

# Shape categories revealed by English quasi-classifiers — A case study of *sheet*

Xu Zhang  
Lancaster University

## Abstract

Classifiers are overt linguistic categorisation devices and “a unique window” into human cognition (Lakoff, 1986). English is traditionally regarded as a non-classifier language, but a closer look shows that English also possesses classifier-like words, called ‘Quasi-Classifiers’/QCLs. This paper focuses on the cognitive categorisation process underlying English QCL usage, and takes the two-dimensional shape-based *sheet* as an exemplar. 120 concordances of *sheet(s) of* are extracted from the British National Corpus and then regrouped. It shows that *sheet* can collocate with words like ‘paper’, ‘bronze’, ‘water’, ‘clay’, ‘flame’, ‘sound’, etc., extending from the saliently flat-shaped to the shapeless and the amorphous, and from the concrete to the abstract. The extension is realised by various cognitive mechanisms, typically via active zone and metaphor. The study will contribute to a general knowledge of human cognition of categories.

## Introduction

As Lakoff points out, “[t]here is nothing more basic than categorization to our thought, perception, action, and speech” (Lakoff, 1987: 5), categorisation is a fundamental human ability. The categorisation process is present at all levels of human cognition; distinguishing individual items and taxonomically grouping them is one manifestation of this cognitive process, e.g. the distinction between cups and bowls (Labov, 1973). Linguistically speaking, the categorisation process may be overtly represented by a linguistic device, in this case ‘classifiers’, which provides “a unique window” into human cognition (Lakoff, 1986). This study will take this as the start point and examine how the categorisation process is reflected by the counterpart of classifiers in the language of English. As a typical example of numeral classifiers, classifier cases from Mandarin Chinese are taken as a special reference.

## Categorisation and classifiers

Although lacking definitional consensus, classifiers are generally acknowledged as an overt noun categorisation device (see among others, Aikhenvald, 2000; Allan, 1977; Craig, 1986; Grinevald, 2000, 2007). They define categories by arranging nouns into separate groups (Colette Craig, 1986: 2). Some examples from Mandarin Chinese are:

- |     |                                   |   |
|-----|-----------------------------------|---|
| (1) | yī <i>zhāng</i><br>one [CL: flat] | {<br>zhǐ (paper)<br>pí (skin)<br>chuáng (bed)<br>liǎn (face)          |
| (2) | yī <i>tiáo</i><br>one [CL: long]  | {<br>shéngzi (rope)<br>shé (snake)<br>lù (road)<br>lùxiàn (guideline) |

In Chinese, quantitative constructions, ‘nouns’, are usually mediated by classifiers before they are quantified by quantifiers, typically in a ‘Quantifier + Classifier + Noun’ construction as illustrated above. For instance, the classifier *zhāng* in (1) denotes ‘flatness’ in shape and collocates with nouns like ‘paper’, ‘skin’, ‘bed’, ‘face’, etc. In this paradigmatic collocation, ‘paper’, ‘skin’ and ‘bed’ are arranged into one group that is characterised by the feature of ‘flatness’. Similarly, the classifier *tiáo*, denoting a long shape, collocates with ‘rope’, ‘snake’, ‘road’, and ‘guideline’ and groups these nouns into a class featured as ‘long’. As Craig (1986: 2) argues, in this “completely overt arrangement of objects into classes, classifier systems may indeed expose how the process of categorization works in more graphic ways than lexical taxonomies”.

Typologically speaking, classifiers are of different types, e.g. numeral classifiers, predicate classifiers, relational classifiers, noun classifiers, etc. (Aikhenvald, 2000; Allan, 1977). The classifier examples quoted above from Mandarin Chinese are of the ‘paradigmatic’ type of classifier (Senft, 2000: 21), numeral classifiers, on which this

paper will concentrate.

Numeral classifiers (NCL) occur in quantitative constructions and appear next to quantifiers (Aikhenvald, 2000), and they are primarily found in Asian languages, e.g. Chinese, Japanese, Burmese, etc., and some Amerindian languages. The literature describes NCLs as performing two basic functions (Aikhenvald, 2000; Craig, 1992; Denny, 1986; Dixon, 1982; Frawley, 1992; Loke, 1983; Lyons, 1977; Tai & Wang, 1990; Wiebusch, 1995). On the one hand, NCLs are believed to ‘unitise’ (Foley, 1997) or ‘individuate’ (Greenberg, 1977) nouns into definable counting units. In this light, as part of quantitative constructions, they work with quantifiers to measure nouns in terms of *quantity* and perform a fundamental role of *quantification*. This function is especially obvious in container-based NCLs, e.g. ‘yī (one) *bēi* (cup) *shuǐ* (water)’ in Chinese, standard measurement NCLs, e.g. ‘yī (one) *gōngjīn* (kilogram) *miàn*’ (flour), and collective NCLs, e.g. ‘yī (one) *qún* (group) *rén* (people)’. These predominantly quantitative NCLs are called ‘Mensural Classifiers’. On the other hand, some NCLs specify some perceived *feature* of the collocated nouns, e.g. ‘flatness’ or ‘long length’. By this token, classifiers highlight certain quality properties of the quantified nouns and are qualifying. They are called ‘sortal classifiers’ (Aikhenvald, 2000; Craig, 1992; Dixon, 1982; Frawley, 1992; Loke, 1983; Lyons, 1977). The shape-based classifiers *zhāng* and *tiáo* in (1) and (2) are examples. In fact, classification functions are primarily realised by sortal classifiers. Their usage tells us the way people perceive and categorise the world and provides a window into the cognitive categorisation process.

