

SEMANTIC PROSODY OF WORDS OF EFFECTS IN INDONESIAN

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Abstract

In a cause-and-effect type sentence, the choice of lexis and grammar is crucial. This paper focuses on five nearly synonymous Indonesian lemmas indicating effect, which are: <hasil, efek, konsekuensi, dampak and akibat>. In *Kamus Besar Bahasa Indonesia* (the online version of the Indonesian reference dictionary used in this study), these lemmas are described without any feature of semantic prosody. Does this mean that the prosody of these words is not important? My study has shown otherwise. I, here, have extracted cause-and-effect sentences from the PAN Localization Corpus (the reference corpus employed in this study). The collocates and grammatical constructions show that the semantic prosody of *hasil* is flexible. However, discussion of my finding shows that the prosody for the rest of the lemmas tends to be negative. This can be seen from statistics showing lexical preferences for words with negative associations and negative grammatical constructions, where the effects are negative or unexpected. This holds true for the four text types in the corpus (economy, sport, science and international affairs). For this reason, I recommend that the KBI development team should incorporate this feature in the forthcoming versions of the dictionary.

Keywords: corpus, concordance, collocation, words of effect, semantic prosody

The focus of my study here is on words of effect (as in 'cause and effect') in the Indonesian language. The data³ were obtained from the PAN Localization Project Corpus (Adriani & Hamam, 2008). Some examples from the corpus data (1), (2) and (3) are shown as follows (effect is underlined in each case):

- (1) *keterbelakangan diakibatkan oleh sifat-sifat tradisional*
"backwardness is caused by traditional characteristics"
- (2) *perubahan-perubahan yang diakibatkan oleh mutasi*
"the changes affected by mutations"
- (3) *kematiannya diakibatkan oleh kegiatan mata-mata bagi Amerika Serikat*
"death was a result of spying for Americans"

The stem *akibat* 'effect' is derived by the {*di-kan*} confix, resulting in the verbal form *diakibatkan* 'be caused by something'. Notice how *keterbelakangan* 'backwardness' in line 1 and *kematian* 'death' in line 3 have the feature of negative meaning. The reduplicated form *perubahan-perubahan* (the plural form of 'change') in (2) is actually neutral in this isolated co-text, but the expanded context suggests that it is also negative in meaning. See (4):

- (4) *Perubahan-perubahan yang diakibatkan oleh mutasi hanya akan serupa dengan apa yang dialami penduduk Hiroshima, Nagasaki, dan Chernobyl.*
"The changes affected by mutations can only be like those experienced by people in Hiroshima, Nagasaki, and Chernobyl."

'Changes' in (2) refers to the extreme side effect(s)

of nuclear radiation. This effect is neither something positive in meaning, nor expected. Those three samples have illustrated that the word of effect *diakibatkan* licenses the presence of words or constructions that have the feature of negative association. The term that Louw (1993) has proposed for this phenomenon is 'semantic prosody': a word may attract collocates that have a particular semantic property (usually characterized by negative or positive) and be determined either by lexis or grammar. I will review this concept later. As for now, it is important to understand that besides *diakibatkan*, other negative semantic prosody suspects are also present in Indonesian.

In this paper, I investigate five lemmas of words of effect that are near-synonyms: <*hasil, akibat, konsekuensi, dampak and efek*>. The aims of this study are to understand 1) how the words of effect are used in the corpus, 2) the semantic prosody of words of effect via its collocates or grammatical construction, 3) how native Indonesians use the words of effect in sentence context.

Discussion of the findings in this paper is presented by the combination of statistics, concordance, collocates and qualitative description. I also conducted a production test (with Indonesian native speakers as the respondents). The cross check between the production test and the findings from the corpus is a crucial importance before concluding this study. Before discussing this further, there are some previous studies about semantic prosodies that I want to review.

