A corpus-based investigation of Malay antonymous prepositions *bawah*:*atas* and *dalam*:*luar*

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The aims of this study are twofold. First, we compare the free form and the combination [*di* + relational noun] (e.g. *bawah* versus *di bawah*). Second, we provide a quantitative comparison between pairs of antonymous free forms (e.g. *bawah* versus *atas*) and between the *di* counterparts (e.g. *di bawah* versus *di atas*). The analysis was carried out by comparing the number of corpus instances and dictionary senses, as well as the collocates in the left-one (L1) and right-one (R1) positions. For the contrast with and without *di*, it was found that all free forms were more frequent except for *bawah*. Regarding the contrast between pairs, *bawah* (but not *atas*) clearly represented the second part of the conceptual metaphor HAVING CONTROL OR FORCE IS UP; BEING SUBJECT TO CONTROL OR FORCE IS DOWN, while *dalam* and *luar* behaved dissimilarly, without many opposite meanings in use.

1. Introduction[1]

In semantics, antonyms do not receive as much attention as synonyms do. The discussion of antonyms often focuses on the distinction of their types, such as gradable (*hot:cold*) and non-gradable (*female:male*), as well as many other sub-types, some of which have been extensively discussed in Cruse (1976) and Lyons (1977). Cruse (1976:283), for instance, discussed antonyms based on the "committedness" of the term (e.g. *John is twice as bad as Bill* is committed but *This one is twice as heavy as that one* is not). Committed antonym pairs such as *good*:*bad* and *clever*:*stupid* have "an evaluative feature as part of their meaning" (p. 285), while non-committed pairs such as *long*:*short* and *heavy*:*light* both "have an evaluatively neutral, objectively descriptive sense as one of their principal meanings." (p. 284). In a pair of antonyms, sometimes one of the forms is more marked than the other. For instance, something *good* is not given as much attention as the *bad* occurrences in many news reports. In other words, the two forms of an antonym pair do not always receive equivalent attention in use. Similarly, *long* and *short* display different levels of markedness or are sometimes asymmetrical in meaning.

A traditional logical distinction of antonyms is often based on contradictories (*female:male*) and contraries (*hot:cold*). Contradictories are mutually exclusive (e.g. if not *female*, then *male*) but contraries are more often gradable (*hot-warm-cool-cold*). Murphy (2010:120) stated that contradictories (which are also called complementaries) "are those for which the assertion of one entails the negation of the other and vice versa." Some antonyms may seem binary, such as *honest:dishonest*, but there exists a "middle ground" between the two ends of the dichotomy (e.g. *neither honest nor dishonest*) (ibid.,

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p. 120). Therefore, apart from the clearly dichotomous antonyms (such as *on* and *off*), some antonyms could be argued to possess a gradable scale.

Fellbaum (1995) and Jones (2002) both found that antonyms could appear in coordinated constructions such as *X and Y* (*big and small*) and *X or Y* (*living or dead*). Murphy (2003), on the other hand, provided a "relational" account called Relation by Contrast (RC) to address most semantic relations: "It holds that items are related if they are minimally different in contextually appropriate ways." (ibid., p. 26). Murphy (2003:176) also stated that "canonical antonym pairings [(e.g. *black:white*, *tall:short*, *good:bad*)] not only co-occur, but must be minimally different and maximally similar in ways relevant to the contexts in which they co-occur."[2] He postulated that antonymy "requires similarity of meaning," a similar point emphasized in Lyons (1977:286): "Oppositions are drawn along some dimension of similarity." For example, the antonyms *up* and *down* describe "directions in the same dimension" (Murphy 2003:43), or are "based upon an opposition drawn within motion away from *P*," a given location (Lyons 1977:281). In other words, antonyms do not necessarily represent two opposites that are unrelated. In fact, they share "the same contextually relevant properties" (Murphy 2003:43) except for one (which might be "direction" in the case of moving away from *P* for *up* and *down*), which makes them a contrasting pair.

In contrast to the traditional distinction, the "similarity" view provides a novel way of looking at antonymy. For instance, the construction *big and small* refers not to one single object but a group of items and their range from big to small. Examples such as these have been used as evidence to show how antonyms are not real opposites, as they can co-occur to refer to the same object(s). Jones (2002:1), in his book *Antonymy*, mentions the following:

> Often, 'antonymy' is thought of as being the correct linguistic term for 'opposites', as 'parentheses' is simply a technical name for 'brackets'. However this is not entirely true.

Similarly, it is possible to predict that prepositions such as *above*:*below*, *up*:*down*, *in*:*out*, etc. do not always exhibit opposite meanings. This point has been noted by Tyler & Evans (2003:141) and Lindstromberg (2010:193). As mentioned, some complementaries such as *alive*:*dead* and *honest*:*dishonest* can also be made gradable, as in *more dead than alive* (cf. Palmer 1981) (see also Murphy 2003:195). Ogden (1967) noted that some directional antonyms, like *inside*:*outside*, behave more as gradable antonyms than as real opposites. Lyons (1977:278) also posited that "temporal and spatial relations ('above':'below', 'in front of':'behind', 'before':'after', etc.)" are converses, i.e. relations that show the reversal of the other and that express a relation like that of *husband:wife*, where "X is the husband of Y" is the converse of "X is the wife of Y", thus having reversed roles.

Jones (2002) held that antonymy is best defined based on corpus data. He defined antonyms as "pairs of words which contrast along a given semantic scale and frequently function in a coordinated and ancillary fashion such that they become lexically enshrined as 'opposites'" (p. 179). Among the types of antonyms he observed include those in (1) below:

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[2] Non-canonical antonym pairings are, for example, *cruel/kind* (cf. Murphy 2003:31).

(1)   a.   *While pensions will not be abolished, the government will encourage everyone, **rich** and **poor**, to rely for their retirement mainly on money they invest in private pension funds.* (p. 61) (coordinated antonymy)

        b.   *I **love** <u>to cook</u> but I **hate** <u>doing the dishes</u>.* (p. 45) (ancillary antonymy)

The antonyms *rich* and *poor* in (1a) are coordinated in the sense that they "signal inclusiveness or exhaustiveness of scale" (ibid., p. 61); a similar reading is given to *big* and *small* in the earlier discussion. Jones assumed that the opposite meanings do not always occur in the antonyms themselves but may occur in the pairs of items surrounding the antonyms (*to cook* versus *doing the dishes*), as in the case of (1b).

While works in the past that discuss English antonyms are many, literature discussing the Malay antonymous prepositions is rare. Ho-Abdullah (2006) is one work that discusses *atas* 'up' and *bawah* 'down' from a cognitive perspective, while many others (Chung 2013; Djenar 2007; Ho-Abdullah 2005) discuss only synonymous prepositions. In this study, we used a corpus linguistic perspective to examine two pairs of Malay prepositions that are widely accepted as antonyms (*bawah* 'down' versus *atas* 'up', and *dalam* 'in' versus *luar* 'out'). (Like English prepositions, a Malay preposition also includes related meanings, such that *down* entails the meanings of 'under', 'underneath', 'lower part', etc., and these meanings will not be glossed.) The following section will discuss some examples of Malay prepositions.

2. Malay prepositions and antonyms

The following examples show some uses of prepositions in Standard Malay in Malaysia (hereafter Malay), most of which can follow the locative markers *di* and *ke*. Due to the limitation of space, when a Malay sentence is too long, only the important words (underlined) will have word-to-word glosses in square brackets. Under each sentence, free translation is given for all examples.

(2)   a.   <u>*air **bawah** tanah*</u> [water BAWAH ground/soil] *yang mengalir terlalu banyak menyebabkan struktur tanah menjadi lembut* (10931.txt)

               'the overflowing **<u>under</u>**<u>ground water</u> softens the structure of the soil'

        b.   *Pembangunan teknologi ini diintegrasikan ketika proses pembinaan sesebuah bangunan di mana saluran paip diletakkan **<u>di bawah</u>** <u>tanah</u>* [DI BAWAH ground/soil]. (31351.txt)

               'Interaction with regard to the development of technology has taken place during the construction of any building so that pipes are placed **under**ground. '

        c.   <u>*...najis lembu bersepah **atas jalan***</u> [stool cow BER-scatter ATAS road]. (4459.txt)

               '…cow stools were scattered **on the road**. '

d. *Kedua-dua mangsa tercampak **di atas jalan*** [both victim TER-throw DI ATAS road] *dan meninggal dunia di tempat kejadian.* (4410.txt)

'Both victims were thrown **on the road** and were dead at the site. '

e. *…tetapi air tidak naik **ke atas rumah** dua tingkat* [KE ATAS house two storey] *yang saya sewa…* (25943.txt)

'…but the water did not rise **(up) to the** double-storey **house** that I rented…'

The absence and presence of *di* in Malay has been discussed in Chung (2013) and Ho-Abdullah (2006) but will also be reviewed here. *Ke* has a meaning of 'toward' as in (2e) but will not be the focus of discussion at this point. For ease of reference, the term 'preposition' will be used as a general term to refer to both constructions under investigation. Specific terms will be used when referring to particular forms: *di* is a 'locative marker,' while *bawah*, *atas*, *dalam*, and *luar* are 'relational nouns.'

As can be seen in (2a) and (2b), *tanah* 'ground/soil' can co-occur with both *bawah* (2a) and *di bawah* (2b). However, the two have subtle differences. Chung (2013) and Ramlan (1980), among many others, are of the view that relational nouns with *di* denote a more specific location in a given space. For instance, *di bawah tanah* in (2b) shows that the pipes were placed at a designated location under the ground, whereas *bawah tanah* in (2a) refers to underground water, the location of which is not specific. Similarly, *atas jalan* in (2c), accompanied by *bersepah* 'scatter', indicates a non-specific location on the road, whereas *di atas jalan* in (2d) means that the two corpses were discarded on the road at a specific location.[3] Chung's work is based on the collocations of *di*, *dalam*, and *di dalam*. Djenar (2006), on Indonesian, held that the addition of *di/ke* not only adds specificity but also serves a discourse function—the compounds [*di/ke* + preposition] are more preferred in written discourse. Djenar concluded that these compounds are "multifunctional," such that sometimes the semantic (specificity) or the pragmatic (discourse) function "dominates" (p. 404). Nonetheless, this comparison is made solely between *di-/ke*-only and their compounds. The comparison was not carried out among all three (preposition-only, *di-/ke*-only, and the compounds); therefore, it is not known whether the preposition-only pattern (or the free form) also serves a similar discourse function as the compounds do.