## English quasi-classifiers/QCLs

English is traditionally regarded as a non-classifier language, but this does not entail that there is no overt linguistic classifier categorisation device in English. On the contrary, after a close examination, English is found to possess words that are very similar to NCLs in classifier languages like Chinese. Some examples are:

- |     |                              |                            |
|-----|------------------------------|----------------------------|
| (3) | a <i>cup</i> of tea          | a <i>sheet</i> of paper    |
|     | a <i>bunch</i> of flowers    | a <i>cube</i> of sugar     |
|     | two <i>pairs</i> of trousers | a <i>grain</i> of rice     |
|     | a <i>group</i> of people     | four <i>head</i> of cattle |

The italicised words above occur in quantitative constructions, appear next to quantifiers or numerals, and occupy a position between numerals and nouns, which is called the ‘classifier slot’ in classifier constructions (Downing, 1996: 8). Structurally speaking, these English phrases match neatly with the NCL phrases proper, e.g. (1) and (2) in Chinese. Functionally speaking, these expressions fully exhibit the two basic roles performed by NCLs, e.g. they quantify and qualify the following noun, and the left and right columns in (3) represent the qualification and quantification roles respectively. The correspondence between these English quantitative words and real numeral classifiers has been observed by many linguists (e.g. Allan, 1977: 305; Dixon, 1982: 211; Foley, 1997: 210; Lehrer, 1986; Loke, 1983: 11; Lyons, 1977: 462; McEnery & Xiao,

forthcoming; John R Taylor, 2002: 360). Evidently, English NCL-like words are a systematic rather than accidental phenomenon. These words are called ‘Quasi-Classifiers’ (later abbreviated as ‘QCLs’).

Distinguishing the word group of QCLs out of quantitative words in English helps highlight a hidden function of English quantitative constructions. In parallel with the subtle difference between mensural and sortal classifiers, at least some English quantitative constructions function to categorise nouns while quantifying. These categorising QCLs are of the sortal type and are an overt linguistic categorisation device in English. English sortal QCLs and the categorisation process revealed by them are the research focus in this study.

### **A shape category: the *sheet* category**

In the process of categorisation, “visual perception appears to play a major role in determining category membership” (Clark, 1978). Not surprisingly, in NCL languages, shape is the most common semantic feature classifiers express (Foley, 1997: 235) (see also Aikhenvald, 2000; Downing, 1996; Haas, 1942; Shi, 1996); *zhāng* and *tiáo* in (1) and (2) are both shape-based classifiers, reflecting categories of shape. Similarly, in English, a considerable number of QCLs are devoted to the interpretation of this major physical feature, e.g. *column, slip, stick, sheet, slice, square, block, chunk, cube*, etc. This study will focus on shape-based QCLs and shape categories expressed by them, and specifically, on the category of a frequently used QCL: *sheet*. *Sheet* denotes ‘flatness’ in shape, i.e. ‘paper-like’ in folk terms and ‘two-dimensional’ in technical terms. In cognitive terms, shape falls within the domain of SPACE. Presumably, members of the *sheet* category all extend in space and are two dimensional in shape. The following study will find out to what extent this presumption is true.

### **Data and methodology**

As discussed above, nouns collocating with the classifier compose members of the classifier categories. Following the methodology by Lakoff (1986; Lakoff, 1987) and Tai and others (Tai & Chao, 1994; Tai & Wang, 1990), this study collected collocated nouns of *sheet* and examined the category organisation. The most comprehensive and large-scale corpus of British English, the British National Corpus, i.e. the BNC is taken as the data source, from which collocated nouns with the QCL *sheet* are extracted.

English QCL phrases are highly diversified in form, ranging from ‘a *cup* of water’ to ‘the big *cup* of the cold mineral water’. In the mutable QCL structure, ‘QCL + of’ is the only stable connection with merely a variation in QCL plurality, e.g. *cup of* and *cups of*. Thus, collocated nouns of the QCL *sheet* are collected by searching for the string *sheet(s) of*. A concordance search for *sheet(s) of* in the BNC returns 1216 hits. To reduce the data to a manipulative scale, one tenth of the overall data, i.e. 120 concordances, are selected by the BNC’s ‘random thin’ function. However, not all *sheet(s) of* cases are QCL usages. Some *sheet* occurrences are not quantitative constructions, thus of non-QCL

usages, e.g. (4) and (5), and are filtered out of the data analysis. Altogether fourteen unqualified cases are eliminated from the 120 concordances, leaving 106 QCL usages for analysis.

- (4) The balance *sheet of* the company must contain a statement from the directors, ... [FEJ 1315]<sup>1</sup>
- (5) He left her and set about smoothing the *sheet of* her bed with touchingly serious clumsiness. [FSC 1743]

The collocated nouns from the 106 remaining QCL concordances constitute members categorised by the '*sheet* category'. These nouns will be examined, differentiated, re-categorised, and compared, in the process of which, the following questions are addressed: First, what nouns are qualified by *sheet* and thus included by the *sheet* category? Second, why are these nouns qualified by *sheet* and thus portrayed as two-dimensional? Third, how are these nouns connected with each other?

