

MARIA BRENDA*

Uniwersytet Szczeciński

THE SEMANTICS OF *AT*

Introduction

The purpose of the present investigation is to discuss the semantic structure of the spatial preposition *at*. The recent years have seen a considerable increase in the number of studies devoted to the semantics of prepositions. Herskovits ([1986] 2009) offers the most thorough study devoted to prepositions in general, and the preposition *at* in particular, suggesting an ideal meaning of the preposition and various use types, such as *spatial entity at location*, *spatial entity “at see”*, *spatial entity at generic place*, *person at institution*, etc., seen as variations of the notion of one point coinciding with another. Lindstromberg (2010) analyzes *at* in terms of its purely spatial and metaphorical meanings as well as of its semantic contribution in phrasal and idiomatic expressions. The two authors, however, discuss various senses of the preposition in an arbitrary manner without showing the coherence of the category and the motivation behind its extensions. Attempts at identifying an organizing principle are made by Dirven (1993) and Ho-Abdullah (2010); however, the structure of the category of the preposition *at* seems to be more complex than the two authors propose.¹

The present study, taking into account recent advances in cognitive linguistics, attempts to contribute to the discussion considering the structure and frequency of the semantic category of the English spatial preposition *at*. The

* Maria Brenda, doktor nauk humanistycznych, adiunkt w Katedrze Filologii Angielskiej Uniwersytetu Szczecińskiego; e-mail: mary7@poczta.onet.pl.

¹ For a detailed study of the preposition *at* also see Kokorniak (2007).

principled polysemy network model (Tyler and Evans 2003) is used to show how different senses of the preposition arise and how they relate within the broader structure of the category. The model assumes that various meanings of a given linguistic form constitute a semantic continuum and proposes two criteria for determining distinct senses. First of all, a sense is considered distinct when it encodes a new spatial configuration between the trajector (TR) and landmark (LM) or when it encodes a new metaphorical meaning component not inherent in other senses. The second criterion holds that a distinct sense should be context independent, that is, it cannot be inferred from the context in which it is used. Contextual modulations do, however, play a role at an initial stage of the expansion of semantic networks. The notion of pragmatic strengthening assumes that contextual interpretations of a certain spatial preposition may become associated with the form as new meaning components, although not all contextual uses of a word become established as distinct senses. For a given contextual interpretation to be treated as a distinct sense, it must become entrenched in the language and start functioning as context independent.

The present analysis of the preposition *at* is based on the data retrieved from the British National Corpus (BNC).² Over two thousand randomly selected sentences containing 2168 instances of the preposition *at* were divided into sub-categories constituting different senses. 90 percent of all data in BNC comes from the written register and it includes extracts from regional and national newspapers, specialist periodicals, academic books, popular fiction, published and unpublished letters, school and university essays, etc. The remaining 10 percent includes transcriptions of unscripted informal conversations recorded by volunteers coming from different age, region and social groups as well as of spoken language collected during formal business and government meetings, radio shows and phone-ins. The research yielded twenty-one senses of the preposition *at* and one miscellaneous group containing idiomatic expressions.

1. The senses of the preposition *at*

The locative preposition *at* derives from the common Germanic stock and from the Indo-European language. It is a cognate of the Sanskrit word *adhi*

² British National Corpus (<http://www.natcorp.ox.ac.uk/>) (date of access: January 2015).

signifying ‘to’ and ‘at’ and this dual meaning was later reflected in Latin in the form of the preposition *ad*. The preposition *at* has equivalents in other Germanic languages, such as Old Frisian *et*, Old High German *az* and Old Saxon, Norse, Gothic *at* (Lundskær-Nielsen 1993: 83). The dual meaning of the cognate *adhi* may be an indication of why the preposition *at* in contemporary English designates a highly abstract or general relation between the TR and LM. The preposition is used to encode a relation between the two objects which cannot, for some reason, be expressed with more specific prepositions such as *close to*, *near*, *by*, *about*, *on*, *in*, *over*, *under*, etc. (*Oxford English Dictionary* (OED) 1989).

The meaning of the Sanskrit preposition *adhi* may also give some indications about the possible primary sense of the English preposition *at* which, as may be assumed, reflects shades of the original meaning. However, straightforward criteria for establishing the primary sense of any preposition are also needed. The historically earliest attested meaning is a good candidate for the primary sense (Tyler and Evans 2003). In the case of *at*, the earliest attested sense was recorded about 755 in the sentence *His lic liþ at Wintanceastre*, where *at* was used with the place name *Wintanceastre* (OED 1989). The sense predominating in the semantic network may also be considered primary. The present research reveals that the preposition *at* most frequently encodes a location of an object in a point and the majority of senses rest on this fundamental relation. The coincidence of two points constitutes the simplest relation which establishes its precedence in relation to other senses encoding, for instance, the location of a point on a path. The primary sense of a preposition should give rise to a number of directly derivable extensions. In fact, the location in a point is the relation which most, if not all, other senses of the preposition *at* build on.

1.1. The In-a-point Sense as the primary sense of the preposition *at*

Most linguists agree that the prototypical relation between the TR and LM encoded by the primary sense of the preposition *at* involves an object located in a point in space. Cuyckens (1985: 55), for instance, defines the relation between the TR and LM as an association of a TR with the place where the LM, thought of as a point, is located. Ho-Abdullah (2010: 92) specifies that *at* denotes “place or location as a point of orientation or reference point, disregarding the physical shape and dimension of the landmark.” For Tyler and Evans (2003: 178),

at “indicates co-location between a TR and a LM, in which the location is conceptualized as a point,” while for Herskovits ([1986] 2010: 128) an ideal meaning associated with the preposition *at* involves a point which coincides with another. Lindstromberg (2010: 174) observes that *at* is usually used to encode a relation between a TR and a LM which, viewed from afar, are conceptualized as dimensionless entities. In this view, such zoomed out perspective on the spatial scene usually involves LMs that are intersections and junctions of some kind.

In accordance with the views above, I assume that the central meaning of the preposition *at* encodes the coincidence of a TR and a LM which are conceptualized as points. The dimensionless nature of the entities involved in the relation encoded by *at* makes the English preposition unique as few other languages have equivalent prepositions.³ The preposition is, however, well established in the English language, as the earliest attested occurrence of the primary sense with the proper name *Wintanceastre* dates back to 755, and the records indicate that the sense was also used with common nouns as early as around 1000 (OED).