The free forms, or the prepositions, were also termed 'relational nouns' by Wienold & Rohmer (1997). The relationship between a preposition and a noun form can be seen in the quotation below:

Kata *atas*, *bawah*, *tengah*, *tepi* dikategorikan sebagai kata nama arah mengikut *Tatabahasa Dewan*. Sebagai kata nama arah, kata ini boleh membentuk kata nama majmuk seperti *tingkat atas*, *tingkat bawah*, *ruang atas/bawah*, *garis atas/bawah* (Ho-Abdullah 2006:285).

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[3] The first line of the news article of example (2d) states: "*Sepasang suami isteri terbunuh apabila motosikal yang mereka naiki bertembung dengan sebuah bas RapidKL di Jalan Dato Keramat, berhampiran Stesen LRT Damai, di sini hari ini* (A couple of husband and wife was killed when the motorcycle that they were riding collided with a RapidKL bus at Dato Keramat Road, close to the LRT Damai station, here today)," in which the location (near the LRT Damai station) has been given in prior context. A pragmatic interpretation also allows readers to know that the position of the corpses was at a specific location near the place where the accident occurred.

[Words such as *atas*, *bawah*, *tengah*, and *tepi* are categorized as directional nouns following the definition in *Kamus Dewan*. As directional nouns, they can form compound nouns such as 'upper floor', 'lower floor', 'upper/lower space', and 'upper/lower line'; translation by the author.]

Bawah and *atas* examples can be seen in (2), while examples of *dalam* and *luar* are given in (3) below:

(3)   a.   *Bagaimanapun, difahamkan beliau akan kembali bertugas seperti biasa **dalam masa** terdekat ini* [DALAM time TER-close this]. (0056.txt)

        'However, it was understood that he will be back on duty like usual **within** the shortest **time**. '

    b.   *untuk terus diguna **dalam bilik darjah*** [for continue DI-use DALAM room class] (10370.txt)

        'to be continuously used **in the classroom**'

    c.   *Saya juga terkejut apabila menemui sebilah parang **di dalam bilik** berkenaan* [DI DALAM room BER-touch-AN]. (10687.txt)

        'I was shocked when I saw a 'parang' (long knife) **in** that **room**. '

    d.   *namun dia bukanlah anak **luar nikah*** [LUAR marriage] *seperti yang didakwa!* (10862.txt)

        'but she is not born **out of wedlock** like she was accused of! '

    e.   *Kes Nik Aziz saman Utusan RM20j selesai **luar mahkamah*** [LUAR court]. (Headline; 35694.txt)

        'Nik Aziz summoned [Newspaper] Utusan RM20 million settled **out of court**. '

    f.   *Beliau ketika ditemui pemberita **di luar mahkamah*** [DI LUAR court] *melahirkan rasa syukur.* (11593.txt)

        'He showed relief when he was seen by reporters **outside the court**. '

Example (3a) and (3b) are *dalam*-only examples. Example (3b) shows a noun *bilik (darjah)* '(class)room' that can also take a *di* locative marker, as in (3c). Nonetheless, as pointed out by many, the two differ in the sense that *dalam bilik darjah* refers to the space within a classroom, whereas *di dalam bilik* refers to a specific location in the room. From two resources we know that a specific location is meant in (3c)—the use of *di* and from the context that the discovery of the 'long knife' had to have taken place at a certain spot. (3d) is an example in which *luar* appears as a compound noun (*luar nikah*). In (3e), the figurative meaning of 'outside court' is meant rather than the locational meaning in (3f).

The use of *bawah*, *atas*, *dalam*, and *luar* can be observed in a corpus by listing their nearby left and right collocates. It is hypothesized that antonymous meanings, in various degrees, can be examined based on these collocates. The following section will explain the methodology used in this study.

3. Methodology

Each preposition was searched using a 10-million-word corpus consisting of news articles from *Utusan Malaysia*, containing 35,767 texts, from December 2010 through January 2011.[4] *Utusan Malaysia* was selected because its website has an archive search function that allows searches to be carried out conveniently. Since the target keywords investigated in this work are function words, the selection of newspapers did not affect the findings. All texts were written texts in Standard Malaysian Malay.

Each of the keywords was searched in the corpus using AntConc 3.2.4w (Anthony 2005). Table 1 below shows the basic frequency of each of the items searched. Data of the free forms appear in the first, second, and third columns, while those co-appearing with the locative marker *di* are given in the fourth, fifth, and sixth columns.

Table 1. Total instances of the Malay prepositions

Free Forms	Total Instances	Percentages (without *di*)	With Locative Marker	Total Instances	Percentages (with *di*)
bawah	**1,265**	**18.90%**	*di bawah*	5,427	81.10%
atas	6,880	76.84%	*di atas*	2,076	23.16%
dalam	84,447	94.52%	*di dalam*	**4,893**	**5.48%**
luar	6,360	71.60%	*di luar*	2,523	28.40%

From Table 1, it is possible to predict that the seemingly opposite pairs *bawah*:*atas* and *dalam*:*luar* may not exhibit similar behaviors, based on their frequency distribution when they appear with or without *di*. Among the four free forms, *bawah* had the lowest percentage of appearing as a free form (18.90%), while more than 94% of instances of *dalam* appeared alone. *Atas* and *luar* behaved quite similarly in that both distributed rather similarly with and without *di*. The shading shows the higher percentages, while the boldfaced numbers show the comparatively low percentages. For instance, *bawah*-only constituted less than one-fifth of the total instances of *bawah*, and *di dalam* constituted less than 6% of its total instances. Both *dalam*- and *atas*-only constituted the majority of their totals, but the frequency of *dalam*-only (84,477) was 13 times higher than *atas*-only (6,880), while the frequency of *di dalam* was only twice higher than that of *di atas*. The variations displayed in Table 1 are definitely worthy of investigation. Most scholars in the past have postulated that antonyms are not real opposites; however, no studies have clearly laid out the methodology to investigate them as is done in this work.

One point worth discussing here is that Djenar (2006:417) has posited that when compared to *di/ke* alone, the compound [*di/ke* + preposition] "is biased not only with respect to medium but also discourse type." Compounds are more frequently found in "procedural discourse, particularly the written." Our study differs in that we compared [relational noun-only] (or Djenar's "preposition") and [*di* + relational noun], and we identified the types of relational nouns to be observed. Like Djenar's findings, we postulate that the addition of *di/ke* demands a high degree of "explicitness and specificity" (ibid., p. 417). Although this postulation (i.e. specificity in meaning) is agreed by many,

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[4] http://www.utusan.com.my/utusan/search.asp

specificity found in written discourse is worth investigation. As the [relational noun-only] pattern was not included in Djenar's work, it is not known whether the discourse preference of the three might also differ. From our observation, since all four relational nouns had different numbers of occurrences and some were highly frequent, by randomly collecting a given number of the combination [*di/ke* + relational nouns], constituted by different relational nouns, it is possible that some relational nouns might have dominated this combination and thus affected the overall performance. For instance, *di bawah* might dominate the majority of the written corpus (as in our case, too, newspapers are written corpus) and the discourse preference found by Djenar might also reflect the uses of these dominating relational nouns. To avoid this problem, in this paper, each relational noun was investigated individually and in comparison with their *di* counterpart. The aim was to see how similar or different a pair of antonyms might appear in a corpus of Malay. Our findings on Standard Malaysian Malay can also be considered a comparison to Djenar's study on Indonesian prepositions.

Before we inspect how the antonym pairs *bawah*:*atas* and *dalam*:*luar* might behave in the corpus, we will first examine their dictionary meanings, which might provide insight into their meaning differences. Table 2 below shows the list of meanings for *bawah* and *atas* from *Kamus Dewan*, a standard Malay dictionary in Malaysia. The literal meanings (usually the locational and spatial meanings) are shaded.

Table 2. Dictionary meanings of *bawah* and *atas*

Bawah	Atas
1. *terletak separas dgn permukaan tanah (bkn bahagian bangunan, rumah, dsb): pejabatnya terletak di tingkat ~ bangunan itu* "placed at the **same level as the surface of the ground** (not part of the building, house, etc.): *His/Her office is located at the <u>lower</u> floor of this building*."	1. *(pd) tempat atau paras dsb yang lebih tinggi, lwn bawah: dr ~ bukit itu nampak laut; tingkat ~; bibir ~* "(at) places or **level**, etc., that are **higher**, opposite of *bawah*: *from the <u>top</u> of that mountain, the sea is visible; <u>upper</u> level; <u>upper</u> lip*."
2. *ruang kosong yang terletak di antara tiang rumah atau kaki almari (meja, kerusi, dsb): ~rumah itu boleh dijadikan stor* "**empty space that is placed between pillars of a house or at the foot of a closet** (table, chair, etc.): *The space <u>**below**</u> the house could become a storeroom*."	2. *pihak yang berkuasa: perintah drpd ~* "party/someone with **power:** *order from <u>above</u>*."
	3. *kerana, dengan: dia meletakkan jawatan it bukan ~ kemahuannya* "**because, with:** *he/she quits not because of (<u>upon</u>) his/her willingness*."

4. *mengenai, tentang, akan, berkaitan dgn, terhadap: beliau puas hati ~ kemajuan yang telah dicapai; tidak mengaku salah ~ tuduhan yang dimajukan*
"**with regard to, about, related to, toward:** *he/she (Hon) is satisfied <u>about</u> the progress that has been achieved; not admit (to be) wrong <u>with regard to</u> the accusation that was put forward.*"

5. *berdasarkan, berasaskan: keputusan itu dibuat ~ beberapa pertimbangan; ~ soal-soal yang dibincangkan oleh pengarang, dapat saya mengatakan bahawa novelnya merupakan propaganda politik*
"**based on, based upon:** *the decision was made <u>based upon</u> several considerations; <u>based on</u> the questions that were discussed by the editors, I could say that his/her novel is political propaganda.*"

6. *mengikuti, menurut, berdasarkan: maka dikahwinkan anak Raja Kida Hindi dgn Raja Iskandar ~ syariat Nabi Ibrahim*
"**following, according to, based on:** *then the child of Raja Kida Hindi was married to Raja Iskandar <u>according to</u> the syariat Nabi Ibrahim.*"

Di bawah	*Di atas*
1. *di kawasan sekeliling rumah dsb yang bertangga (mis di taman, di perkarangan, dsb): kanak-kanak itu disuruh ibu mereka pergi bermain ~* "**area surrounding the house, etc., that with ladders (e.g. in the garden, at the residency area, etc.):** *The children were asked by their mother to go play at the <u>area surrounding the house</u>.*"	1. *pd bahagian atas, di sebalah atas (bukan di bawah): letakkan bungkusan itu ~ meja; suatu kesimpulan boleh dibuat berdasarkan huraian yang diberikan ~* "**at the upper part, the upper side (not under):** *place that parcel <u>on</u> the table; one conclusion could be made based on the elaboration given <u>above</u>.*"
2. *di ruang kosong di antara tiang rumah atau kaki meja (kerusi dll): ~ meja* "**empty space between pillars of house or feet of table (chair, etc.):** <u>*space below*</u> *the table*."	2. *lebih tinggi drpd: ~ harga itu, tidak sanggup saya membelinya* "**higher than:** <u>higher than</u> that price, I am not able to buy it."