### Category members

The first question cropping up for the *sheet* category is what members are found in the category (are they two-dimensional)? This sub-section will examine these sample members in detail, and based on the nouns' *general* meaning, i.e. before they collocate with the QCL, identify the nuances or divergences of their physical features and re-categorise them into fine-grained ontological groups.

At first glance, the *sheet* category appears rather random, including entities of divergent forms and shapes. Distinguished further, these mixed members can be roughly divided into three groups. The tokens of all members are listed below, and the numbers of their occurrences are indicated in brackets.

- (A) *Typically flat solids* (70):  
*Paper, cardboard, hardboard, parchment, underlay, Kleenex, tissue*<sub>1</sub>.

Nouns in this group all denote one type of solid: they are all paper and paper-like things and are prototypically flat or two-dimensional. This sub-category occurs in the largest proportion among *sheet* collocates. '*Tissue*<sub>1</sub>' refers to the sense of 'tissue paper' (e.g. (6)) and is obviously paper-like in appearance. This is to be distinguished from '*tissue*<sub>2</sub>', 'biological aggregation of cells' (7), as will appear in (B-1).

- (6) Soft pastels meant taking *sheets of* tissue to protect each sketch. [G21 660]
- (7) The ultimate implant remained; and one day Lexandro was opened up surgically — superficially and for the final time — to insert the *sheets of* black tissue beneath his skin. [CJJ 1268]

---

<sup>1</sup> Letters and numbers in [ ] are indications of the file numbers in the BNC.

(B) *Solids without definite shapes* (26)

Another considerable group of *sheet* nouns are found in (B), i.e. solids without prototypical shapes. These range from objects to collections and then to masses. They are of the following four sub-types:

- (B-1) Objects with un-determinable shapes (1): Tissue<sub>2</sub>
- (B-2) Malleable solids (20): Bronze, copper or pewter, iron, aluminium, metal, steel, glass, plastic, acetate, foam, elastometric.
- (B-3) Concrete substances (3): Ice, lava, clay.
- (B-4) Substances (2): Cells, molecules.

Different from the normally flat shape of 'tissue paper' in 'tissue<sub>1</sub>', the shape of biological tissues in 'tissue<sub>2</sub>' is far more difficult to determine. For one thing, their shapes typically vary with functions, e.g. muscle tissue differs from nervous tissue, and even muscle tissue is different in shape depending on where it is. More importantly, biological tissues do not appear independently in reality, and it is difficult, if not impossible, to describe their shape. Therefore, the shape of biological tissues, as far as people's experience is concerned, is un-determinable in general cases.

Those in (B-2) do not have definite shapes either, being typically mouldable, e.g. we can have glass sticks, cubes, balls, etc. Those in (B-3) are usually masses without definite shapes, but unlike the intentionally moulded discrete solids in (B-2), they are substances which may have no perceptible bounding edge and thus have no 'shape' in their own right; being the result of a process of natural sedimentation, they are perceived in aggregation.

In (B-4) 'A *sheet of cells*' may appear similar to 'a *sheet of tissue*' in (B-1), both situated in a biological domain. However, the former differs from the latter in that it is an assembly of separate individuals, i.e. a collection, instead of an integral, undifferentiated whole.

(C) *Shapeless entities* (11): Water, rain, spray, flame, light, blue, sound.

Apart from solid objects and substances with drastically varying shapes, flowing liquids are also categorised by the two-dimensional *sheet*. 'Water' is generically fluid and is a type of mass in material entity. 'Rain' and 'spray' are even more elusive in form. Conceptualised by the mode of 'summary scanning', (Langacker, 1987: 144-5), they can be perceived as *a static state*, like a mass or aggregate composed of dispersed particles of droplets. More importantly, since once they reach the ground, they are no longer rain/spray but water, rain and spray possess an important temporal feature related to the domain of time, like the non-spatial activity of 'running'. That is, both rain and spray are mobile. Typically neither water nor rain/spray is described in terms of shape.

Even more erratic than liquids is incorporeal 'flame'. Being flickeringly mobile, they are also related to the domain of TIME. Even more abstract than the 'flame' come colours, 'light' and sound. They are all intangible and amorphous. It needs even more

cognitive effort to perceive them as having any actual ‘shape’. The collocation ‘a *sheet* of sound’ does not appear in the 120 concordances that are sampled, but is present in the BNC and is listed here to represent a major extension of the *sheet* category from the above sub-groups: however different, all other nouns are entities perceived by the sense of vision; ‘sound’, nevertheless, is an auditory experience. Here, the category of *sheet* sees an extension from the visual to the non-visual. The presence of this member in the spatial *sheet* category pushes the category boundary beyond the domain of vision and renders the category a cross-domain comprehensive structure.