The following sentence exemplifies the most basic TR/LM relation encoded by the preposition *at*:

- (1) *Each shot can be at either the same target, or at a different target within two inches of the last one.*

In sentence (1) *at* encodes the relation between the TR, the shot, and the LM, the punctual target, such that the shot must coincide with the target, or be within two inches of the last target. The relation is diagrammed in Figure 1 below where the small, shaded circle represents the TR and the bigger circle represents a zero-dimensional LM, in other words, a point:

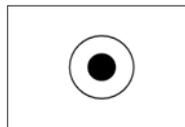


Figure 1. The primary sense of the preposition *at*

³ Kokorniak (2007) proposes four different Polish equivalents for the preposition *at*: *w*, *na*, *przy* and *u*.

The human ability to assume different perspectives on a given spatial scene allows for conceptualization of various bounded entities as points. Thus, the primary sense of *at* often involves LMs which are factually one-, two- or three-dimensional. In such cases, the spatial relation between the TR and LM involves the location of the TR in a point on a linear LM, on the surface of a planar LM and somewhere in the space occupied by a three-dimensional LM. This supports the observation that the preposition *at* is “indefinite with respect to the physical properties (e.g. surface, enclosing area) of the place of location” (Cuyckens 1985: 55) bearing in mind, however, that the entity functioning as the LM must be viewed as a point. The examples coming from different registers of English are plentiful:

- (2) *The signal box at Bradley Fold West, situated between Bolton and Bury, was a small but important unit...*
- (3) *The author said, at pp. 278–279.*
- (4) *At the latest hypermarket to open in the North-East you can buy 13,000 different food items from all over the world...*
- (5) *Consult the BNC Web Site at <http://www.natcorp.ox.ac.uk> for full licensing and distribution conditions.*

In sentences (2) through (4) the LMs are one-, two- and three-dimensional respectively. The signal box in (2) is located in a certain point on the street in Manchester called Bradley Fold West, which functions as a one-dimensional LM; specifically, the preposition *at* prompts for the conceptualization of the location of the signal box somewhere along Bradley Fold West. The location of the TR encoded by the preposition *at* can be then paraphrased as ‘close to, near’ making clear reference to the notion of proximity. Similarly, pages 278 through 279 in (3) constitute a two-dimensional LM with the written record of the author’s ideas. Even though the exact location of the sentences is not known, we understand that they are located somewhere on the surface of the pages. The hypermarket in (4) constitutes a three-dimensional LM where customers can buy a variety of foods. Customers doing shopping are located in the hypermarket, so in (4) the preposition *at* conveys the meaning of containment, although reference to the notion of proximity in this context is also possible.⁴ Sentence (5) is interesting as it involves the transfer of location in real space to virtual space. A certain

⁴ In a neutral context the sentence *He is at the supermarket* can be understood in two different ways: he may actually be inside or just outside the building.

web address constitutes a point in virtual space in the same way as the location at a certain physical address such as, for instance, *at 60 Upper Street*. The fact that the preposition *at* does not encode a precise location of the TR relative to the LM, but rather the location somewhere within the surface or space occupied by the LM, results from the human ability to conceptualize reality in different ways. The LMs encoded by the sentences discussed above may be one-, two- and three-dimensional; however, the punctual conceptualisation abstracts away from their specific geometric features. As Herskovits (1986 [2009]: 129) notices, “it [the preposition *at*] must refer to an entity that can be viewed as a point.” She further specifies rightly that an object functioning as a LM must be bounded or at least conceived as bounded. For instance, *at* is frequently used with LMs such as *street* or *road*, which requires a selection of a bounded part of a street or a road. In the similar vein, Lindstromberg (2010: 176) observes that this sense of *at* is used for location in broad scope views.

The primary sense of the preposition *at* is very productive with proper names of places, particularly villages, towns and cities. *OED* (1989) notes that the preposition *at* is “used of all towns except the capital of our own country, and that in which the speaker dwells (if of any size), also of small and distant islands or parts of the world.” The fact that the preposition *at* is used of all towns and cities except for the ones in which the speaker lives points to the importance of the vantage point in conceptualizations involving the preposition *at*. An area occupied by towns or cities can be perceived as a point only when the observer is located at a considerable distance. Evidently, it is not possible to perceive one’s own place of dwelling as one-dimensional being located in it. Herskovits ([1986] 2009: 132) stresses that the preposition *at*, involving a remote view, presupposes indirect, inferred and imprecise knowledge of located objects and contrasts, in this way, with more specific prepositions such as *in* and *on* as they imply a more close-up view. Additionally, she further explains, the preposition *at* is preferred when the speaker describes the spatial relation of the TR and LM relying on clues other than direct perception. In such a case, when the speaker does not have access to perceptual information about the spatial scene, the exact location of the TR, *in*, *on* or *next to* the LM, is not relevant.

Examples of the primary sense of *at* include:

- (6) *At York, the towers are later, but the facade fenestration is typical fourteenth century work.*

(7) *At Tehran, in November 1943, Roosevelt did his best (...).*

The preposition *at* is used with proper names of places regardless of the size of the place contrary to Herskovits' claim that the places must be small ([1986] 2009: 131). Thus, in the database collected, *at* is used with place names of villages with the population of 402 inhabitants, for example *at Sandringham*, with medium-sized towns and cities having the population of about thirty thousands, for instance *at Peterlee*, as well as with large and widely recognized urban areas with the population ranging from three hundred thousand to over a million, for instance *at Cardiff* or *at Kharkov*.⁵

1.1.1. The Performing-function Sense

The basic spatial relation encoded by the In-a-point Sense of the preposition *at* is frequently supplemented by a non-spatial meaning component signifying that an animate TR performs a function for which the LM is destined. Herskovits ([1986] 2009: 134) glosses this sense as *person at institution*, whereas Lindstromberg (2010: 177–178) stresses a practical connection a TR has with its LM pointing at the same time to the vagueness of their spatial relation. This sense of the preposition *at* involves a modification of the spatial relation encoded in the primary sense in that the TR does not need to be located in or near the LM. However, when an animate TR is located in the LM, he or she is there to fulfil a function associated with the LM. In this sense, the LM indicates a person's place of employment or formal affiliation with institutions such as schools, universities, corporations, churches, hospitals, prisons, etc. On the other hand, students, teachers, employees, the employed, congregations, priests, doctors, patients, etc. function as TRs affiliated with the institutions.

As the Performing Sense combines geometric and functional meaning components, it may be assumed that it originated in the English language a little later than purely spatial senses and, in fact, we find the first example of this use in English as early as 1000 in the expression (...) *æt ham wunode* meaning 'at home dwelt' (OED 1989).⁶ The sentences below illustrate the modern use of the sense:

⁵ Population numbers are quoted after <http://www.worldpopulationreview.com>.

