammatical techniques for turning phenomena in mental processes and tokens in relational processes into actors in material processes, to show nature’s dynamism, were exemplified in Wordsworth.

– (3) Interrelatedness, underlining contingencies both local and global, are evident in Daoism/Buddhism, quantum theory, and Gaia theory. A technique reflecting this, personification/activation of tokens, was found to be widespread in the poetry of Edward Thomas, and illustrated in Oswald’s “Sonnet”. Another technique in Thomas is the use of co-ordination in noun phrases of the
natural, human and human-made. While personification and co-ordination tend to blur the dividing line between humans and nature, interrelatedness also involves communication between them, and this too was explored in Thomas, especially in the poem “The Word” where birdsong is presented as a mystical language.

- (4) Long-term ecological change addresses the inadequacies of overemphasis on local contiguity, by discussing Amitav Ghosh’s criticism of the contemporary English novel for ignoring the global and epochal of epics. William Golding’s novel, *The Inheritors*, is an exception to this as it represents the transition from the era of Neanderthals to that of homo sapiens, from the Ice Age to a warmer climate. Halliday’s analysis of Neanderthal and homo sapiens mind-styles (Leech and Short 1981) as manifest in intransitive and transitive material processes respectively, aligns Neanderthals with the Daoist concept of *wuwei*. And Lok’s animism dissolves the human-nature division more thoroughly than personification.

- (5) Narrative and metaphor are essential aspects of ecostylistics. While literary narratives are extensions of the contiguity dimension, the “stories-we-live-by” tend to the abstraction of the similarity dimension, functioning like subordinate categories. They do, however, share with literary narratives the aim of making sense and problem-solving. Metaphors, obviously enough, depend on similarity for the interpretation for grounds. But by resisting conventional classification and providing a wide variety of alternatives, they have a vital role to play in language which is, after all, necessarily dependent on similarity as well as contiguity. Some negative stories-we-live-by were critiqued, and some dominant historical and modern metaphors were evaluated in relation to ecology.

I suggest these themes, mostly stressing challenges to the similarity dimension, and recognizing process and global contiguity, could be important in the ecostylistics project, an exercise in positive discourse analysis (Martin 2004). They take account of some of what we currently know of the nature of physical reality and ecology, aspects of which have been recognized in medieval and Eastern philosophy. The lexico-grammatical and discourse strategies discussed here – predominance of verbs and nominalizations, intransitive and ergative verbs, activations of natural phenomena and tokens, personification of nature, coordination of human and non-human, narratives and metaphors – are merely a selection from the repertoire of linguistic and discoursal resources which literature might use in the service of these themes. However, it would seem fruitful to use any or all of these approaches to analysis in the ecostylistics project.
I also hope that Jakobson’s framework of two dimensions of meaning, which I elaborate at length elsewhere (Goatly 2022), is useful for making sense of these ecostylistic themes, by locating them in the wider context of cognitive linguistic theory.

References