### Shape features of the category members

As is clear from the above, the *sheet* category appears rather mixed, incoherent, and inclusive. The question of why these nouns are categorised as two-dimensional naturally follows. One probable reason is that they all possess prominent expansions on two dimensions and are perceived ‘flat’ in the given contexts, by one means or another. Actually it is the flat bed-sheet-like appearance of the nouns that readily motivates the linguistic usage of QCL *sheet*. In other words, from a language producer’s point of view, the perceived two-dimensionality of the entity induces the two-dimensional QCL *sheet* and thus motivates the linguistic form of ‘a *sheet* of Noun’. Although all being ‘flat’, the ‘flatness’ of these nouns is different: some nouns are realistically flat, some perceptually, and some imaginarily. This sub-section looks at the different ways in which they appear to be two-dimensional. An experiential and cognitive perspective is taken to uncover the perceived dimensionality features of these nouns, and to discover how they manage to assume these features.

#### (A) Flat objects

Paper and paper-like objects in (A) appear prototypically flat in shape. Although as material entities they actually possess three dimensions, their third dimension of thickness is proportionally so small that it can be cognitively ignored; the evoked image by ‘paper’ is typically an extension on two dimensions. Naturally, these virtually ‘flat’ objects are categorised by *sheet*. In the three-dimensional material world, paper, with its negligible third dimension, can be argued to be a best example for two-dimensional entities. This intrinsic affinity of paper with two-dimensional *sheet* may be corroborated by the BNC collocations. Among the ten MI-score collocations of *sheet(s) of* with the highest frequencies in the BNC, at least seven are directly related to ‘paper’, either acting as modifiers of paper-specific properties (e.g. ‘blotting’, ‘greaseproof’), or are themselves ‘paper-like’ (e.g. ‘cardboard’, ‘parchment’). Objects of this group can be reasonably argued to be the ‘prototype’ members for the *sheet* category.

#### (B-1) Objects perceived as flat

The shape of biological ‘tissues’ is theoretically undeterminable, but in experiments or medical operations, biological tissues usually appear as thin sheets. As a matter of fact,

experiments and medical operations are probably the only direct interaction human beings can have with biological tissues; that is to say, entities of ‘tissue’ are paper-like as far as human perceptual experience goes. This obviously explains why biological tissues can be classified as 2-D by *sheet*.

(B-2) *Malleable solids moulded flat*

Malleable solids of ‘glass’, ‘metal’, and ‘plastic’ can appear in any shape, e.g. spherical, cubic, or long, but in the given contexts, they are moulded flat. Although the two-dimensionality of these malleable solids can be much less ‘flat’ than paper, e.g. the iron sheet can possess a considerable thickness (“half an inch thick” [HP0 2782]), and it can even be ‘corrugated’ ([CGJ 286], [CJD 755]), yet their extension on two dimensions is cognitively so salient that they appear flat as a whole. It is this perceptual salience of the two-dimensional feature that motivates the usage of *sheet*. This two-dimensional feature is revealed by various linguistic items. Sometimes, this revelation is rather explicit, e.g. by the adjective ‘flat’, as is underlined for emphasis in (8) and (9).

- (8) The small pipe has been formed from a flat sheet of bronze. [G2Y 1352]
- (9) On the floor was a large flat sheet of steel on which patterns were drawn in chalk. [B22 1239]

Sometimes, the two-dimensional extension is indicated more implicitly. For instance, in the sample data, malleable solids collocating with *sheet(s) of* are often found as instruments for a ‘covering’ action, e.g. (10) and (11). In fact, to ‘cover’ something, an entity has to extend in both width and length so as to rest on the surface, and the very verb ‘cover’ implies a two-dimensional extension. Similarly, these entities act frequently as objects for the prepositions ‘on’ and ‘onto’, e.g. (12) and (13), which presupposes a planar surface. All these expressions corroborate the perceptual ‘flatness’ of these entities.

- (10) [For SEED SOW] Most annuals can be placed straight into the propagator, providing it is set at a temperature within the stated range, but some need to be covered with a polythene bag or *sheet of* glass. [ACY 1268]
- (11) A *sheet of* plastic covered the woodpile. [AMU 2131]
- (12) ... imagine that the paper was magnified to a width of two feet and pasted onto a *sheet of* wrought iron, half an inch thick. [HP0 2782]
- (13) Is the method of offering a pen-drawn circle on a *sheet of* acetate to a map satisfactory? [G2Y 150]

(B-3) *Substances perceived as flat*

‘Ice’, ‘clay’, and ‘lava’ all designate homogeneous masses composed of fine particles. Unlike the deliberately wrought flat objects of (B-2), their formation results from natural sedimentation of originally loose substances, and are obviously shaped more irregularly and sometimes uneven and thick. However, in the given context of the sample, these somewhat ‘non-flat’ entities extend prominently in area, and this



conspicuous two-dimensional extension is brought to the cognitive salience and enables the whole entity to be ‘perceived’ as flat. Such perceived ‘flatness’ is also indicated by the implicit usages of ‘over’ [A74 2409], ‘on’ [J0T 1092], and ‘covering’ (14), similar to (B-2).