⁶ Beowulf 3851.

- (8) *I recognized at school that I had the talent to become a politician.*
 (9) (...) *money to pay for a support staff of more than 50 people in the research program at the Department of Health.*

In (8) and (9) the school and the Department of Health function as three-dimensional LMs in the relation encoded by the preposition *at*. It is not of primary importance whether or not the TRs, *I* and *staff of more than 50 people*, are physically located in the LMs. Sentences (8) and (9) indicate that the TRs happen to be affiliated with the LMs over an extended period of time and that they perform their usual functions or do the assigned tasks. In (8) the speaker was at school to receive education and in (9) the support staff are employed at the Department of Health to do research.

The Performing-function Sense of the preposition *at* is graphically represented in Figure 2. The shaded circle in the diagram represents the TR and the dashed circle symbolizes its metaphorical rather than spatial relation to the LM.

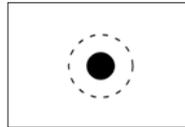


Figure 2. The Performing-function Sense of the preposition *at*

1.1.2. The Participate Sense

The spatial relation of the In-a-point Sense of the preposition *at* signifying location of an object in a point may be supplemented by the non-spatial meaning component of participation. This sense arises when the presence of the TR in a particular location results in participation in an event held at that venue. The Participate Sense of the preposition *at* encodes LMs such as meetings, conferences, Olympic Games, matches, parties, festivals, etc. As Ho-Abdullah (2010: 94) rightly notices, this sense may be treated as spatio-temporal because events usually take place both in spatial and temporal dimensions. I consider the Parti-

participate Sense an extension of the primary In-a-point-sense on the grounds of the primacy of the spatial domain in human experience.

First recorded around 1000 in the phrase *æt þære béor-þeƷe* ('they were at the beer') (OED 1989),⁷ the sense is well established in modern English. The following sentence illustrates a typical usage of *at* in the Participate Sense:

(10) (...) *of the Leader's inspiring speech at the last Party Congress.*

The relation between the TR and LM in (10) is transferred to the non-physical domain. The TR, the Leader's inspiring speech, was given during the last Party Congress functioning as the LM. Even though party congresses are usually held at special venues constituted by physical buildings, the particular spatial localization is not explicitly mentioned in the sentence. The preposition *at* encodes the act of participation in the event, rather than a physical location in a place. Other examples of the Participate Sense include phrases such as *at the meeting*, *at auction*, *at a dozen major fairs*, *at an otherwise peaceful demonstration*, *at a rally*, etc.

1.1.3. The Next-to Sense

The spatial relation encoded by the primary sense of the preposition *at* involving the location of the TR in a point may be altered to signify the location of the TR proximate to the LM. This geometric relation between the TR (the shaded circle) and LM (the square) characteristic of the Next-to Sense is represented in Figure 3:

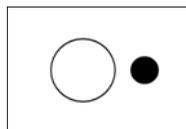


Figure 3. The Next-to Sense of the preposition *at*

⁷ Beowulf 1239.

First recorded in around 1000 in the phrase *hire æt heortan (...)* ('here at heart (...)') (OED 1989),⁸ the Next-to Sense of the preposition *at* is nowadays used in the following manner:

- (11) *Young Americans followed us and came to sit at our table after we had finished singing for the night.*
- (12) *At her elbow was a small round table bearing a tea-tray.*

Sentences (11) and (12) encode spatial scenes where the TRs, young Americans and a small round table, are proximate to the LMs, our table and her elbow respectively. The proximity of the localized and localizing entities may or may not suggest physical contact. For instance, in (11) young Americans may or may not touch a small round table. Similarly other phrases involving this sense of *at*, such as *at the door*, *at the gate*, *at the pier*, *at the rail*, *at her side*, etc., are indiscriminate in relation to contact. In the Next-to Sense the semantic component of contact is backgrounded and the proximity of two involved entities comes to the fore.

Herskovits ([1986] 2009: 135) terms this sense of the preposition *at* *person using artifact* and claims that a person is engaged in the normal use of the LM. For instance, the sentence *Maggie is at her desk* cannot be used in the situation when Maggie is on her knees cleaning the floor next to the desk. In fact, numerous sentences in the database collected encode this functional element of using the LM in accordance with its primary function.⁹ The expression *at the desk* indicates that a person is there to work and the expression *at the pier* indicates the action of mooring. However, as the present research demonstrates, a good number of expressions containing the preposition *at* in the Next-to Sense do not encode this functional element but they are rather purely spatial. Those expressions include *he appeared at her side*, *daylight at the edges of the curtain* or *at the door-post*.

⁸ Cædmon's Gen. (Gr.) 636.

⁹ The notion of functional element associated with geometric configuration of TRs and LMs is borrowed from Coventry and Garrod (2004).

1.1.3.1. The Contact Sense

The sense comes into being when the spatial relation encoded in the Next-to Sense of the preposition *at*, indicating proximity of the TR and LM, gives rise to the relation in which the TR and LM are in contact with one another. In accordance with the notion of pragmatic strengthening (Tyler and Evans 2003), a spatial relation involving two entities proximate to each other may result in the physical contact between them. The spatial configuration represented in Figure 4, where the two shaded spheres represent the TR and the LM in contact, may carry an additional semantic element of attack, or at least some physical force exerted by the TR on the LM.

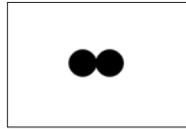


Figure 4. The Contact Sense of the preposition *at*

The Contact Sense was first recorded in English relatively late, that is in 1612 when it appeared in the sentence *Some of their parents...will bee at me...to helpe their reading of English* (OED 1989).¹⁰ At present, the sense often involves forceful contact between two people or between a person and an entity. Expressions such as *tear at the lacing*, *tug at the harness*, *grab at someone*, *struck back at him*, *scratched at my skin*, etc. suggest aggressive personal contact involving soliciting, pestering and assailing. The following sentences illustrate the modern usage of the sense:

(13) *She gripped with both hands at the iron railing.*

(14) *She lay on her bed and after a while heard Betty come in again, slapping at her cheeks and arms.*

The preposition *at* in (13) and (14) prompts for the conceptualization of contact between the TRs, both hands and Betty, and LMs, the iron railing and her cheeks. The two sentences also make reference to the semantic category of force

¹⁰ Brinsly Lud. Lit. iii. (1627) 21.

dynamics which deals with different types of interaction of entities with respect to force, such as exertion of force, resistance to force or blockage of expression of force (Talmy 2000: 409). The woman in (13) uses force to hold on to the iron railings for support, whereas Betty in (14) uses force to slap another woman on her cheeks and arms. The actions involving force are encoded by the verb forms, *gripped* and *slapping*, while the preposition *at* encodes the specific point at which the force is exerted.