3. *yg terletak pd baris (ruang dsb) yang berikutnya: sila rujuk pd rajah ~; baca petikan ~*
   "**that which is placed at a line (space, etc.) that follows:** *please refer to the diagram <u>below</u>; read the article <u>below</u>.*"

4. *kurang drpd: kanak-kanah ~ umur 12 tahun*
   "**less than:** *children <u>under</u> the age of 12.*"

5. *berada dlm atau tertakluk pd (peraturan, undang-undang, bimbingan, arahan, kuasa, dsb): kakitangan ~ jaggannya; orkestra ~ pimpinan Jonari Saleh*
   "**inside or under the governing of (regulations, laws, leadership, direction, power, etc.):** *staff <u>under</u> his/her care; orchestra under the leadership of Jonari Saleh.*"

At a first glance, the dictionary meanings provide some hints about the characteristics of the *bawah*:*atas* pair. From Table 1, it can be seen that *bawah* has two meanings and *atas* has more figurative uses, while *bawah* as a free form has fewer meanings than *di bawah* (half literal, half metaphorical).[5] This might explain the fewer corpus instances of *bawah* in Table 1 and might also be the reason why more than 76% of *atas* appeared on its own, while only a small number of *di atas* were found. From this analysis, one can see that the relationship between the number of senses and the corpus frequency is inter-related. Table 3 below shows the meanings of *dalam*:*luar*:

Table 3. Dictionary meanings of *dalam* and *luar*

Dalam	Luar
1. *antara, di kalangan: ~ mereka yg bertiga belas itu ada yang bergirang-girang.* "**between, among:** *<u>Among</u> the thirteen people, there are some who are excited.*"	1. *lwn (bahagian) dalam: terdengar bunyi keturan dr ~; kulit ~; orang ~* "**opposite (part) dalam:** *heard knocking sound from <u>outside</u>; <u>outer</u> skin; <u>outer</u> person.*"
2. *di dalam* (*see below*)	

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[5] Although the number of senses is not an absolute criterion, it could be used to predict the variety of meanings a word may possess.

3. *sambil: ~ kita berharap keadaan akan bertambah baik kita mesti juga beringat-ingat.*
   "**while:** *While we are hoping that the situation will become better, we should always remind ourselves (of something).*"
4. *pd waktu (tertentu): jika berharap keadaan akan bertambah baik ~ tahun hadapan; dia masih ~ pantang lagi.*
   "**at a (certain) time:** *If (someone) hopes that the situation will be better at the year ahead...; he is still at his rebellion stage.*"

Di dalam	Di luar
1. (*bukan di luar lingungan dsb sesuatu*): *~ Willayah Persekutuan; ~ bidang mata pelajaran tersebut.* "**inside** (not out of the scope, etc., of something): *in the municipality (directly under the jurisdiction of the Central Government); inside the subject (of learning).*"	1. *di bahagian luar, di sebelah luar: keadaan ~ bertambah sunyi dan gelap* "**at the outer part, at the outside:** *The situation outside has become quieter and darker.*"
	2. *tidak masuk (perkara, perhitungan, tanggungan, dll), kecuali, tidak diliputi (terliput) oleh, lain drpd: budak-budak nakal itu melepaskan kata-kata yg ~ pengalaman mereka; kejadian itu ~ pengetahuannya* "**not included (matter, calculation, responsibility, etc.), except, not covered by, different from:** *the naughty children released words that are outside of their (real) experience; the situation is out of his/her knowledge.*"

In the corpus, both *dalam* and *luar* had a higher frequency when the terms appeared by themselves. However, the dictionary provides only one meaning for *luar*. Under this meaning, many compound nouns are listed (Table 3 lists only a few). Many are two-word compound nouns, such as *luar biasa* 'unusual', *luar nikah* 'out of wedlock', and *(orang) luar pagar* '(person) unrelated to a matter of concern'. If the frequency of each compound noun is high, this could mean that these collocation patterns are highly predictable in the corpus. *Di dalam*, which constituted less than 6% of the total occurrences of *dalam* in the corpus, has one meaning only. In *Kamus Dewan*, *di dalam* does not have an entry of its own. It was originally listed as part of the meanings of *dalam*, indicating its less prominent role in use. Comparatively, *di luar* has an entry of its own, carrying two meanings in the dictionary, and its percentage in the corpus is only 28.40% of the total

occurrences of *luar*, a majority of which are compound nouns. The following section will examine the analysis of the collocates.

4. Analysis of the collocates

A detail analysis of the collocates is provided below. From this analysis, it can further be seen how the antonymous pairs might behave in the corpus. Comparisons will be made in two ways: (a) between the free form and its *di* counterpart; and (b) between the anonymous pairs (as free forms as well as with *di*, respectively).

4.1 *Bawah* and *di bawah*

All corpus instances of *bawah* and *di bawah* were examined in terms of their left and right collocates. The collocates that appear in the left-one (L1) and right-one (R1) positions are exemplified in (4) below:

(4)   a.   *Letupan itu berlaku di laluan palong <u>air **bawah tanah**</u>*. [water BAWAH ground/soil]   (26573.txt)   target   R1

‘The explosion took place in the 'palong' route of the **<u>underground water</u>.** ’

        b.   *Mohamad Rodi Abdul Rahman bersama lima kakitangan sedang bermesyuarat di* ***<u>tingkat bawah</u>*** *[storey BAWAH] bangunan tersebut.* (11017.txt)   target   R1

‘Mohamad Rodi Abdul Rahman and his five staff are meeting at the **<u>lower</u> floor** of that building. ’

The collocate list in Table 4 (to follow) is arranged in order from the highest to the lowest t-score (column four) to emphasize the position of a word and its strength in collocating with the target word when compared to all other words.[6] The shaded rows are the collocates that appeared more often in the L1 position, whereas the non-shaded rows are the collocates that appeared more often in the R1 position. By presenting the collocates in table form, one can see in which position (L1 or R1) the collocates with the higher t-scores appear and in which position a majority of the collocates can be found.

From the rightmost column, most of the collocates of *bawah* were also the collocates of *di bawah*—"overlapped" in the sense that these collocates were also found in the top 50 collocates of *di bawah*, with their percentages shown in this column. The overlapped collocates were kept because it is important to see whether a preposition was strongly used by itself or with the locative markers *di* or *ke*. The row *seksyen* 'section' exemplifies the overlapped cases. Among the 614 instances of *seksyen* 'section', 608 (99.02%) were *di bawah seksyen*, while *bawah seksyen* had only six instances (614 minus 608).

The R1 collocates (non-shaded rows) that were strongly *bawah*-only (not overlapped in the top 50 collocates) were *tanah* 'ground/soil', *rancangan* 'program', *satu* 'one', *21* '21', *projek* 'project', *undang-undang* 'rules', *perjanjian* 'agreement', *pengurusan*

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[6] T-score was selected as the unit for measurement because these prepositions are function words and are better represented using t-scores (cf. Hunston 2002; Stubbs 1995).

'management', etc.[7] An example can be seen in (4a). L1 collocates that were strongly *bawah*-only included *tingkat* 'storey', *bahagian* 'part', *skuad* 'squad', and *remaja* 'teens', and an example is shown in (4b). Most of these L1 collocates formed compound nouns with *bawah*.

Table 4. *Bawah* and its collocates

Total	L1	R1	T-score	Collocates of *bawah*	English Gloss	Overlapped with *di bawah* (Top 50)
5427	**5421**	**6**	**72.00**	***di***	loc. marker	
614	0	614	24.71	*seksyen*	section	(608) 99.02%
324	0	324	17.92	*akta*	act	(321) 99.07%
282	0	282	16.31	*program*	program	(278) 98.58%
247	**241**	**6**	**14.11**	***ke***	loc. marker	
157	2	155	12.50	*umur*	age	(69) 44.52%
141	0	141	11.57	*kementerian*	ministry	(139) 98.58%
136	0	136	11.37	*bidang*	knowledge. field	(136) 100.00%
106	0	106	10.17	*kepimpinan*	leadership	(104) 98.11%
103	0	103	10.07	*skim*	scheme	(103) 100.00%
106	0	106	9.84	*tanah*	ground/soil	
100	0	100	9.71	*rancangan*	plan	
86	1	85	9.26	*par*	par	(23) 27.06%
86	**85**	**1**	**9.18**	***tingkat***	storey	
84	0	84	9.10	*pimpinan*	leadership	(84) 100.00%
108	14	94	8.98	*satu*	one	
72	0	72	8.37	*pentadbiran*	administration	(71) 98.61%
75	**64**	**11**	**8.22**	***bahagian***	part	
64	0	64	7.99	*kendalian*	management	(64) 100.00%
58	0	58	7.61	*naungan*	patronage	(56) 96.55%
61	0	61	7.59	*21*	21	
65	0	65	7.53	*projek*	project	
59	0	59	7.41	*undang-undang*	rules	
53	0	53	7.23	*bimbingan*	guidance	(53) 100.00%
53	0	53	7.23	*pemerintahan*	reign	(53) 100.00%
51	1	50	7.04	*paras*	level	(46) 128.00%
52	**52**	**0**	**6.98**	***skuad***	squad	
40	0	40	6.18	*perjanjian*	agreement	
40	0	40	6.00	*pengurusan*	management	
45	0	45	5.97	*jabatan*	department	
35	0	35	5.90	*jagaan*	custody	(35) 100.00%
36	0	36	5.87	*peraturan*	rules	(36) 100.00%
38	0	38	5.85	*18*	18	
37	0	37	5.83	*peruntukan*	provision. of	(37) 100.00%
33	0	33	5.73	*pengawasan*	surveillance	(32) 96.97%

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[7] It is worth noting that this paper only examined the top 50 collocates. Overlapping cases could occur in the collocates below the top fifty, but they would be lower in frequency.