- (14) It [i.e. rock debris] was deposited as *sheets of boulder clay* which are 20–0 m thick, covering all the rocks of the lowlands on the Lancashire and Cheshire side of the Pennines and in the Vale of York. [B1H 2051]

(B-4) *Substances arranged as flat*

Usually, substances denoted by ‘living cells’ and ‘molecules’ are not judged individually, but are perceived holistically as aggregated collectives. They are arranged as if on a flat plane. The collectives in (B-4) are closely linked to other individual subclasses. For instance, for ‘a *sheet of cells*’, when ‘zoomed out’, in Langacker’s (1987) words, the individual units will gradually lose their identity and become an undifferentiated whole. This is the same for ‘a *sheet of tissue*’ and for ‘a *sheet of molecules*’. Similarly, the aggregate can be zoomed out to be a solid whole as in ‘a *sheet of bronze/paper*’. In this light, it seems that the distinction between collections or multiplex entities and masses can be a matter of perspective. Therefore, similar to individuals in other solid classes, substances in (B-4) are also ‘perceived’ flat, as a result of collectively arrangement.

- (15) This is possible because, at high stresses the total strain energy in the material will ‘pay’ for a great many new surfaces, indeed at the theoretical strength it will ‘pay’ for dividing the whole material up into individual *sheets of molecules*. [CEG 605]

The solid members in the *sheet* category, represented by either mass or plural nouns, share the property of internal homogeneity (Taylor, 2002), and can be allocated along a gradience of ‘granularity’, one end being clearly discrete objects, e.g. paper, and the other end masses of particles, e.g. clay, or collections of individuates, e.g. cells. This is illustrated by Diagram 1.

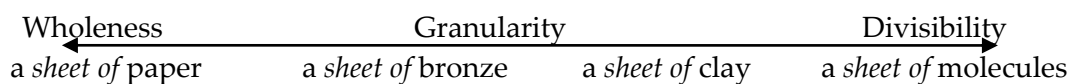


Diagram 1 A granularity continuum of sheet solids

(C-1) *Liquid with a flat surface*

Members in C are no longer solids. Water is shapeless fluid, but when stretching in a large area, as in a lake, it can assume a flat mirror-like surface, which easily comes to the salience of human perception. This is the case in (16) and (17), both denoting lakes.

- (16) Semer Water is one of the few natural *sheets of water* of any size in the Dales. [EWB 302]
- (17) In places, it escapes from confining boulder slopes and low cliffs and gives uninterrupted views across a wild moorland interspersed with *sheets of water* to the distant mountains soaring abruptly skywards in complete isolation as though not on speaking terms with each other. [CJH 260]

(C-2) *Dynamic states imaginarily construed as flat*

'Water' in (18) is different from the above. It does not refer to the flat surface of stationary water spread, but to a dynamic temporal state of water: rain in (19) and spray in (20).

- (18) The rain fell incessantly until it seemed they travelled through *sheets of water*, the old cobbled road turned into a muddy mire, sometimes dangerous with potholes, where a man could plunge waist deep in water. [H9C 3326]
- (19) He was looking out over the prison courtyard, watching the *sheets of rain* falling, the brightness of the observation lights along the prison walls reflecting in his eyes. [G01 3761]
- (20) They were an awe-inspiring sight, with the sea thundering against great black precipices and hurling shattered *sheets of spray* high up the face of the rock; [H0A 1407]

When raining hard, water pours down with such a speed and volume that it seems to form a 'seamless' (as indicated by 'incessantly' in (18)) curtain made of water. In this case, the mobile state of water liquid is perceived, rather imaginarily, as a static curtain-like entity, in a texture as dense and unitary as a sheet, and stretching vertically on two dimensions. In fact, 'rain' can also be perceived as two-dimensional from another perspective. When rain falls from the air down to the ground, the two dimensions of rain's height and breadth are more salient to human perception than the third dimension, i.e. the distance the rain goes; thus, rain in human perception appears a somewhat planar happening, not spreading horizontally on the length and breadth like lake surfaces, but stretching vertically on height and breadth. Further, when the third dimension of rain, that is, the distance to which the rain covers, is brought into cognitive awareness, the planar water curtain is seen to be reduplicated, and '*sheet of rain*' will appear in plural forms, as most cases of '*sheet of rain*' do in BNC (7 out of 9 occurrences are plurals). The case of 'spray' in (20) is slightly different from 'rain'. As produced by sea waves, it does not extend from top to bottom, but rises up to the air. However, the difference in direction does not change its two-dimensional perception. 'Sprays' also spread on much smaller dimensions than the sweeping rain sheets, so it is 'shattered' in (20).

Compared to the dynamic fluid of rain and spray, highly mobile 'flames' in fire are intangible and immaterial. Since 'flames' typically extend in space on all three dimensions (i.e. not only horizontally, but also vertically), they are three-dimensional in reality. Like other shapeless entities, the shape of 'flames' is perceived and construed by human conception. Similar to rain sheets, spreading flames can appear rather high and

broad (e.g. ‘colossal’ in (21)), extending considerably in both breadth and height. The vertical surface of flames is cognitively salient, which helps flames to be construed as two-dimensional sheets.

- (21) As these squads withdrew, Montgomery threw an incendiary into a shed, sending it up ‘in a colossal sheet of continuous flame’. [CCS 542]

(C-3) *Amorphous entities referring to other perceived flat entities*

Both ‘light’ and ‘blue’ are intangible and immaterial ocular experiences. On a closer look, however, both words actually mean something else.