Prosody is a term that originates from the field of phonetics and phonology, but it is also used in the field of corpus linguistics these days. While prosody in phonology refers to suprasegmental features such as stress, rhythm and intonation (Ladefoged & Johnson,

2011), prosody in corpus linguistics refers to the tendency of a word to positive or negative polarity (McEnery & Hardie, 2012). Consistent series of collocates to this kind of word are clues to determine its prosody. The attributive 'semantic' is often attached to 'prosody' as 1) it relies heavily on sentence context, 2) the co-selection is strongly related to the semantic properties of the word and its collocates.

Through a series of studies, Sinclair (2003) concluded that verbs such as 'to cause', 'to budge' and 'to happen' have negative semantic prosody. They tend to co-select words with negative features, such as 'failure', 'burden', or 'expensive'. The negativity can also be expressed by negation, such as 'not successful', 'has never managed to', or 'cannot survive'. Sinclair suggested that semantic prosody is included in headword description of Standard English dictionaries.

Hunston (2007) revisited the concept of semantic prosody, and she suggested that the prosody might be bound to register. Her finding is also important, as register is also another crucial instrumentation of meaning. One of her criticisms to Sinclair's analysis is about the semantic prosody of 'to cause'. She believed that when it refers to [-HUMAN] features, the prosody is not necessarily negative.

Whitsitt (2005) also criticized this concept a bit earlier before Hunston. Although many loopholes are found in his criticisms (McEnery & Hardie, 2012), one of his findings seems important. He believed that semantic prosody might change overtime. This might hold true as diachronic linguistics studies have validated that meaning is always negotiated, and after some time, with social convention, the meaning itself may shift or even change.

The findings of Sinclair, Whitsitt and Hunston are instrumental to my study. The data of the corpus I use here are from four different sections of Indonesian newspapers: economy, international, science and sport. It is interesting to confirm whether the text type is instrumental in determining the prosody as Hunston (2007) suggested. As for Whitsitt's finding (2005) about diachronic change, I need to state that my focus here is on words of effect in present/modern Indonesian. But his findings raise important concern for further studies, which is to look at how the use of words of effect may change from time to time.

I here follow the systematic investigation method of Sinclair (2003) to determine the semantic prosody, which relies heavily on both lexis and grammar. In the methodology section, I will show how some concepts, like co-selection, collocation, and co-text, applies in determining the semantic prosody of words of effect in the corpus I am studying.

METHOD

Raw data in this paper were obtained by the automatic retrieval of the derivations of five lemmas in the corpus: <hasil, efek, konsekuensi, dampak and akibat>. The retrieval was performed by a corpus processing tool, Unitex (Paumier, 2008). As the lexical resource for

Indonesian was not yet available, I used morphological stem-based retrieval. For instance, the retrieval of stem <<hasil>>, resulted on the concordance lines with the following keywords (derivations) in contexts: *menghasilkan*, *hasilnya*, *dihasilkan* and etc. They are derived by means of affix(es), such as, *me-kan* confix (*menghasilkan* 'to result on sth'), *ber-* prefix (*berdampak* 'to have impact'), *-nya* suffix (*konsekuensinya* 'the consequence'), and etc. Of the retrieval of those five stems, there are 39 derivations that contain strings, where the surface forms are exactly the same as the lemma.

One feature of derivation is that it may change the meaning. It means some words that do not fall to words of effect category might also be included in the result of the retrieval. As the focus of this paper is on the words of effect, then words that fall beyond this classification must be removed. Words such as *penghasilan* 'income', *keberhasilan* 'success' or *efektif* 'effective' are removed as they do not fall to this category.

To investigate the semantic prosody of the words of effect, I applied the following procedure. First, I extracted concordances for each derivational token. These concordances are important as they provide co-text, where the token is used. The part of co-text that is also essential in determining the semantic prosody, is the collocate(s) of the words of effects. I then assigned prosody for each token, particularly evaluative words, and presented them by cross tabulation. This datum was then statistically measured to identify any prosodic tendency. Another statistical measure was performed to investigate the distribution of words of effect across text types. Here, I used AntConc (Anthony, 2006) to obtain the distribution plot and convert the data, also into a cross tabulation where text types and words of effect are the variables. The aim is to show to what extent text types are significant to the preference of words of effect.