34	0	34	5.70	*inisiatif*	initiatives	(33) 97.06%
34	0	34	5.69	*pelan*	plan	
31	0	31	5.56	*seliaan*	supervision	(31) 100.00%
34	**34**	**0**	**5.56**	***remaja***	teens	
37	4	33	5.55	*12*	12	
33	15	18	5.54	*kategori*	category	
33	0	33	5.48	*tanggungjawab*	responsibility	
29	0	29	5.36	*runtuhan*	ruins	(28) 96.55%
29	0	29	5.25	*jenama*	brand	
27	0	27	5.13	*pengaruh*	influence	(25) 92.59%
29	0	29	5.12	*dasar*	policy	
39	0	39	5.11	*syarikat*	company	
32	0	32	5.10	*15*	15	
26	**26**	**0**	**5.06**	***aras***	level	
27	0	27	4.96	*konsep*	concept	

The collocates for *di bawah* are shown in Table 5 below. Similarly, shaded rows represent the collocates that appeared more often in the L1 position than in the R1 position. Compared with *bawah* in Table 4, it seems that many of the collocates in the L1 position are verbs, thus [verb + *di bawah*], exemplified in (5) below:

(5) a. *semua peruncit dan pembekal yang ditahan itu **disiasat di bawah*** [DI-investigate DI BAWAH] *Akta Kawalan Bekalan 1961*. (10871.txt)

'all retailers and suppliers that were detained **were investigated under** the Control of Supplies Act 1961. '

  b. *...Adam Eiman kini berusia 13 tahun yang **diletakkan di bawah*** [DI-place-KAN DI BAWAH] *jagaan Hattan*. (12666.txt)

'…Adam Eiman who is now 13 years old who **is (placed) under** the care of Hattan. '

In the rightmost column of Table 5, the overlapped collocates of *di bawah* with *bawah* are marked. However, in this table, it is not necessary to mark the percentages, as the collocates of *di bawah* form a subset of those of *bawah* (*di bawah* ⊂ *bawah*), i.e. their entirety overlaps with its *bawah*-only counterpart.

Table 5. *Di bawah* and its collocates

Total	L1	R1	T-score	Collocates of *di bawah*	English Gloss	Overlapped with *bawah* (Top 50)
608	0	608	22.77	*seksyen*	section	overlap
324	3	321	15.60	*akta*	act	overlap
173	**173**	**0**	**11.95**	***disiasat***	be.investigated	
104	**104**	**0**	**8.65**	***diletakkan***	be.placed	
93	**93**	**0**	**8.50**	***dihukum***	be.punished	
72	**72**	**0**	**8.30**	***bernaung***	patronage	

103	0	103	8.00	*skim*	scheme	overlap
64	0	64	7.64	*kendalian*	management	overlap
56	0	56	7.30	*naungan*	patronage	overlap
84	0	84	7.25	*pimpinan*	leadership	overlap
71	2	69	6.95	*umur*	age	overlap
104	0	104	6.52	*kepimpinan*	leadership	overlap
56	3	53	6.18	*bimbingan*	guidance	overlap
54	1	53	5.79	*pemerintahan*	reign	overlap
38	3	35	5.65	*jagaan*	custody	overlap
75	4	71	5.52	*pentadbiran*	administration	overlap
32	1	31	5.49	*seliaan*	supervision	overlap
33	1	32	5.23	*pengawasan*	supervision	overlap
200	**200**	**0**	**5.09**	***berada***	be.at	
28	0	28	4.52	*runtuhan*	ruin	overlap
23	0	23	4.28	*PAR*	PAR	overlap
20	0	20	4.19	*kelolaan*	supervision	
84	**81**	**3**	**3.76**	***kesalahan***	offence	
70	**70**	**0**	**3.67**	***terletak***	be.placed	
19	**19**	**0**	**3.64**	***tertakluk***	be.subjected.to	
46	0	46	3.56	*paras*	level	overlap
24	4	20	3.49	*NKRA*	NKRA	
145	6	139	3.44	*kementerian*	ministry	overlap
139	3	136	3.43	*bidang*	knowledge.field	overlap
296	18	278	3.39	*program*	program	overlap
17	1	16	3.38	*label*	label	
44	11	33	3.35	*inisiatif*	initiative	overlap
73	36	37	3.24	*peruntukan*	provisions.of	overlap
11	**11**	**0**	**3.18**	***terperosok***	be.inserted	
44	8	36	3.12	*peraturan*	regulation	overlap
17	**17**	**0**	**3.11**	***didaftarkan***	be.registered	
25	0	25	3.08	*pengaruh*	influence	overlap
20	**20**	**0**	**3.06**	***diperuntukkan***	provided	
23	0	23	3.03	*tajaan*	sponsorship	
14	0	14	2.91	*bayu*	breeze	
10	0	10	2.83	*timbunan*	stack	
9	0	9	2.79	*penyeliaan*	supervision	
15	0	15	2.69	*tajuk*	title	
18	2	16	2.69	*ETP*	ETP	
81	**81**	**0**	**2.67**	***didakwa***	be.prosecuted	
13	0	13	2.67	*khemah*	tent	
10	**6**	**4**	**2.66**	***EPP***	EPP	
12	1	11	2.60	*jejantas*	bridge	
17	**17**	**0**	**2.54**	***terperangkap***	caught	
8	0	8	2.54	*ordinan*	ordinance	

Strong L1 collocates of *bawah* in Table 4 (*tingkat* bawah, *bahagian* bawah, *skuad* bawah, etc.) did not co-appear with *di bawah* (thus, *tingkat* *di bawah*, *bahagian* *di bawah*, *skuad* *di bawah*). It was also found that most R1 collocates of *bawah* (*bawah* tanah, *bawah* rancangan, etc.) co-appeared with *di bawah*. The overlapped cases were high.

(The author also checked the collocates at the lower part of of both lists.) R1 collocates that were mainly *di-bawah*-only (without overlapping with the top 50 collocates of *bawah*) were *kelolaan* 'supervision', NKRA (Bidang Keberhasilan Utama Negara), *label* 'label', *tajaan* 'sponsorship', *bayu* 'breeze', etc. Examples of this phenomenon are shown in (6) below:

(6)   a.   *Siti Norhana Omar, 36, yang dilatih untuk menyulam dan membuat sagun **di bawah kelolaan*** [DI BAWAH organize-AN] *seorang sukarelawan PDK berkenaan*. (34288.txt)

            'Siti Norhana Omar, 36, who was trained to stitch and make 'sagun' [cake] **under the management** of a volunteer under the PDK. '

       b.   *ia adalah satu strategi pemasaran yang digunakan oleh stesen yang bernaung **di bawah label*** [DI BAWAH label] *Radio Televisyen Malaysia (RTM) itu dalam menarik lebih ramai pendengar* (19911.txt)

            'it is a marketing strategy that was used by the station **under the label** of Radio Television Malaysia (RTM) to attract more listeners'

Based on the results of *bawah* and *di bawah*, we observed that *di bawah* was often preceded by a verb, while most of the top collocates of *bawah* overlapped with *di bawah*, indicating that uses of *bawah* as a free form were rare.

4.2 *Atas* and *di atas*

Compared to *bawah* and *di bawah*, *atas* in Table 6 behaved more similarly to *di bawah* in the sense that *atas* had more L1 collocates that were verbs (apart from *ke* and *di*). Examples of [verb + *atas*] are given in (7) below:

(7)   a.   *setelah mengaku **bersalah atas pertuduhan*** [BER-wrong ATAS PER-accuse-AN] *mengikut Seksyen 395 Kanun Keseksaan…* (0102.txt)

            'after **admitting guilty on the charges** according to Penal Code Section 395…'

       b.   *Pada awalnya mereka **didakwa atas kesalahan*** [DI-indict ATAS KE-wrong-AN] *memasuki negara ini secara haram dan menceroboh zon tentera*. (10139.txt)

            'At the beginning they **were prosecuted on/for offence** to have entered this country illegally and invaded the military zone. '

Many of these verbs were related to the lawsuits of criminals and the results of the wrongdoings of people. In addition, there were also L1 noun collocates such as *bahagian atas* 'upper part', while some others (e.g. *ini* 'this', *diri* 'self') came from the collocates of a different constituent, exemplified in (8). Although these collocates were words from a different constituent, they were kept because they show how *atas* can collocate frequently with nearby words, such as *membela diri* 'to self-defend' in (8a) and *terima kasih* 'thank' in (8b). (Once a word is listed as a strong collocate, it means that this word has certain relationships with *atas*, despite the fact that they might be words from a nearby constituent.)