- (22) No *sheet* of Olympic-proportion aqua-blue but a curving arc of pale green water set in natural stone with palm-frond umbrellas shading rustic wooden tables round the edge. [JY4 1399]
- (23) Towards evening dark clouds gathered again over the mountain at the mouth of the valley, slashing its face with rain in a slanting *sheet* of steel-grey light. [BNU 1059]

‘Aqua-blue’ in (22) is a colour, but it actually refers to the material which possesses this colour: water. Here, the property, i.e. colour, is employed as the ‘entry point’, in Kövecses and Radden’s term (1998: 40), to the target, i.e. the property-possessor, water. This is a ‘defining property for the category’ or ‘possessed for possessor’ metonymy (Kövecses & Radden, 1998: 53, 57). The real *sheet* category member is not the immaterial colour of ‘blue’, but the material underlying the colour, ‘water’ as a mass entity. As analysed in (C-1), when kept still, e.g. in the swimming pool of (22), the spread of water is perceived with its cognitively salient horizontal extension as a flat existence.

Similarly, (23) is another case of POSSESSED FOR POSSESSOR metonymy: the “slanting *sheet* of steel-grey light” is also used as a ‘reference point’, in Taylor’s term (2003: 126), for the entity giving out this light, i.e. the ‘cloud’. When seen from afar, cloud is easily perceived as a two-dimensional spread in area and appears as a plane. Thus, here, both amorphous entities are used metonymically to refer to other entities which are construed as flat.

(C-4) *Non-visual sense imagined as flat*

In this category is example (24) below. It appears strange to portray ‘sound’, which is perceived by hearing, as a spatial two-dimensional entity. Underlying this unusual member of the two-dimensional category is a cross-domain mapping.

- (24) They fired back — so many bullets that they cracked against the outside walls of the film company office in a *sheet* of sound lasting several seconds. [ANU 1004]

As underlined above, the sound lasted several seconds. The considerable continuation is projected from the TIME domain onto a space frame, where the non-stop dense cracking of bullets are seen as continuous as a spreading cloth sheet, and where the temporal continuous sound is perceived to extend on the dimension of spatial length and breadth. Obviously, this non-visual entity is construed as two-dimensional with much help of imagination.

### *Summary*

In all, it can be seen that all entities classified by *sheet* are perceived as 'flat', by one means or another. Some entities are realistically flat by themselves, e.g. paper in (A); some are perceived via cognitively salient parts and thus appear flat, e.g. tissue, bronze, ice, and cells in (B), and water in (C-1), along with colour and light in (C-3) which metonymically refer to other entities; still some entities are imaginarily construed as flat, e.g. rain and flame in (C-2), and sound in (C-4). Going from the prototypical members of (A), further to (B), and then to (C), the *sheet* category members gradually changes from the concrete to the abstract, and more cognitive effort is required.

### **Category coherence**

Another question naturally follows: *how* are these entities categorised by *sheet*? This subsection is to examine the function of QCL *sheet* upon the category members. By so doing, the overall category coherence will be constructed.

As discussed above, the *sheet* category members are rather diverse, some being three-dimensional material entities, some being amorphous or immaterial. These entities of various dimensionalities are all construed as two-dimensional by the usage of *sheet*, which functions upon the nouns differently, basically in three distinct ways.

First, *sheet* draws attention to an existent two-dimensional feature of the categorised entity. Paper and paper-like objects in A prototypically evoke an image of two-dimensional extensions, which is reinforced by the usage of *sheet*. Here, the QCL serves to highlight the dimensionality feature of inherently flat objects. As Langacker points out, '[e]ntities are often multifaceted' (Langacker, 1987: 272). All entities designated by nouns are encyclopaedic concepts, with an array of potential properties, or 'subdomains' (Langacker, 1987; Barcelona, 2000), e.g. the shape, function, etc. Even in terms of shape, cognitively speaking, all material entities extend on three dimensions, including typically 'flat' paper (no matter how thin paper is, it has thickness). On the other hand, the QCL *sheet* carries an apparent denotation of two-dimensional extension and is a rather specific concept in the dimensionality domain. When *sheet* collocates with nouns, the dimensionality schema is carried over to the original encyclopaedic concepts of the nouns, whose dimensionality domain is consequently activated. Here, the shape facet of the noun is highlighted by the QCL *sheet* and becomes more active in conceptualisation, while other aspects are subsumed into the background. This is what Langacker (1991: 189-201) refers to as the 'active zone' phenomenon. See Diagram 2.

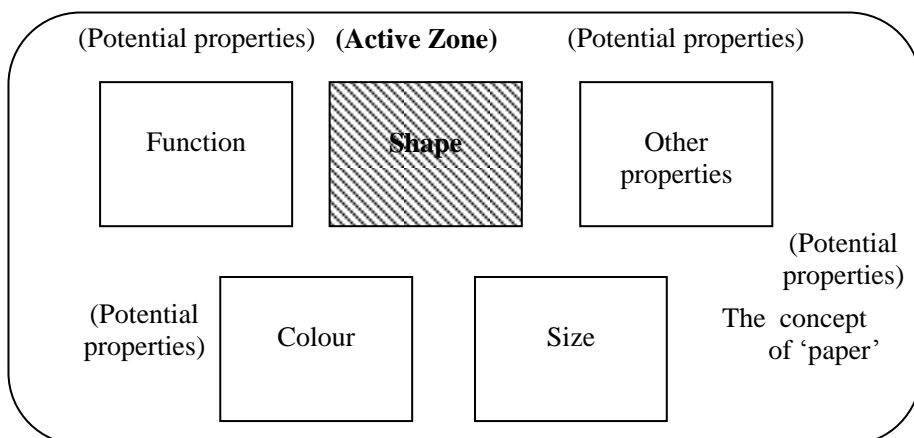


Diagram 2 Active Zone phenomenon in ‘*sheet of + noun*’