1.1.4. The State Sense

The spatial relation encoded by the In-a-point Sense of the preposition *at* involving two entities coexisting close to one another may be transferred to a nonphysical domain of widely understood states that various TRs, frequently human beings, can experience. This non-spatial extension of the primary sense of *at* was first recorded around 1300 in the sentence *Than mowe ye beon at ese* ('than may you be at ease') (OED 1989).¹¹ Evans (2010) distinguishes three different lexical concepts associated with the State Sense of the preposition *at*, that is [STATE OF EXISTENCE], for instance *at rest*, *at peace*, [STATE OF MUTUAL RELATIONS] in *at war*, *at dagger's drawn* and [STATES OF EXTERNAL CIRCUMSTANCES] in *at risk*, *at an advantage*. The reason for this distinction on the level of individual senses of the prepositional category of *at*, however, seems unjustified when one takes into consideration the methodology for establishing distinct senses. There are two factors motivating the differentiation of a sense: a different TR/LM configuration or a new non-spatial meaning component (Tyler and Evans 2003). The three lexical concepts may be treated as distinct subsenses of the State Sense of the preposition *at*, or as micro-senses, as explained in Cruse (2006 [2000]), rather than as distinct senses.

The following sentences illustrate the State Sense of the preposition *at*:

- (15) *The crew say lives are at risk until repairs can be completed.*
 (16) *They change in the same society over time; for example, when one society is at war with another.*

¹¹ Kyng Alisaunder 3108.

In (15) and (16) the TRs, lives and society, are in a particular non-spatial relation with the LMs, risk and war. The relation encoded by the preposition *at* is derived from its primary sense when the TR is located in a certain point. The State Sense resembles the sense of the preposition *in* encoding an emotional state in sentences such as *He is in love*. The two senses, however, must be distinguished from one another as they are traced back to different spatial configurations of the TR and LM. The Emotional State Sense of the preposition *in* can be traced back to the primary sense encoding containment and, thus, it signifies that the TR is contained by a particular emotional state. As the State Sense of the preposition *at* can be traced back to the In-a-point Sense, the state is conceptualized as a point rather than a container. Expressions containing the preposition *at* such as *river at low tide*, *at blissful rest*, *at a premium* constitute other examples of this sense.

1.1.5. The temporal sense of the preposition *at*—The Point-in-time Sense

The preposition *at* acquired the temporal sense around 1230 when it was first recorded in *At al þe opre tiden* ('at all the other occasions') (OED 1989).¹² Via the process of metaphorical transfer, the fundamental relation of the preposition *at* involving location of the TR in a point in space can be transferred to the temporal domain. The preposition *at* in its temporal sense can relate to punctual presence in time, that is, to a moment or an event. The semantic structure of the Point-in-time Sense is slightly indeterminate, thereby reflecting the characteristics of the spatial relation encoded by the primary sense where the TR can be located either precisely in a point or somewhere on the surface or in space occupied by the LM.

The following sentences illustrate the Point-in-time Sense of the preposition *at*:

- (17) *It's live at eight o'clock in the morning.*
 (18) *And then they'd a fancy dress at Christmas.*

The expressions *at eight o'clock* and *at Christmas* locate events in time. The preposition *at* in (17) indicates that the event takes place in a certain point in time, that is, at eight o'clock, while in (18) it signifies that the action takes place

¹² Ancr. R. 46.

during a holiday as the celebration of Christmas usually extends over a longer period. However, even though ‘during’ may be a working paraphrase of *at* in sentence (18), the preposition does not encode duration as such, but rather a point in time due to the assumed distant perspective of the scene. The functional element of indeterminacy associated with the primary sense of the preposition *at* contributes the meaning of approximation to the temporal sense as well. It is not important when exactly the fancy dress was worn, but rather, it is important that it took place sometime during the holiday.

The Point-in-time Sense of the preposition *at* is graphically represented in Figure 5 where the smaller circle represents the occurrence of an action or event and the larger circle represents the specific time of that occurrence.

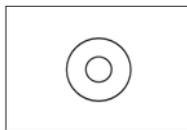


Figure 5. The Temporal Sense of the preposition *at*

1.1.5.1. The Stage Sense

The Point-in-time Sense of the preposition *at* may, in certain circumstances, be extended to represent a stage of a process. It originated in English relatively early as its first record *þe hine æt frumsceafte forð onsendon* (‘who in former time forth had sent him’) comes from around the 1000 (OED 1989).¹³ The Stage Sense, relatively productive in the database, is found in expressions such as *at present*, *at the beginning of*, *at the end of*, *at first*, etc. The following sentence is illustrative of the sense:

(19) *Presenting the parents with an information pack at the conclusion of the meeting is always appreciated.*

In (19), an information pack is distributed among parents during the final part of the meeting. The temporal coincidence between the TR, presenting the

¹³ Beowulf 89.

parents with an information pack, and the LM, the conclusion of the meeting, is encoded by the preposition *at*. The relation is graphically represented in Figure 6.

In Figure 6, the horizontal arrow represents duration of an action or event, the dots on the arrow represent its subsequent stages and a large shaded circle symbolizes the stage at which a given event referred to in the sentence takes place.

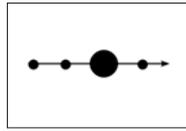


Figure 6. The Stage Sense of the preposition *at*

1.1.5.2. The Cause Sense

Dating back to 1574, when it was first recorded in the phrase *They beecaryed aboute like babes at euery blast of doctrine* (OED 1989),¹⁴ the Cause Sense of the preposition *at* encodes a temporal relation between two actions which are proximate in time. Specifically speaking, the temporal relation of proximity, or even coincidence, is enriched by a logical relation of cause and effect, as one action or event precedes and initiates another. This sense is illustrated with the following sentence:

(20) *He turned his head at a slight tap on the door.*

In (20) the preposition *at* relates two actions: the action encoded by the linguistic expression *He turned his head* plays the role of the TR and the action encoded by the expression *a slight tap on the door* plays the role of the LM. The two actions happen almost at the same time with a slight precedence of the second action encoded with the noun *tap*. It, thus, may be assumed that the tap on the door provoked the turn of the head.

¹⁴ Tr. Marlorats Apocalips 33.