(8)   a.   *dipanggil <u>membela **diri**</u>* [MEM-defend self] ***atas pertuduhan*** [ATAS
                PER-accuse-AN] *yang dihadapinya* (27820.txt)

                's(he) was called to <u>self-defend</u> **on** the charges that (s)he was facing'

        b.   *Sehubungan itu Seri Paduka mengucapkan <u>terima **kasih**</u>* [thank] ***atas
                usaha*** [ATAS hard.work], *sumbangan dan penglibatan semua rakyat
                Malaysia*. (0244.txt)

                'In this regard, His Majesty delivered <u>gratitude</u> **upon** the hard work,
                contribution and the involvement of all Malaysian people. '

Table 6. *Atas* and its collocates

Total	L1	R1	T-score	Collocates of *atas*	English Gloss	Overlapped with *di atas* (Top 50)
4082	**4072**	**10**	**63.24**	***ke***	loc. marker	
2076	**2057**	**19**	**41.13**	***di***	loc. marker	
498	0	498	22.24	*tuduhan*	allegation	
331	2	329	18.09	*alasan*	reason	
304	0	304	17.30	*dasar*	policy	
245	3	242	15.38	*nama*	name	
220	1	219	14.64	*kesalahan*	offence	
185	**185**	**0**	**13.51**	***bersalah***	guilty	
155	0	155	11.83	*tanah*	ground/soil	
160	9	151	11.78	*jalan*	road	
142	0	142	11.75	*dakwaan*	charges	
137	0	137	11.61	*pentas*	stage	(123) 89.78%
118	1	117	10.56	*sebab*	reason	
96	0	96	9.61	*faktor*	factor	
113	0	113	9.57	*pelbagai*	a.wide.range.of	
92	**91**	**1**	**9.44**	***tingkat***	floor	
90	**90**	**0**	**9.15**	***didakwa***	prosecuted	
111	4	107	8.77	*dua*	two	
70	0	70	8.24	*kertas*	paper	(50) 71.43%
71	3	68	8.22	*permintaan*	request	
73	1	72	8.13	*kejayaan*	success	
70	**70**	**0**	**8.07**	***(terimah) kasih***	thanks	
73	**73**	**0**	**7.98**	***dibuat***	be.made	
63	0	63	7.79	*arahan*	direction	
63	0	63	7.67	*kapal*	ship	
60	2	58	7.55	*tiket*	ticket	
59	0	59	7.42	*padang*	field	(56) 94.92%
54	**54**	**0**	**7.30**	***dibicarakan***	be.on.trial	
98	**83**	**15**	**7.17**	***adalah***	is	
63	**62**	**1**	**7.14**	***bahagian***	part	
72	0	72	7.10	*apa*	what	
51	0	51	7.09	*keprihatinan*	concern	(18) 35.29%
54	0	54	6.95	*segala*	all	

71	0	71	6.94	*sebuah*	classifier	
233	**222**	**11**	**6.72**	***ini***	this	
133	24	109	6.67	*mereka*	they	
44	0	44	6.62	*sebab-sebab*	reasons	
60	**43**	**17**	**6.60**	***diri***	self	
45	0	45	6.57	*nasihat*	advice	
43	0	43	6.52	*katil*	bed	(36) 83.72%
54	12	42	6.47	*anwar*	answer	
47	**47**	**0**	**6.45**	***bertindak***	to act	
63	0	63	6.33	*beberapa*	several	
42	1	41	6.31	*pertuduhan*	charges	
43	0	43	6.15	*semangat*	spirit	
59	3	56	6.13	*tiga*	three	
52	0	52	6.11	*usaha*	hard.work	
38	**38**	**0**	**6.06**	***maaf***	apology	(17) 44.74%
37	0	37	6.02	*jemputan*	invitation	
40	**40**	**0**	**6.00**	***bertanggungjawab***	to.be. responsible	

For the R1 collocates of *atas* (non-shaded), many of the collocates also fell under the similar law-related domain (e.g. *tuduhan* 'allegation', *alasan* 'reason', *kesalahan* 'offence', *dakwaan* 'charges', etc.). There were also R1 collocates that referred to (a) 'reasoning or factor', such as *sebab(-sebab)* 'reason(s)' and *faktor* 'factor'; (b) 'attempt or request', such as *usaha* 'attempt', *kejayaan* 'success', *semangat* 'spirit', and *permintaan* 'request'; and (c) 'advice', such as *nasihat* 'advice', and other miscellaneous types. In general, *atas* was used often in lawsuits in formal writing.

For *bawah*, it was also observed that the conceptual metaphor HAVING CONTROL OR FORCE IS UP; BEING SUBJECT TO CONTROL OR FORCE IS DOWN (Lakoff & Johnson 1980:15) was present (e.g. *He is under my control*; *I am on top of the situation*): The metaphor "is also associated with restrictions are boundaries" (Boers 1996:101). The collocates of (*di*) *bawah* in the previous Tables 4 and 5 often reflected those under the patronage of some powerful body or regulation, exemplified in (9a). For *atas* in (9b), its meaning is close to the English 'upon'. (Act upon is defined by Merriam Webster Online as "to use (something, such as a feeling or suggestion) as a reason or basis for doing something," for example, *We were too late to act upon his suggestion*.) Here *atas* was used when one had to respond to an accusation or decision made *upon* them. In addition, a person was also able to act *upon* the request of someone. This causes the existence of a group of words denoting 'control' under both *bawah* and *di bawah*, while there is another group of words indicating 'accusation' under *atas*. (*Di atas* has more locative uses, which are shown in Table 7 to follow.)

(9) a. *(di) bawah*
    seksyen 'section (of regulation)'
    akta 'act (regulation)'
    skim 'scheme'
    kedalian 'management'
    naungan 'patronage'
    bimbingan 'guidance'

   b. *atas*
    tuduhan 'allegation'
    dakwaan 'charges'
    alasan 'reason'
    sebab 'reason'
    kesalahan 'wrongdoing'
    permintaan 'request'

Unlike the high overlaps of *bawah* and *di bawah*, only a few of the collocates of *atas* were also collocates of *di atas*, which is another evidence that supports our contention that antonymous pairs do not always display similar behaviors. Antonymous meanings can be found most obviously in *bahagian atas/bawah* 'upper/lower part' and *tingkat atas/bawah* 'upper/lower floor'. The commonly found collocates are those listed in (9).

The few overlapped collocates between *atas* and *di atas* were *pentas* 'stage', *katil* 'bed', and *kertas* 'paper', which were also the top three (strong R1) collocates of *di atas* shown in Table 7 below. All of these refer to a locative meaning of 'on the top of' but with some subtle differences, exemplified in (10) below:

(10)   a.   *inilah kali pertama beliau berucap **di atas pentas** berputar* [DI ATAS stage BER-rotate]. (11234.txt)

              'this is the first time he speaks **on** a rotating **stage**. '

        b.   *Malah penulis itu tidak pernah berada **atas pentas** politik* [ATAS stage politics]. (9858.txt)

              'Nonetheless the writer has not been **on** the political **stage**. '

It should be noted that a metaphorical meaning was often used without *di* and (10b) is a clear example of this. This finding is similar to what Sneddon et al. (2010:196) have said about figurative space in Indonesian prepositional phrases: "**di** is omitted before a locative noun [or relational noun, in our term] if figurative space is referred to" (e.g. *tokoh dalam certita itu* 'the character in that story'; *perbedaan antara kedua kata itu* 'the difference between those two words') (ibid., p. 196). The less specificity of meaning when *di* is absent was also discussed in Chung (2013).

Compared to *atas*, R1 collocates of *di atas* in Table 7 below were mostly "concrete objects" (*pentas* 'stage', *katil* 'bed', *kertas* 'paper', *lantai* 'floor', *permukaan* 'surface', *padang* 'field', *meja* 'table', *tikar* 'mat', *sofa* 'sofa', *mimbar* 'rostrum', etc.). This means that *di atas* referred more to location compared with *atas*. Nonetheless, the boundary is not clear-cut, as there are also abstract nouns such as *keprihatian* 'attention' and *sumbangan-nya* 'contribution-3rd Gen.'.

Table 7: *Di atas* and its collocates

Total	L1	R1	T-score	Collocates of *di atas*	English Gloss	Overlapped with *atas* (Top 50)
123	0	123	9.39	*pentas*	stage	overlap
36	0	36	5.19	*katil*	bed	overlap
51	1	50	4.57	*kertas*	paper	overlap
23	**23**	**0**	**4.44**	***bertaburan***	scatter	
24	0	24	3.99	*lantai*	floor	
27	**27**	**0**	**3.85**	***berdiri***	stand	
22	0	22	3.53	*permukaan*	surface	
36	**36**	**0**	**3.38**	***diletakkan***	be.placed	
14	**14**	**0**	**3.30**	***terbaring***	lie.down	
51	**51**	**0**	**3.22**	***dibina***	be.built	
57	1	56	2.81	*padang*	field	overlap

21	0	21	2.76	*meja*	table	
18	0	18	2.73	*keprihatinan*	attention	overlap
12	**12**	**0**	**2.56**	***didirikan***	be.set.up	
8	0	8	2.44	*kanvas*	canvas	
6	**6**	**0**	**2.34**	***mencangkung***	squat	
6	0	6	2.29	*birai*	ledge	
8	0	8	2.13	*tilam*	mattress	
6	0	6	2.10	*sumbangannya*	contribution-3rd Gen.	
5	**5**	**0**	**2.00**	***bersanding***	side.by.side	
6	0	6	1.96	*mimbar*	rostrum	
7	**7**	**0**	**1.96**	***disebutkan***	be.mentioned	
5	**5**	**0**	**1.90**	***berkemban***	wear.'sarong'	
6	0	6	1.89	*tikar*	mattress	
6	**6**	**0**	**1.85**	***tercampak***	be.scattered	
6	0	6	1.72	*sofa*	sofa	
3	**3**	**0**	**1.67**	***ditatah***	(jewel)be. embedded	
4	**4**	**0**	**1.65**	***berbaring***	lie.down	
7	**7**	**0**	**1.64**	***melukis***	draw	
7	**7**	**0**	**1.63**	***terapung***	float	
3	**3**	**0**	**1.59**	***meniarap***	facing.down	
3	0	3	1.58	*keprihatinannya*	attention-3rd Gen.	
5	**5**	**0**	**1.56**	***diletak***	be.placed	
3	**3**	**0**	**1.55**	***bergelimpangan***	lie.down	
11	0	11	1.53	*bumbung*	roof	
3	**3**	**0**	**1.53**	***bersepah***	scatter	
8	0	8	1.50	*kesulitan*	difficulty	
3	0	3	1.47	*pusara*	cemetery	
17	**17**	**0**	**1.41**	***maaf***	apology	overlap
2	**2**	**0**	**1.39**	***terjelepok***	stumble	
2	**2**	**0**	**1.38**	***terpantasnya***	fastest	
2	0	2	1.38	*dashboard*	dashboard	
3	**3**	**0**	**1.36**	***tegak***	erect	
14	0	14	1.36	*bahu*	shoulder	
2	**2**	**0**	**1.35**	***berguling***	roll	
2	**2**	**0**	**1.35**	***berguling-guling***	roll	
5	0	5	1.30	*podium*	lectern	
2	0	2	1.30	*kuburan*	grave	
5	**5**	**0**	**1.28**	***dipertanggung-jawabkan***	be.responsible	
2	**2**	**0**	**1.28**	***lonjong***	oval	

In Table 7, L1 collocates (shaded rows) of *di atas* were mostly verbs, indicating states rather than law-related verbs like those for *atas* in Table 6. In other words, [verb + *atas*]

was used more often in referring to laws and regulations, while [verb + *di atas*] referred more to the state of something in a certain location (see (11) below).