The second way in which *sheet* works is to bring about a hidden two-dimensional feature in the categorised entity. Different from flat paper, malleable objects like glass and metal and substances like clay can appear in any shape. However, when collocating with *sheet*, a potential feature, i.e. ‘to be flat’, is foregrounded, and the undetermined shape is specified. Here, the usage of *sheet* helps mould the otherwise unshaped entities and brings about a hidden characteristic of the nouns. Similar to ‘a *sheet of paper*’, the shape, and specifically the two-dimensional extension, of the encyclopaedic entity is the active zone in conceptualisation. Though ‘a *sheet of bronze*’ can be thick and ‘a *sheet of water*’ can be rather deep, only two dimensions are perceptually salient and activated by the usage of *sheet*, and the third dimension is cognitively ignored. This is illustrated by Diagram 3 below.

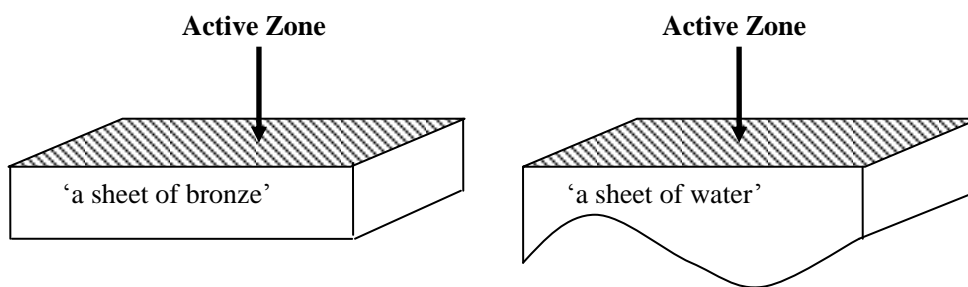
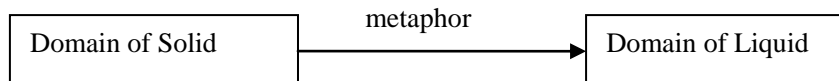


Diagram 3 Active Zone in ‘a *sheet of bronze/water*’

The third way in which *sheet* functions upon the classified noun is that *sheet* endows the categorised entity with a two-dimensional feature. The cases of ‘a *sheet of rain*’ and ‘a *sheet of sound*’ are different. Rain and sound are not two-dimensional, either realistically or potentially, but the use of *sheet* construes these non-dimensional things with a two-dimensional feature, with much imagination.

As discussed above, when rain pours heavily, the dense screen of liquid is imaginarily perceived as a unitary solid sheet, thus engendering a metaphoric mapping from the domain of liquid to the domain of solid. For ‘a *sheet of sound*’, the temporal continuation of sound in the domain of time is metaphorically projected onto the domain of space, making the non-stop audio experience a visual spatial perception. Both cases are realised by metaphor, as illustrated below.

‘a *sheet of rain*’:



‘a *sheet of sound*’:

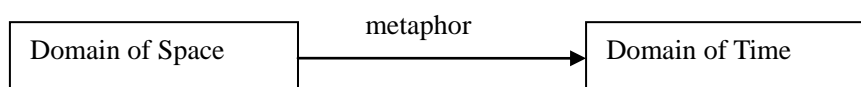


Diagram 4 Metaphors in ‘a *sheet of rain/sound*’

To summarise, the seemingly unrelated members of the *sheet* category are all linked by the category-wide attribute of a two-dimensional extension. They are either inherently (e.g. ‘paper’), or potentially (e.g. ‘glass’, ‘clay’, ‘water’, etc.), or imaginarily (e.g. ‘rain’, ‘sound’) flat in their encyclopaedic conceptualisation. By co-occurrence, the QCL *sheet* draws attention to the specific aspect of the object’s ‘flatness’, or highlights a potentially possessed plane, or interprets the originally shapeless concept as a two-dimensional entity. Here, the cognitive mechanisms of active zone and metaphor are at work respectively.

## Significance of this study

This paper has adopted the concept of classifier to the language of English and introduced the notion of English Quasi-Classifiers. Focusing on a particular QCL of *sheet*, it examines the reflected shape category and analyses the cognitive mechanisms in the categorisation process. This study sheds lights on the categorisation device in English quantitative constructions which has usually been neglected. Hopefully, it will provide insights into how English speakers categorise the world and will contribute to the knowledge of human cognition of categories in general.