1.2. A point on a horizontal or vertical axis

The fundamental relation characteristic of the In-a-point Sense of the preposition *at*, when the TR is located in a punctual LM, can be extended to signify location in a point on a horizontal or vertical axis. The punctual location on both axes further gives rise to extended clusters of senses.

1.2.1. Location on a horizontal axis – The Physical-path-endpoint-highlighted Sense

A few sentences in the database use the preposition *at* to encode the endpoint on the physical horizontal path. The Physical-path-endpoint-highlighted Sense, which was first recorded around 1000 in the sentence *Ge ne comon æt me* ('you don't come at me') (OED 1989),¹⁵ involves the TR which travels a certain distance towards the LM constituting its goal or destination. This sense of *at* encodes the TR oriented towards the LM or, at least, traveling in the LM's direction. The following sentence illustrates the sense:

(21) *He pulled off the hat and thrust it back at her.*

In sentence (21), the TR, the hat, travels a certain distance and in the end it reaches its final goal, the LM, her. The sentence prompts for the conceptualization of three elements of the physical path, that is, its starting point, where the man is located, the middle section, that is, the trajectory that the hat travels, and the goal, where the woman is. The preposition *at*, however, encodes only the final point on the physical path. The Physical-path-endpoint-highlighted Sense of the preposition *at* is not very productive probably because the physical path is usually encoded by the preposition *to*.¹⁶

Snider (2010) differentiates two types of possible goals encoded by the prepositions *at* and *to*: participatory and non-participatory. The preposition *to* implies that the LM is willing to participate in the action encoded by the verb. For instance, *He pulled off the hat and thrust it back to her* means that the woman is a willing recipient of the hat. On the contrary, the preposition *at* encodes a non-

¹⁵ Ags. Gosp. Matt. xxv. 43.

¹⁶ More research would need to be conducted to verify this statement.

participatory role of the LM as in (21). Thrusting the hat at the woman seems uncooperative and unfriendly in the least; in fact, it may be treated as a violent behaviour. Thus, the preposition *at* in the Physical-path-endpoint-highlighted Sense may encode a functional element of aggression.

Figure 7 represents the TR/LM configuration characteristic of the Physical-path-endpoint-highlighted Sense of the preposition *at*. The small circle represents the initial point of the path, the horizontal line represents the path the TR travels and the large circle represents the goal it reaches. The arrow placed next to the large circle at the end of the trajectory indicates that the TR achieved the goal.

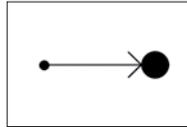


Figure 7. The Physical-path-endpoint-highlighted Sense of the preposition *at*

1.2.1.1. The Fictive-path-endpoint-highlighted Sense of the preposition *at*

The Fictive-path-endpoint-highlighted Sense of the preposition *at* is the most productive sense out of all the senses encoding location on a horizontal axis. It was first registered around 1400 in *The qwene...at hym faste loghe*¹⁷ and, at that time, it was used of bodily actions and gestures with verbs such as *point, look, stare, swear, etc.*, thereby constituting an intermediate stage between a fully physical and mental activities (OED 1989). Around 1656 *at* started to refer to mental aims, allusion, hint or conjecture in phrases such as *preach at, meant at, speak at, etc.*

The sense involves the TR located at a certain distance from the LM and oriented towards it. The LM constitutes a goal, destination or recipient of the TR's attention. The notion of the fictive path, also called an access path, was first defined by Talmy (2000: 136) who described it in the following way:

¹⁷ Sir Isumb. 625.

[A fictive] path is a depiction of a stationary object's location in terms of a path that some other entity might follow to the point of encounter with the object. What is fictive here is the representation of the objects as stationary, without any entity traversing the depicted path.

The identification of a fictive path in a spatial scene necessarily involves the presence of the observer. Thus, the Fictive-path-endpoint-highlighted Sense of the preposition *at* involves a fictive path between the TR oriented towards the LM, the LM which constitutes the goal of the TR's attention and the observer looking at the spatial configuration from the default off-stage vantage point.

The sentences below contain the Fictive-path-endpoint-highlighted Sense of the preposition *at*:

(22) *David glanced at her.*

(23) *She flashed her teeth at me.*

The TRs, David and a woman, are located at a certain distance from the LMs, a woman and the speaker. Specifically, in (22) David directed his eyes towards a woman and in (23), a woman smiled in the speaker's direction. The TRs are oriented towards the LMs who are recipients of their attention. The observer located off-stage registers the physical configuration between the TRs and the LMs being able, at the same time, to imagine the fictive path connecting them.

The Fictive-path-endpoint-highlighted Sense of the preposition *at* is usually used with verbs expressing the act of looking such as *glance*, *look*, *peer*, *stare*, however, the uses with other verbs, such as *smile*, *shout*, *hint* or *grin*, are not uncommon. The Fictive-path-endpoint-highlighted Sense of the preposition *at* makes reference to the nongeometric cognitive/affective category [ATTENTION] identified by Talmy (2005: 219).

The spatial relation characteristic of the the Fictive-path-endpoint-highlighted Sense is presented in the Figure 8:

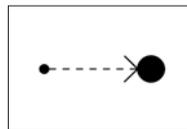


Figure 8. The Fictive-path-endpoint-highlighted Sense of the preposition *at*

In figure 8 the small circle represents the initial point of the fictive path where the TR is located, the dashed horizontal line represents the fictive path connecting the TR with the LM, while the large circle represents the location of the LM and, at the same time, the goal of the TR's attention is symbolized by right pointing the arrow.

1.2.1.1.1. The Object-of-emotion Sense

This sense of the preposition *at*, first recorded in 1366 in the phrase *Thei maken ioye and gladnesse at...*,¹⁸ builds on the TR/LM configuration encoded by the Fictive-path-endpoint-highlighted Sense. The Object-of-emotion Sense of *at* involves the LM as the subject of the TR's emotions. It prompts for the conceptualization of the situation where the TR does not need to be physically oriented towards the LM or even physically present where the LM is as it is the case with the Fictive-path-endpoint-highlighted Sense. The TR merely needs to react emotionally to the LM conceptualized not as a goal or recipient of the TR's attention but as the subject of the TR's emotion.

The following sentence illustrates the sense:

(24) *I was also astounded at the amount of mail that arrived.*

The preposition *at* in (24) mediates a relation between the emotional state expressed by the lexical item *astounded* and the object of that emotion, the mail that arrived. The person involved in the mental activity of thinking about the mail reacts to its amount in an emotional way and directs that emotion towards the LM. Other expressions containing the Object-of-emotion Sense of the preposition *at* include: *resentment at*, *appal at*, *angry at*, *joy at*, *marvel at*, etc.