(11)   a.   *Akibatnya, wang yang dibawa **bertaburan di atas** lebuh raya*
               [BER-scatter-An DI ATAS highway]. (11352.txt)

               'As a result, the money that was brought **was scattered on** the highway. '

        b.   *empat lelaki yang cedera parah **terbaring di atas** jalan raya*
               [TER-lie.down DI ATAS road]. (15960.txt)

               'four men that were injured **were lying on** the road. '

Another feature of *di atas* that is worth noting is its overall low frequency in the corpus, indicating that the uses of *di atas* are sparse in general. When they do occur, they show characteristics that are mostly locational, indicating the state of something.

4.3 *Dalam* and *di dalam*

The data of *dalam* and *di dalam* are multiple in the corpus. From Table 8, it can be seen that none of the top 50 collocates of *dalam* overlapped with *di dalam*, indicating that the top collocates of *di dalam* in Table 9 (to follow) did not overlap. This finding clearly shows that *dalam* and *di dalam* display rather different uses, a characteristic distinctive from all other relational nouns, especially its antonym *luar*, to be discussed in the next section.

In Table 8, most of the strong collocates of *dalam* appeared in the R1 position (non-shaded rows), with only a few collocates of strong L1 collocates (shaded rows). For L1, apart from *di* and *ke*, five verbs were found, namely *terlibat/terbabit* 'be.involved', *berada* 'be.positioned.at' or 'exist', *kata-nya* 'say-3rd Gen.', and *hidup* 'live'. Only one L1 noun (*perdagangan* 'business', mostly *perdagangan dalam negeri*) and one L1 adjective (*penting* 'important') were found among the top 50 collocates. (*Diri* 'self' came from a different constituent.)

Table 8. *Dalam* and its collocates

Total	L1	R1	T-score	Collocates of *dalam*	English Gloss	Overlapped with *di dalam* (Top 50)
5433	151	5282	70.10	*negeri*	state	
3235	5	3230	55.85	*tempoh*	duration	
2671	6	2665	50.76	*bidang*	knowledge.field	
2604	26	2578	46.98	*satu*	one	
4938	**4899**	**39**	**45.73**	***di***	loc.marker	
2090	16	2074	44.28	*keadaan*	situation	
1818	**1818**	**0**	**41.68**	***terlibat***	be.involved	
2812	0	2812	41.21	*pada*	at	
1767	31	1736	40.42	*usaha*	hard.work	
1573	**1573**	**0**	**38.10**	***berada***	be.at	
2157	**2152**	**5**	**36.99**	***katanya***	say-3rd Gen.	
1622	45	1577	36.74	*masa*	time	
1150	22	1128	32.15	*kejadian*	occurrence	

1584	**1584**	**0**	**30.90**	***ke***	loc.marker
844	17	827	27.60	*industri*	industry
857	23	834	26.74	*kes*	case
682	0	682	25.29	*bentuk*	shape
727	**727**	**0**	**25.19**	***penting***	important
669	23	646	24.40	*bahasa*	language
666	32	634	23.84	*perlawanan*	contest
607	18	589	23.76	*perkembangan*	development
605	5	600	23.68	*hal*	matter
639	46	593	23.39	*kenyataan*	fact
605	0	605	23.32	*proses*	process
686	**406**	**280**	**23.29**	***diri***	self
571	14	557	23.04	*perjalanan*	route
528	**511**	**17**	**22.27**	***perdagangan***	business
544	9	535	22.26	*acara*	event
659	150	509	22.00	*dunia*	world
526	3	523	21.95	*sektor*	sector
485	0	485	21.79	*konteks*	context
543	**285**	**258**	**21.49**	***hidup***	live
1043	407	636	21.34	*negara*	country
552	33	519	21.33	*filem*	film
519	1	518	20.84	*kalangan*	among
476	49	427	20.72	*sejarah*	history
574	21	553	20.58	*pilihan*	selection
494	7	487	20.55	*operasi*	operation
621	18	603	20.30	*program*	program
460	23	437	20.09	*kehidupan*	life
565	4	561	19.70	*pelbagai*	several
401	15	386	19.31	*saingan*	competition
379	5	374	18.78	*talian*	online
460	27	433	18.67	*isu*	issue
347	1	346	18.44	*ucapannya*	speech-3rd Gen.
374	23	351	18.28	*kemalangan*	accident
505	104	401	18.23	*masyarakat*	society
358	1	357	17.90	*soal*	question
322	1	321	17.50	*serbuan*	invasion
383	**383**	**0**	**17.46**	***terbabit***	be.involved

Most of the R1 collocates were nouns. According to Chung (2013), most nouns following *dalam* are abstract nouns, or nouns in nominalized forms (*keadaan* 'situation', *kejadia*n 'occurrence', *perlawanan* 'contest', and *perkembangan* 'development'). In Chung's (2013) examination of *dalam*, *dalam*-only seemed to collocate well with abstract or figurative terms. This same point was also stated in Sneddon et al. (2010) for Indonesian.

As for *di dalam* in Table 9, a majority of the L1 collocates were verbs indicating a state (*berada* 'be.at' or 'exist' (12a), *disimpan* 'be.placed', *terkandung* 'be.contained', *disembunyikan* 'be.hidden', etc.). The collocates of *di dalam* usually denoted a more specific location inside a certain space and these verbs may explain the actions that go

with this meaning. Furthermore, looking at the R1 collocates, most of them were concrete objects (*bilik* 'room', *kotak* 'box', *almari* 'closet', *poket* 'pocket', and *kelas* 'class(room)') with a three-dimensional space, while some, like for *dalam*, also denoted figurative space, such as *kitabnya* 'book-3rd Gen.', *blognya* 'blog-3rd Gen.' (12b), *al-Quran* 'Quran', *tafsirnya* 'interpretation-3rd Gen.', etc.

(12)   a.   *22 pelajar lain yang turut berada **di dalam bas** tersebut* [DI DALAM bus TER-mention]. (0788.txt)

'22 other students that were also **in** that **bus**. '

b.   *Beliau berkata demikian dalam entri terbaru **di dalam blog**nya* [DI DALAM blog-3rdGen.]. (0116.txt)

'He said so in the new entry **in** his **blog**. ' [The gender of *beliau* was found from previous context.]

Table 9. *Di dalam* and its collocates

Total	L1	R1	T-score	Collocates of *di dalam*	English Gloss	Overlapped with *dalam* (Top 50)
305	**305**	**0**	**10.14**	***berada***	be.at	
101	1	100	6.17	*bilik*	room	
38	1	37	4.85	*kotak*	box	
34	**34**	**0**	**4.80**	***disimpan***	be.placed	
30	**30**	**0**	**4.55**	***terkandung***	be.contained	
24	**24**	**0**	**4.47**	***disembunyikan***	be.hidden	
29	**29**	**0**	**4.42**	***pelaku***	performer	
28	**28**	**0**	**4.06**	***terperangkap***	be.trapped	
22	**22**	**0**	**4.06**	***dijumpai***	be.seen	
53	0	53	4.04	*kelas*	class(room)	
23	**23**	**0**	**4.03**	***termaktub***	be.stated	
16	0	16	3.86	*rektum*	rectum	
17	1	16	3.86	*almari*	closet	
40	**40**	**0**	**3.83**	***diletakkan***	be.placed	
15	0	15	3.70	*kitabnya*	book-3rd Gen.	
16	0	16	3.66	*poket*	pocket	
21	0	21	3.57	*blognya*	blog-3rd Gen.	
19	0	19	3.41	*peti*	case	
23	3	20	3.29	*tandas*	toilet	
15	0	15	3.17	*kamar*	room	
11	**11**	**0**	**2.75**	***bersembunyi***	hide	
19	0	19	2.74	*longkang*	drain	
33	1	32	2.66	*beg*	bag	
11	0	11	2.64	*lokap*	lock-up	
8	**8**	**0**	**2.55**	***disorok***	be.hidden	
11	**11**	**0**	**2.50**	***dimuatkan***	be.loaded	
10	0	10	2.32	*sangkar*	cage	
11	0	11	2.30	*khemah*	camp	

6	**6**	**0**	**2.28**	***disorokkan***	be.hidden
7	**7**	**0**	**2.24**	***berendam***	dip
49	1	48	2.20	*al-quran*	Quran
5	0	5	2.15	*tafsirnya*	interpretation-3rd Gen.
5	**5**	**0**	**2.09**	***disumbat***	be.stuffed
5	**5**	**0**	**2.09**	***direndam***	be.dipped
5	0	5	2.06	*bonet*	bonnet
7	0	7	2.02	*bakul*	basket
5	**5**	**0**	**1.94**	***tertanam***	be.planted
4	**4**	**0**	**1.94**	***'tazkirah'***	reminder
5	0	5	1.93	*guinness*	Guinness
4	0	4	1.92	*begnya*	bag-3rd Gen.
5	**5**	**0**	**1.92**	***dikurung***	be.caged
8	0	8	1.90	*kesebelasan*	eleven
4	0	4	1.89	*kamarnya*	room-3rd Gen.
5	0	5	1.88	*kelasnya*	class(room)-3rd Gen.
25	0	25	1.75	*blog*	blog
9	0	9	1.75	*petak*	compartment
31	1	30	1.72	*hutan*	jungle
14	0	14	1.67	*gua*	cave
5	**5**	**0**	**1.65**	***berlindung***	shelter
3	0	3	1.65	*Majma' al Zawaid*	(a hadith)

As also noted by Chung (2013), *dalam* usually denotes a figurative space or a bounded event (including time), while *di dalam* denotes a three-dimensional space that is mostly concrete in nature. A similar observation was also found in this study. Since *di dalam* often collocated with physical objects, the types of verbs it collocated with mainly referred to the existence of an entity in a certain location, as can be seen in (13a) and (13b). Comparatively, *dalam* had fewer verbs but most of them were general verbs such as *berada* 'be.at' (13a), *terlibat* 'be.involved' (13d), and *hidup* 'live' (13e), all of which refer to abstract activities or a certain stage (comparing (13a) to (13c)).