## References

- Aikhenvald, A. Y. (2000). *Classifiers, A Typology of Noun Categorization Devices*. Oxford: Oxford University Press.
- Allan, K. (1977). 'Classifiers'. *Language*, 53(2), 285-311.
- Barcelona, A. (2000). Introduction: The cognitive theory of metaphor and metonymy. In A. Barcelona (Ed.), *Metaphor and Metonymy at the Crossroads, A Cognitive Perspective*. Berlin: Mouton de Gruyter, 1-28.
- Clark, E. V. (1978). Universal categories: On the semantics of classifiers and childrens early word meanings. In A. Juilland (Ed.), *Linguistic Studies Offered to Joseph Greenberg*. (3). Saratoga: Anna Libri.
- Craig, C. (1986). Introduction. In C. Craig (Ed.), *Noun Classes and Categorization, Proceedings of a Symposium on Categorization and Noun Classification* (7). Amsterdam: John Benjamins Publishing Company, 1-10.
- Craig, C. (1992). Classifiers in a functional perspective. In M. Fortescue, P. Harder & L. Kristoffersen (Eds.), *Layered Structure and Reference in a Functional Perspective*. Amsterdam: John Benjamins, 277-301.
- Denny, J. P. (1986). The semantic role of noun classifiers. In C. Craig (Ed.), *Noun Classes and Categorization*. Amsterdam: John Benjamins Publishing Company, 297-308.
- Dixon, R. M. W. (1982). *Where Have All the Adjectives Gone?* Berlin: Mouton Publishers.
- Downing, P. (1996). *Numeral Classifier System: The Case of Japanese*. Amsterdam: John Benjamins Publishing Company.
- Foley, W. A. (1997). *Anthropological Linguistics, An Introduction*. Malden: Blackwell Publishers Inc.
- Frawley, W. (1992). *Linguistic Semantics*. Hillsdale: Lawrence Erlbaum Associates.
- Greenberg, J. H. (1977). Numeral classifiers and substantival number: problems in the genesis of a linguistic type. In A. Makkai, V. B. Makkai & L. Heilmann (Eds.), *Linguistics at the Crossroads*. Lake Bluff: Jupiter Press, 276-300.
- Grinevald, C. (2000). A morphosyntactic typology of classifiers. In G. Senft (Ed.), *Systems of Nominal Classification*. Cambridge: Cambridge University Press, 50-92.
- Grinevald, C. (2007). The linguistic categorization of spatial entities -- Classifiers and other nominal classification systems. In M. Aurnague, M. Hickmann & L. Vieu (Eds.), *The Categorization of Spatial Entities in Language and Cognition*. Amsterdam: John Benjamins Publishing Company, 93-121.
- Haas, M. (1942). 'The Use of Numeral Classifiers in Thai'. *Language*, 18(3), 201-205.
- Kövecses, Z. & Radden, G. (1998). 'Metonymy: developing a cognitive linguistic view'. *Cognitive Linguistics*, 9(1), 37-77.
- Labov, W. (1973). The boundaries of words and their meanings. In C. J. N. Bailey & R. W. Shuy (Eds.), *New Ways of Analysing Variation in English*. Washinton D.C.: Georgetown University Press, 340-373.
- Lakoff, G. (1986). Classifiers as a reflection of mind. In C. Craig (Ed.), *Noun Classes and Categorization* (7). Amsterdam, Philadelphia: John Benjamins Publishing Company, 13-52.
- Lakoff, G. (1987). *Women, Fire, and Dangerous Things, What categories reveal about the mind*. Chicago: The University of Chicago Press.
- Langacker, R. W. (1987). *Foundations of Cognitive Grammar* (I: Theoretical Prerequisites). Stanford: Stanford University Press.
- Langacker, R. W. (1991). *Concept, Image and Symbol: The Cognitive Basis of Grammar*. Berlin: Mouton de Gruyter.
- Lehrer, A. (1986). 'English Classifier Constructions'. *Lingua*, 68, 109-148.

- Loke, K. K. (1983). *A Psycholinguistic Study of Shape Features in Chinese (Mandarin) Sortal Classifiers*. University of York, York.
- Lyons, J. (1977). *Semantics* (1). Cambridge: Cambridge University Press.
- McEnery, T. & Xiao, R. (forthcoming). Quantifying constructions in English and Chinese, A corpus-based contrastive study.
- Senft, G. (Ed.). (2000). *Systems of Nominal Classification*. Cambridge: Cambridge University Press.
- Shi, Y. Z. (1996). 'Proportion of extensional dimensions: the primary cognitive basis for shape-based classifiers in Chinese'. *Journal of Chinese Language Teachers Association*, 37-59.
- Tai, J. H. Y. & Chao, F. y. (1994). 'A semantic study of the classifier ZHANG'. *Journal of Chinese Language Teachers Association* 29(3), 67-78.
- Tai, J. H. Y. & Wang, L. (1990). 'A semantic study of the classifier TIAO'. *Journal of Chinese Language Teachers Association*, 25(1), 35-56.
- Taylor, J. R. (2002). *Cognitive Grammar*. Oxford: Oxford University Press.
- Taylor, J. R. (3rd ed.). (2003). *Linguistic Categorization*. Oxford: Oxford University Press.
- The British National Corpus*, version 3 (BNC XML Edition). (2007). Distributed by Oxford University Computing Services on behalf of the BNC Consortium. URL: <http://www.natcorp.ox.ac.uk/>
- Wiebusch, T. (1995). 'Quantification and qualification, two competing functions of numeral classifiers in the light of the radical system of the Chinese script'. *Journal of Chinese Linguistics*, 23, 1-41.