The relation between the TR and the LM characteristic of this sense is diagrammed in Figure 9. The small circle symbolizes the TR, the large circle represents the LM and the dashed line represents the emotion relating the TR and the LM. In this modification of figure 8 the arrow is missing to show the irrelevance of the orientation of the TR toward the LM.

¹⁸ Maundev. xxviii. 287.

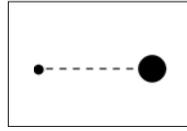


Figure 9. The Object-of-emotion Sense of the preposition *at*

1.2.2. Location on a vertical axis

The preposition *at* can encode the relation between the TR and the LM involving the top or the bottom of the vertical axis. The vertical axis is one of the two orientational axes, horizontal and vertical, in the human visual field, also referred to as the up and down axes, calculated in relation to the surface of the earth. Langacker (1987: 123) discusses vertical-horizontal axes in relation to the notion of orientation which, together with the vantage point, is a component of a more general notion of viewpoint. The vertical axis of the human visual field usually overlaps with the vertical axis of an object functioning as the LM in a spatial relation. Five different senses of the preposition *at*, that is, the Vertical-axis-bottom-point-highlighted Sense, the Vertical-axis-top-point-highlighted Sense, the Scale Sense, the Estimated Sense and the Level Sense encode the TR located along the vertical axis.

1.2.2.1. The Vertical-axis-bottom-point-highlighted Sense of the preposition *at*

The Vertical-axis-bottom-point-highlighted Sense of the preposition *at* encodes the localization of the TR in the lowest point of the vertical axis of the LM. This sense of the preposition *at* is used in the following way:

(25) (...) *when they don't find the body at the bottom of the shaft...*

(26) (...) *Steve suggested drily, bending down to mop up the water at her feet.*

The spatial scenes in (25) and (26) involve the TRs, the body and water, located near the lowest part of the LMs, the shaft and the woman's feet. The characteristic feature of the LMs is their clear vertical orientation with a symme-

trical top and bottom in the case of the shaft and unsymmetrical ones in the case of the woman. The TRs are conceptualized as points located at the bottom of the vertical axis of the LMs. This spatial relation is drawn in Figure 10, where the vertical line represents the vertical axis of the LM and the shaded circle indicates the location at the bottom of that axis.

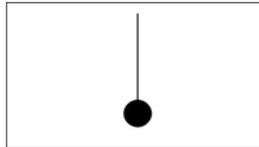


Figure 10. The Vertical-axis-bottom-point-highlighted Sense of the preposition *at*

1.2.2.2. The Vertical-axis-top-point-highlighted Sense of the preposition *at*

The spatial relation encoded in the Vertical-axis-bottom-point-highlighted Sense of the preposition *at* finds its symmetrical reflection in the Vertical-axis-top-point-highlighted Sense. This sense of the preposition *at* encodes the relation between the TR and LM such that the TR is located at the top of the LM. The following sentence illustrates the sense:

(27) *She penciled 'Plague in the Fourteenth Century' at the top of the page.*¹⁹

In (27) the TR, the title of the book, was written down on the top part of the LM, the page. The vertical orientation of the LM, with a top and a bottom, allows for the localization of the TR at the LM's top. This sense of the preposition *at* is also used in sentences which do not prompt for strictly spatial conceptualizations. For example, in

(28) *(...) planted a small but fine orchard, now at the height of its production*

¹⁹ On the top of the page is also possible. Google search yielded 102 million responses for *at the top of the page* and around 90 million responses for *on the top of the page*.

the preposition *at* figuratively locates the TR, the orchard, in a topmost point of its productive powers. Although the TR-LM relation is not spatial, the preposition *at* does encode the presence of the TR in the highest point of the LM.

The configuration between the TR and LM is depicted in Figure 11, where the vertical line represents the vertical axis of the LM and the shaded circle represents the location of the TR in the top point of the axis.

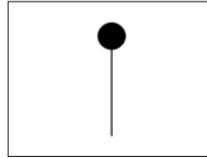


Figure 11. The Vertical-axis-top-point-highlighted Sense of the preposition *at*

1.2.2.3. The Scale Sense of the preposition *at*

The notion of pragmatic strengthening may lead to the reinterpretation of the vertical orientational axis as a scale with numerical values. Talmy (2000: 196–203) discusses the concept of a scale conceptualized by various linguistic forms under the notion of asymmetry of the LM and, in particular, under the notion of asymmetry of a gradient or scale. The earliest occurrence of this sense was recorded around 1200 when the preposition referred to a rate or degree. The phrase *At fourteen...* constitutes the first record of the sense where the preposition *at* is used with age (OED 1989).²⁰

Sentence (29) conceptualizes the LM as a vertical scale:

(29) *These experiments had to be performed at 37 degrees Celsius because at 20 degrees Celsius cholera toxin did not stimulate cyclic AMP content.*

The preposition *at* in (29) prompts for the conceptualization of certain temperature values as points on a thermometer. The interpretation of (29) indicates that the temperature during the performance of the experiment needs to have

²⁰ Cov. Myst. 383.

a set value of thirty-seven degrees Celsius and the preposition *at* locates that particular value on a scale.

The Scale Sense of the preposition *at* may be used to encode various numerical scales either measured with measuring equipment or simply implied. Let us consider the following examples:

(30) *The CompuAdd 425 runs at a fast 25 MHz.*

(31) *His amateur career started at the age of 12 with a father's encouragement and a set of women's irons.*

Sentence (30) makes reference to the unit of frequency used in science, *hertz*, defined as one cycle per second, in particular to the megahertz with the value of 10Hz.²¹ The interpretation of the sentence suggests that the equipment *The CompuAdd* operates when the value on the scale equals 25MHz. Sentence (31) conceptualizes a person's age as a point on a scale with numerical values making reference to the human count of the passing time. The understanding of the sentence suggests that the TR, the start of the career, coincides with the time when the person reached the age of twelve, the LM.

A large number of sentences in the database collected for the purpose of the present research make reference to the speed of a moving object or rate of a process. Such usage may be treated as constituting a separate nodule of the Scale Sense. Cruse (2006 [2000]: 30) regards word meaning as "infinitely variable and context sensitive" with regions of "higher semantic density" or "lumps." Nodules of a sense are relatively autonomous units which can play an independent role in semantic processes. The nodule of the Scale Sense referring to traveling at a certain speed is illustrated below:

(32) *Think of jumping off a platform three miles up in the sky, dropping to earth at 120 mph and all the way down, performing the spectacular.*

The skydiver in (32) is free-falling from the platform at the speed of 120 mph. The preposition *at* locates the exact value of traveling speed at a particular point of the scale.