(13) a. *Ketika **berada di dalam** gua tersebut* [BER-exist DI DALAM cave TER-mention], *tiba-tiba sebongkah batu yang besar jatuh dari gunung.* (10277.txt)

'When **(being) in** that cave, suddenly a big stone dropped from the mountain. '

b. *32 butir peluru yang **disembunyikan di dalam*** [DI-hide-KAN DI DALAM] *tong ikan …*(10202.txt)

'32 bullets that **were hidden in** the barrels of fish…'

c. *kebanyakan pemain **berada dalam** kecergasan* [BER-exist DALAM KE-agile-AN] *yang memuaskan ketika ini* (0149.txt)

'most of the players **are in** the agility that is satisfying at this moment'

d. *pihak lain yang **terlibat dalam** *kes tersebut* [TER-involve DALAM case TER-mention]. (0075.txt)

'other party that **is involved in** that case. '

e. *semua agama di negara ini adalah sama apabila ia mengajak kita **hidup dalam** harmoni* [live DALAM harmony]. (0128.txt)

'all religions in this country are the same when it invites us to **live in** harmony. '

In the final analysis of *dalam* and *di dalam*, the two were rather dissimilar in terms of their top 50 collocates, a characteristic not found in *bawah* and *atas* investigated so far.

4.4 *Luar* and *di luar*

For *luar*, Table 10 below shows that it has no verb collocates. This means that *luar* was mostly collocated with nouns to form compound nouns (*luar bandar* 'rural area', *kawasan luar* 'outer area', *menteri luar* 'foreign minister', etc.), as expected. (One adjective was found (*luar biasa* 'not normal', 'unusual') but the majority of collocates were nouns.) Some overlapped with *di luar* but many of these overlaps were low in percentage except for a few, which will be discussed in refererence to Table 11.

Table 10: *Luar* and its collocates

Total	L1	R1	T-score	Collocates of *luar*	English Gloss	Overlapped with *di luar* (Top 50)
4989	148	4841	70.02	*negara*	country	
2586	**2531**	**55**	**46.74**	***di***	at	
1494	2	1492	38.44	*bandar*	city	(264) 17.69%
1016	**1015**	**1**	**31.58**	***sukan***	sport	
711	1	710	26.54	*biasa*	usual	
539	**506**	**33**	**21.86**	***dari***	from	
507	**502**	**5**	**20.61**	***ke***	toward	
356	**269**	**87**	**18.06**	***kawasan***	area	
306	**305**	**1**	**16.37**	***menteri***	ministry	
644	**521**	**123**	**15.45**	***dan***	and	
216	**216**	**0**	**14.54**	***kemajuan***	improvement	
190	**183**	**7**	**13.34**	***kementerian***	ministry	
189	**187**	**2**	**11.71**	***orang***	people	
139	0	139	11.63	*sana*	there	(138) 99.28%
134	0	134	11.55	*nikah*	marriage	(10) 7.46%
132	**132**	**0**	**10.48**	***masyarakat***	society	
120	**120**	**0**	**10.26**	***pembangunan***	development	
123	**121**	**2**	**10.12**	***penduduk***	resident	
139	**136**	**3**	**10.05**	***pihak***	party	
96	0	96	9.76	*jangkaan*	expectation	(85) 88.54%
94	7	87	8.92	*mahkamah*	court	
78	**78**	**0**	**8.67**	***pesakit***	patient	
66	**66**	**0**	**7.85**	***pelancong***	tourist	

89	5	84	7.82	*rumah*	house	
67	**62**	**5**	**7.63**	**pasaran**	market	
102	0	102	7.50	*datuk*	datuk (title)	
52	0	52	7.18	*pesisir*	coastal	(6) 11.54%
49	**49**	**0**	**6.72**	**perdagangan**	business	
84	**66**	**18**	**6.53**	**atau**	or	
45	**45**	**0**	**6.52**	**agung**	general	
51	**51**	**0**	**6.41**	**aktiviti**	activity	
60	**60**	**0**	**6.37**	**anak**	child	
58	**55**	**3**	**6.21**	**pelajar**	student	
41	**40**	**1**	**6.17**	**mahupun**	nor	
38	0	38	6.09	*kotak*	box	(28) 73.68%
35	**35**	**0**	**5.91**	**penyumberan**	sourcing	
37	1	36	5.84	*kawalan*	control	(34) 94.44%
53	**33**	**20**	**5.74**	**sekolah**	school	
37	**37**	**0**	**5.68**	**dasar**	basis	
34	**34**	**0**	**5.64**	**ehwal**	affair	
52	**52**	**0**	**5.62**	**dunia**	world	
32	2	30	5.28	*padang*	field	
28	0	28	5.27	*batasan*	limit	(26) 92.86%
28	0	28	5.25	*dugaan*	conjecture	(26) 92.86%
34	**33**	**1**	**5.21**	**sambutan**	receipt	
29	0	29	5.13	*kampus*	campus	
30	**30**	**0**	**5.08**	**pengunjung**	visitor	
31	1	30	5.04	*bangunan*	building	
82	4	78	5.01	*malaysia*	Malaysia	
35	**30**	**5**	**4.80**	**universiti**	university	**(only 1 at L1) 3.33%**

Table 11. *Di luar* and its collocates

Total	L1	R1	T-score	Collocates of *di luar*	English Gloss	Overlapped with *luar* (Top 50)
139	1	138	9.07	*sana*	there	overlap
85	0	85	8.54	*jangkaan*	expectation	overlap
265	1	264	7.87	*bandar*	city	overlap
26	0	26	4.69	*batasan*	limitation	overlap
26	0	26	4.43	*dugaan*	conjecture	overlap
28	0	28	3.73	*kotak*	box	overlap
11	0	11	2.33	*kebiasaan*	a habit	
4	**4**	**0**	**1.96**	**tiusyen**	tuition	
5	0	5	1.92	*jangkauan*	outreach	
12	0	12	1.90	*batas*	limit	
6	**6**	**0**	**1.87**	**bermastautin**	reside	
3	0	3	1.63	*jangkaannya*	expectation-3rd Gen.	
11	1	10	1.61	*nikah*	marriage	overlap

3	0	3	1.50	*tabii*	natural	
34	0	34	1.50	*kawalan*	control	overlap
3	0	3	1.42	*kewarasan*	sanity	
6	**6**	**0**	**1.32**	**meletup**	explode	
2	**2**	**0**	**1.31**	**siklon**	cyclone	
2	**2**	**0**	**1.19**	**berpejabat**	(work)be.based	
3	0	3	1.15	*kelaziman*	prevalence	
2	0	2	1.13	*batas-batas*	limits	
6	0	6	1.12	*pesisir*	coastal	overlap
12	0	12	1.08	*lingkungan*	range	
1	**1**	**0**	**0.98**	**universtiti**	university	
1	**1**	**0**	**0.98**	**qari-qari**	Quran readers	
1	**1**	**0**	**0.98**	**merajalela**	tyrannize	
1	**1**	**0**	**0.98**	**makcik-makcik**	aunts	
1	**1**	**0**	**0.98**	**hiruk-piruk**	hustle	
1	**1**	**0**	**0.98**	**chih-chung**	'chih-chung'	
1	**1**	**0**	**0.98**	**berdebur**	make.sound.of dropping.object.into.water	
1	0	1	0.98	*sampulnya*	envelop-3rd Gen.	
1	0	1	0.98	*normal-normal*	common	
1	0	1	0.98	*kawalanya*	control-3rd Gen.	
1	0	1	0.98	*jangkau*	stretch.out	
1	**1**	**0**	**0.96**	**sumber-sumbernya**	sources-3rd Gen.	
1	**1**	**0**	**0.96**	**digantungkan**	be.hung	
1	0	1	0.96	*pangsapurinya*	apartment-3rd Gen.	
1	0	1	0.96	*Mysore*	Mysore	
1	0	1	0.96	*Anatolia*	Anatolia	
1	**1**	**0**	**0.93**	**jenguklah**	check.out-lah	
1	**1**	**0**	**0.93**	**Brafman**	Brafman	
1	**1**	**0**	**0.93**	**berpolitiklah**	be.engaged.in.poltics	
1	**1**	**0**	**0.93**	**berasak**	cram	
1	**1**	**0**	**0.93**	**anti-malaysia**	anti-Malaysia	
1	0	1	0.93	*diagung-agungkan*	be.glorified	
1	0	1	0.93	*Chuari*	Chuari	
1	**1**	**0**	**0.91**	**jajan**	junk	
1	**1**	**0**	**0.91**	**direkrut**	be.recruited	
1	0	1	0.91	*perkadaran*	proportion	
1	0	1	0.91	*enaknya*	delicious-3rd Gen.	

For *di luar* in Table 11, the first impression of its collocates is that a majority of the collocates were in the R1 position (non-shaded rows). Those in the L1 positions (shaded rows) had a low frequency, mostly with only one or two tokens. Those appearing in the top R1 positions were *sana* 'there', *jangkaan* 'expectation', *bandar* 'city', *batasan* 'limit',

dugaan 'conjecture', and *kotak* 'box', which also appeared in the *luar* list. The contrasting examples of *(di) luar jangkaan* are given in (14) below, although they do not differ greatly in meaning:

(14)   a.   *...dipercayai memiliki kekayaan **luar jangkaan*** [KE-rich-AN LUAR expectation]*dalam tempoh singkat perkhidmatannya.* (3169.txt)

'…was believed to possess <u>richness **out of expectation**</u> in a short duration of his service (at work). '

b.   *program kesihatan mendapat <u>sambutan **di luar jangkaan**</u>* [receive-AN DI LUAR expectation]. (10207.txt)

'(the) health program was <u>received well **beyond**</u> expectations [literal: <u>well-reception **out of expectation**</u>]. '

Unlike *di dalam, di luar* did not possess a locational meaning. The differences between (14a) and (14b) are thus not locational. On the other hand, *sana* 'there' is a pronoun indicating a location previously mentioned. However, in most uses with *di luar* (see (15) below), the location is vague.

(15)   a.   *Saya berharap lebih ramai wanita **di luar sana*** [DI LUAR there] *akan sedar perkara ini.* (0085.txt)

'I hope more females **<u>out there</u>** will be aware of this matter. '

b.   *Jangan biarkan pemandu-pemandu sebegini bermaharajalela **di luar sana*** [DI LUAR there]. (11550.txt)

'Do not let such drivers become rampant **<u>out there</u>**. '

Unlike *luar*, some verbs were found for *di luar* in the L1 position, namely *bermastautin* 'reside' (16a), *meletup* 'explode', *berpejabat* '(work)be.based' , *berdebur* 'the movement or sound of water' (16b), etc. The use of *di luar* with these verbs highlights the significance of an outside environment, or something not inside a given boundary of a thing.