Figure 12 represents The Scale Sense of the preposition *at*. The vertical line with the upward pointing arrow represents the asymmetric LM, the scale,

²¹ "hertz", in *Encyclopaedia Britannica*. (www.britannica.com/EBchecked/topic/263882/hertz) (date of access: 1 March 2015).

horizontal dashes represent subsequent numerical values on the scale, while the shaded circle shows that the TR has achieved a particular value on that scale.

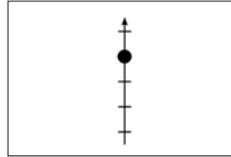


Figure 12. The Scale Sense of the preposition *at*

1.2.2.3.1. The Estimated Sense

The earliest attested use of this sense, *He set his stroke at nought*, dates back to around 1325 (OED 1989).²² Although the Estimated Sense of the preposition *at* rests on the asymmetry of the LM, a certain modification has been introduced in comparison with the Scale Sense. The notion of the LM functioning as an asymmetric scale has been backgrounded and the LM is represented only by an individual point on that scale. It seems that the vantage point of looking at the scene has changed – the observer is now located closer and is not able to see the whole scale but merely its fraction. Let us consider the following example:

(33) *16,000 square meters of agricultural land have been purchased at a cost of 3,000,000 ptas (c. £15,000).*

Sentence (33) encodes the relation between the TR, the purchase of the land, and the LM, the price of three million pesetas. Although prices may be treated in terms of a scale ranging from zero to an unspecified number, the conceptualization in (33) backgrounds the whole scale foregrounding only the specific value.

This productive sense is most commonly used in the database collected with specific price values in the way illustrated in (33). It is also found, however, in expressions such as *at a low/high price*, *at a certain rate*, *at no extra cost*, etc. The Estimated Sense can be visualized as in Figure 13.

²² Coer de L. 362.

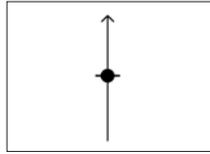


Figure 13. The Estimated Sense of the preposition *at*

In Figure 13 the upward pointing arrow represents the magnified scale on which only one value is marked with the horizontal dash. The shaded circle indicates the TR which is set at this particular value.

1.2.2.3.2. The Competence Sense

The Scale Sense of the preposition *at* may be reinterpreted to encode the continuum of human competence where the concept of the scale is maintained, however without the numerical values. On one extreme of the human competence scale we find the value ‘poor’, on another ‘excellent.’ The sense was first recorded around 1000 in the sentence *Hord-weorunge hnahran rince sæm-ran æt sæcce* meaning ‘a humbler man, lesser at fighting’ (OED 1989)²³ and it is nowadays found in multiple phrases expressing the level of competence, such as *excel at*, *good at* or *ineffective at*. Sentence (34) illustrates the sense:

(34) *All we can say is that girls do as well as boys at the mathematical skills which primary teachers value.*

The preposition *at* in (34) can be readily paraphrased as ‘doing’ or ‘engaged in an activity’ and it encodes the relation between the TR, how good boys and girls are, and the LM, the mathematical skills. Used with the lexical unit *well* introducing the element of evaluation or competence, the preposition prompts for the conceptualization of boys and girls being evaluated equally well doing maths.

²³ Beowulf 1910.

1.2.2.3.3. The Level Sense of the preposition *at*

The relation involving the TR located in a certain point of the vertical scale encoded by the Scale Sense may be modified to represent the Level Sense. In this sense, the vertical division of the scale is reinterpreted to represent different levels of a hierarchical organization with the TR functioning on one of these levels. The following sentence illustrates this sense:

(35) *His continued survival as Chief Minister during March and April reflected his father's influence at the central level.*

In sentence (35) the preposition *at* encodes the relation between the TR, the father's influence, and the LM, the central level of the government.²⁴ The interpretation suggests that the father's influence extended over this level and that he had a decisive power there. The database collected also provides other expressions containing this sense of *at*, such as *at the (very) top*, *at summit level*, *at workplace level*, *at a national level*, etc.

Figure 14 graphically represents the Level Sense of the preposition *at*. The square symbolizes the LM divided into levels (horizontal lines) and the bold dot symbolizes the TR functioning at a certain level of the LM.

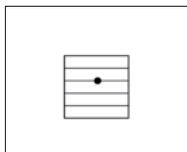


Figure 14. The Level Sense of the preposition *at*

1.2.3. The miscellaneous group of idiomatic expressions

This group is constituted by various idiomatic expressions containing the preposition *at*, such as *at least*, *at all*, *at last*, *at once*, *at times*, *at law*, *at somebody's command*, *at somebody's disposal*, etc. Some idiomatic expressions are

²⁴ Google search returned 355 thousand hits for *at the central level* and 504 thousand for *on the central level*. Expressions *at the level* and *on the level* demonstrate a more balanced frequency with 163 million hits for *at the level* and 160 million hits for *on the level*.

easier to analyze as they clearly refer to physical arrangement between the TR and the LM. The expression *at somebody's fingertips* meaning 'available', for instance, makes reference to the TR located close to somebody's fingertips which makes it easily accessible. However, a good number of idiomatic expressions, such as *at all* or *at least* do not yield readily to the analysis. Even though idiomatic expressions are relatively common in the database, occurring 264 times per 2168 expressions, they have been excluded from the present analysis.

Conclusion

Cognitive research into the semantic structure of prepositional categories offers an important insight into how human beings process spatial information and express it in language. Linguists such as Lakoff (1987), Brugman (1988), Herskovits ([1986] 2009), Talmy (2000) and Tyler and Evans (2003) suggest that spatial prepositions may be viewed as coherent cognitive categories centered around a prototype. The preposition *at* discussed above constitutes a good example of such a category. Its semantic network represented in Figure 15 builds on the primary sense of the preposition, the In-a-point Sense (the shaded circle), functioning as the prototype of the category. The network comprises two unshaded circles symbolizing two clusters of senses, the Vertical axis and the Horizontal axis clusters. Individual senses (lightly shaded circles) encode different meaning components, either spatial or metaphorical, and extend from the prototype at various distances from it. All the senses in the network are motivated by alternations in the relations between the TR and LM encoded by senses closer to the center of the network.

The word *at* is a member of the prepositional category only and it does not belong to other morphological categories, such as nouns, verbs, adjectives and adverbs, which is the case with, for example, the preposition *over* and *near*. The word *over* can function as a preposition, adverb, adverbial particle, prefix, as well as a noun, verb and an adjective (Brenda 2014), whereas the word *at* can be a preposition encoding, at the same time, a rich semantic content making reference to the concepts of spatial and temporal coincidence and proximity, contact, emotional states, cause and scale among others.

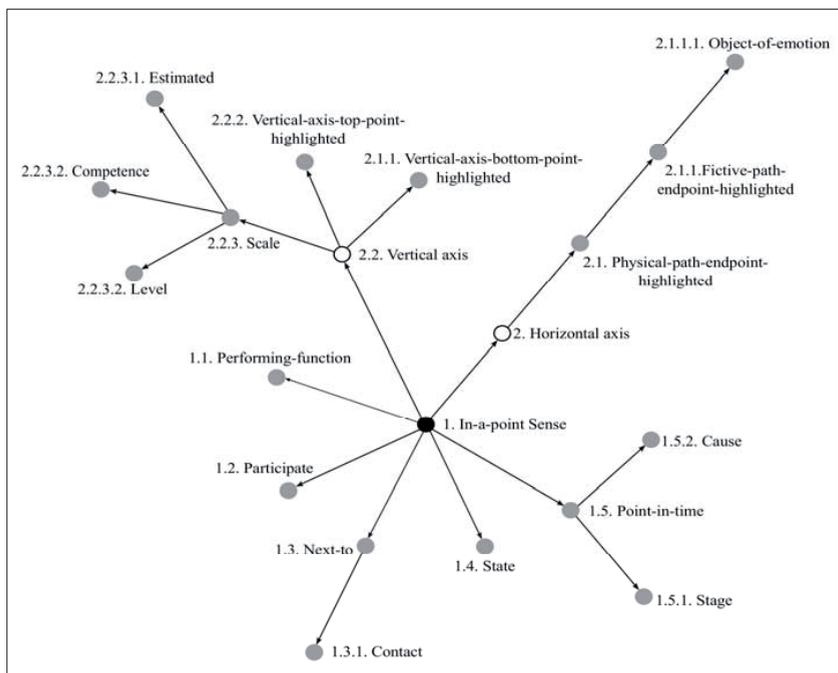


Figure 15. The semantic network for the preposition *at*

The present research reveals the frequency of occurrence exhibited by different senses of the preposition *at* in the database containing 2168 instances of the preposition. The most numerous senses are the primary In-a-point Sense with 484 occurrences in the database, the Fictive-path-endpoint-highlighted Sense with 341 and the Point-in-time Sense with 273. A miscellaneous group of idiomatic expressions is also relatively large, with 264 instances. The Physical-path-endpoint-highlighted Sense and the Vertical-axis-top-point-highlighted Sense are represented by fewest number of phrases, 6 and 9 occurrences respectively. Table 1 lists the numerical data relating to all the senses of the preposition *at* in the database.

Table 1. The frequency of occurrence for the preposition *at*

Sense	number of occurrences per 2168	percentage
The In-a-point Sense	484	22,32
The Performing-function Sense	130	5,99
The Participate Sense	84	3,87
The Next to	49	2,26
The Contact Sense	31	1,42
The State Sense	14	0,64
The Point-in-time Sense	274	12,63
The Stage Sense	140	6,45
The Cause Sense	12	0,55
The Physical-path-endpoint-highlighted Sense	6	0,27
The Fictive-path-endpoint-highlighted Sense	341	15,72
The Object-of-emotion Sense	38	1,75
The Vertical-axis-bottom-point-highlighted Sense	16	0,73
The Vertical-axis-top-point-highlighted Sense	9	0,41
The Scale Sense	111	5,11
The Estimated Sense	95	4,38
The Competence Sense	15	0,69
The Level Sense	55	2,53
Idiomatic expressions	264	12,17
Total:	2168	100,00

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Abstract

The cognitive semantic research into spatial prepositions has focused on their polysemous nature and the coherence of cognitive categories they constitute. At the same time, the question of their categorical status has not yet been resolved causing disagreement about their membership in the content or function word group. The present corpus-based study investigates the semantic structure of the English spatial preposition *at* regarded as a typically English preposition not present in other languages. The investigation attempts to establish the primary sense of the preposition and to find motivating principles behind the individual senses. For the purpose of the study, 2168 linguistic items extracted from the British National Corpus and containing the preposition were analyzed yielding 18 distinct senses and one group of miscellaneous expressions. The research suggests that the semantic structure of the preposition *at* is best seen as a semantic network with the primary sense functioning as a prototype and other related senses as more peripheral extensions. The research reveals that the polysemy of the preposition *at*

is relatively extensive and that the word *at* does not belong to morphological categories other than the prepositional one.

Keywords: cognitive linguistics, semantics, spatial prepositions, English preposition *at*

SEMANTYKA ANGIELSKIEGO PRZYIMKA PRZESTRZENNEGO *AT*

Streszczenie

Badania językowe prowadzone w ramach semantyki kognitywnej koncentrują się na polisemicznej naturze przyimków przestrzennych i spójności ich kategorii semantycznych. Zagadnienie przynależności przyimków do grupy słów leksykalnych lub gramatycznych nie zostało jeszcze jednoznacznie rozstrzygnięte. Prezentowane badanie korpusowe dotyczy struktury semantycznej angielskiego przyimka przestrzennego *at*, uważanego za typowo angielski przyimek nieobecny w innych językach. Celem badania jest ustalenie znaczenia podstawowego przyimka oraz zaproponowanie zasad motywujących powstanie poszczególnych znaczeń. Do tego celu wykorzystano 2168 wyrażений językowych zawierających przyimek *at* wybranych z Brytyjskiego Korpusu Narodowego (British National Corpus). Po przeanalizowaniu materiału językowego wyodrębniono 18 grup znaczeniowych i jedną grupę wyrażений idiomatycznych. Badanie sugeruje, że struktura semantyczna przyimka *at* stanowi sieć semantyczną, w której znaczenie podstawowe określa obecność przedmiotu lokalizowanego w punktowym obiekcie lokalizującym, i z którego to znaczenia wywodzą się inne znaczenia peryferyjne. Polisemia przyimka *at* jest znaczna, jednak kategoria przyimka nie wykazuje nakładania się na inne kategorie morfologiczne.

Słowa kluczowe: językoznawstwo kognitywne, semantyka, przyimki przestrzenne, angielski przyimek *at*