(16)   a.   *Ramai juga di kalangan anak-anak Malaysia **bermastautin di luar negara*** [BER-reside DI LUAR country] *khususnya di negara-negara maju.* (12759.txt)

'Many also among the Malaysian children are **<u>residing</u>** <u>in foreign countries</u> (**<u>out of country</u>**), especially in developed countries. '

b.   *terdengar bunyi air **berdebur di luar masjid*** [BER-sound.of.moving.water DI LUAR mosque] (34612.txt)

'heard the sound of **water moving <u>outside</u> the mosque**'

As mentioned, *luar* and *di luar* did not seem to have a clear difference in their use. Neither *luar* in (17a) nor *di luar* in (17b) refer to a specific location. This is probably because to identify a specific spot outside something when someone says *he is outside the house* is an uncommon task, unless the speaker has the intention of making it clear that *he*

is outside the house, in the garden. Since this is the case, too, both *luar* and *di luar* carry mostly metaphorical meanings, among which many uses of *luar* are two-word compound nouns (for *luar*).

(17)   a.   *Kadet Bersatu, Kadet Polis, taekwondo, silat dan lain-lain <u>aktiviti **luar sekolah**</u>* [activity LUAR school] *menitik-beratkan keperluan menghormati antara satu sama lain*. (20595.txt)

'Combined Cadet, Police Cadet, taekwondo, martial arts and other <u>extracurricular (**outside school**) activities</u> pay attention to the need to respect each other. '

        b.   *mengambil bahagian dalam sukan yang dianjurkan **<u>di luar sekolah</u>*** [DI LUAR school] (8437.txt)

'take part in sports held **<u>outside school</u>**'

Although most of the time a metaphorical meaning could be easily detected from a list of collocates, some idiomatic uses are worth paying attention to. For instance, *di luar kotak* 'outside a box' may have both a locational meaning ((18a) and (18b)) and a metaphorical meaning ((18c) and (18d)). When *di luar kotak* co-appears with the verb *berfikir* 'think', it means 'to think not according to convention' and therefore has a metaphorical reading. Thus, even concrete collocates such as *kotak* 'box' may carry a metaphorical reading if an idiom is present. However, such occurences of both locational and idiomatic meanings were rarely found in our data.

(18)   a.   *Kami memiliki dua atau tiga percubaan dari **<u>luar kotak</u>** penalti* [LUAR box panalty] (13644.txt)

'We possess two or three trials from **<u>outside</u> of the penalty <u>box</u>**'

        b.   *menyeludup lebih daripada 50 ekor penyu hidup ke Amerika Syarikat (AS) yang telah dimuatkan **<u>di dalam kotak</u>** biskut* [DI DALAM box biscuit] (0867.txt)

'smuggled more than 50 live turtles to the United State that have been fitted **<u>into [inside]</u> cookie boxes**'

        c.   *kerajaan yang matang, mempunyai pengalaman, mempunyai pemimpin yang berniat ikhlas dan berani serta boleh berfikir **<u>di luar kotak</u>*** [DI LUAR box]. (26005.txt)

'a government that is mature, experienced, with leaders that are honest and brave and can think **<u>out of</u> context (<u>out of the box</u>)**. '

        d.   *turut menyokong langkah menyusun semula tugas anggota polis ke barisan hadapan sebagai <u>pemikiran **luar kotak**</u>* [PE-think-AN LUAR box]. (23448.txt)

'also support the step to re-organize the police's duty to the front row as <u>thinking **outside** the box</u>. '

In the section below, the summary of this paper will be discussed.

5. Discussion and conclusion

Based on the above discussion, a summary of the pairs of antonyms are provided in Table 12 below:

Table 12. Summary of frequency and meaning analysis

Frequency	No. of Senses
di bawah > *bawah*	**di bawah** > *bawah*
atas > di atas	*atas > di atas*
dalam >> di dalam	*dalam >> di dalam*
luar > di luar	**di luar** > *luar*

Note: ">>" indicates a greater difference between the two.

From Table 12, it can be seen that the single uses of the prepositions seem to be more frequent, except for *di bawah*, which displayed an unexpectedly higher frequency than *bawah*. This is also consistent with the number of senses displayed by it in the dictionary. The frequency and number of senses demonstrate a positive relationship, except for *luar*. Although *luar* is more frequent in the corpus than *di luar*, *luar* has fewer senses (only one) in the dictionary. This is because under this one sense of *luar*, many compound nouns can be formed (*luar negara*, *luar nikah*, etc.) and this accumulates its frequency in the corpus. On the other hand, *di luar* has two meanings but their uses were not as frequent in the corpus.

In addition to the above, a summary of the collocate analysis is provided in Table 13, which shows the tendency of the collocates in the L1 and R1 positions, as well as the proportion of L1 and R1 collocates among the top 50 collocates. Table 13 can be interpreted in two ways: a comparison of L1 and R1 collocates within the same preposition (*bawah* versus *di bawah*) and comparisons of the antonymous collocates (*(di) bawah* versus *(di) atas*).

Table 13. Summary of the collocate analysis

	L1	R1	L1 and R1 Relationship (Percentage among Top 50)
bawah	noun	noun (patronage)	L1 (14%) < R1 (86%)
di bawah	verb	noun (patronage)	L1 (28%) < R1 (72%)
atas	**verb (law)**	**noun (law, physical)**	L1 (30%) < R1 (70%)
di atas	verb (state)	noun (physical)	**L1 (54%) > R1 (46%)**
dalam	verb (exist) /noun	noun (abstract)	L1 (20%) < R1 (80%)
di dalam	verb (state)	noun (physical)	L1 (40%) < R1 (60%)
luar	noun (compound)	noun (physical, expectation)	**L1 (64%) > R1 (36%)**
di luar	verb/noun	noun (expectation)	L1 (42%) < R1 (58%)

Table 13 shows that *bawah* and *di bawah* displayed the greatest controversies in the L1 position, with a majority of verbs dominating the L1 position of *di bawah*. The R1 nouns of *bawah* and *di bawah* were similar in that both showed a tendency for the meaning of 'patronage'. Compared to *bawah*, its antonym *atas* differed to a great extent. Both *atas* and *di atas* were preceded by verbs, with *atas* preceded by a majority of law-related verbs, while *di atas* was preceded by verbs that indicated a state. The R1 nouns of *atas* were both law-related and physical, while the majority of the nouns of *di atas* were physical objects, indicating a locational meaning.

As for *dalam* and *di dalam*, the two differed in that *dalam* was often preceded by verbs (existential and nouns), while *di dalam* had more L1 collocates that were stative verbs. The R1 nouns of both were also different—*dalam* had more abstract nouns but *di dalam* had more physical nouns. Comparatively, their antonymous pair *luar* and *di luar* showed further great differences, where *luar* had more physical collocates compared with *di luar*, a phenomenon not seen in other prepositions, but both denoted nouns that show an 'unexpectedness' meaning. It is thus clearly shown here that *(di) luar* is a more marked form than *(di) dalam* is. As mentioned, *luar* had more L1 collocates that formed compound nouns compared with *di luar*, and the latter had both noun and verb collocates.

Finally, Table 13 shows the proportion of L1 and R1 collocates. A majority of the R1 collocates were more significant, except for *di atas* and *luar*, both of which had more collocates in the L1 position that were significant (verbs for the former; nouns for the latter). From the above analysis, the L1 collocates of *di atas* were mainly verbs indicating a state, while the L1 collocates of *luar* often formed compound nouns.

In Table 14 below, a summary of the overlapped collocates is provided. As shown, only *dalam* and *di dalam* had no overlapped collocates in the top 50 positions, indicating their different uses. Conversely, *bawah* and *di bawah* had 48% of collocates that overlapped, indicating their high similarity. For *(di) atas* and *di (luar)*, respectively, only a small proportion of their collocates overlapped.

Table 14. Summary of collocates that overlapped

	Percentage of the Number of Collocates that Overlap among Top 50	
	L1	R1
bawah *di bawah*	0	**24 (48%)**
atas *di atas*	0	6 (12%)
dalam *di dalam*	0	0
luar *di luar*	1 (2%)	9 (18%)

As Murphy (2003) has pointed out, a pair of antonyms can be similar in all aspects except for one. This can be observed in a corpus linguistics way by identifying similar collocates across any contrasting pairs. For example, for the contrasting pairs *bawah* and *atas*, their direct opposite meanings can be seen when they refer to a location that is below or above a certain object, such as in *tingkat bawah/atas* 'lower/upper storey', *bawah/atas tanah*

'on the ground/underground', and *bahagian bawah/atas* 'lower/upper part.' These direct opposites, nonetheless, are low in frequency. Most antonyms have their own preferred collocates, as has been emphasized in the previous discussion. Even for the locational meanings, direct opposites are not always seen because a directional word must be salient in certain uses not equally frequent with its counterpart. For example, *di atas* has many concrete objects, such as *pentas* 'stage', *katil* 'bed', *kertas* 'paper', and *lantai* 'floor'. Although describing the location beneath these objects is possible, its uses are not as salient (sometimes, not even needed) as those above it. From the above discussion, therefore, it was generally found that even though *atas*:*bawah* and *dalam*:*luar* are commonly accepted as opposites, their linguistic behaviors were quite different, but not in a directly opposite way. Although antonymy "reflects or determines what appears to be a general human tendency to categorize experience in terms of dichotomous contrast," (Lyons 1977:277) when examining the linguistic behaviors, differences were found between antonyms. These antonyms were different not in an opposing way but in other various aspects. For example, *bawah* clearly showed the metaphor HAVING CONTROL OR FORCE IS UP; BEING SUBJECT TO CONTROL OR FORCE IS DOWN, but its *atas* counterpart did not clearly show this metaphor; rather, it consisted of uses that reflect the meaning 'to act upon' a certain accusation/charges. (The examples of *up* in this metaphor are something like *I am on top of the situation*, *He's in the upper echelon*, *He ranks above me in strength, etc.* (Lakoff & Johnson 1980:15).)

In this work, we found that differences occurred not only between antonyms but also within the same relational noun with or without *di*. For example, many others (Chung 2013; Djenar 2006; Sneddon et al. 2010, etc.) have commented that [*di* + relational noun] displays a more specific locational meaning but this study found that this may vary. For instance, *di dalam* and *di atas* had more locational meanings but *di bawah* and *di luar* did not. Therefore, when examining antonyms such variations exist and it is important not to overlook these differences. Such findings have not been discussed in previous literature.

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