The last stage of this research was a production test. Ten Indonesian native speakers were randomly selected to fill out an online questionnaire, which I had devised. In this questionnaire, they were asked to compose one sentence for each derivational form. I then investigated the semantic prosodies and crosschecked them with the prosodies I have previously assigned on the corpus data.

One important thing that I need to declare before I begin presenting my data is about the translation. We will frequently encounter examples in Indonesian followed by the translation in English. The idiomatic translation of each datum is obtained also from the corpus, as the corpus is already aligned to its English translation (it is a parallel corpus).

RESULTS AND DISCUSSION

As I have commented previously, the raw data have to go through the filtering before they are analyzed further. Several words that are not under the category of words of effect are removed. The result of the filtering is summarized in Tables 1 and 2.

Table 1 shows the result of the derivation without the involvement of any affix. Of those five words of effect

Table 1. Non-affix derivations

Token	Alignment Sample
<i>n.hasil</i> 'result'	<i>Saat ini kami masih menunggu hasil penyelidikan dan pengecekan ulang tata batas areal yang dilakukan Departemen Kehutanan,</i> Now we are waiting for the result of the governmental investigation and the rechecking on the forest borders.
<i>n.konsekuensi</i> 'consequence'	<i>Anggota senior partai Demokrat di Kongres, Rabu, mencela keputusan Pentagon untuk memperpanjang penggelaran tentara di Irak sebagai konsekuensi kegagalan kebijakan Gedung Putih.</i> Top Democrats in Congress denounced Wednesday the Pentagon's decision to extend troop deployments in Iraq as the consequence of White House policy failures.
<i>n.akibat</i> 'as a result of'	<i>membentuk tim khusus dari antardepartemen pada tahun 2008 sebagai akibat tingginya harga minyak dunia yang menyentuh 100 dolar AS per barel.</i> establishing a special team in the 2008 as a result of world oil price to reach US\$100 per barrel.
<i>n.dampak</i> 'impact'	<i>kami mengharapkan kondisi pasar keuangan global kembali pulih sehingga turut memberikan dampak positif terhadap pasar keuangan domestik, katanya.</i> we hope global financial market conditions would recover and have a positive impact on the domestic market, he said.
<i>n.efek</i> 'effect'	<i>Adukan ini kedap-air dan tahan terhadap efek korosif air.</i> This mortar is water-resistant and is very firm against the corrosive effect of water.

Table 2. Derivations by affix(es)

Token	Alignment Sample
<i>v+tr.menghasilkan</i> 'to produce sth'	<i>Secara bersama, KPC dan Arutmin menghasilkan lebih dari 53 MT batubara pada tahun 2006</i> Jointly KPC and Arutmin produced more than 53 metric tons of coal in 2006
<i>v+pass.dihasilkan</i> 'be resulted from'	
<i>v.dihasilkannya</i> 'be resulted by the (+agent)'	<i>Jeruk yang dihasilkannya sangat berkhasiat bagi tubuh, sangat lezat dan harum saat dimakan.</i> The result it yields is extremely useful for the human body, extremely tasty and fragrant when consumed by humans.
<i>conj.alhasil</i> 'as a result'	<i>alhasil, ukuran populasi ... dibatasi oleh faktor-faktor lingkungan</i> 'as a result, the population is limited by environmental factors
<i>n+def.konsekuensinya</i> 'the consequence'	<i>Konsekuensinya pemberdayaan dan pengembangan LKM menjadi salah satu syarat dasar.</i> Consequently, empowerment and development of MFI becomes one of basic requirement.
<i>v+tr.mengakibatkan</i> 'to cause sth'	<i>Hal ini menurut dia karena krisis keuangan telah mengakibatkan beban biaya fiskal bagi pemerinatah.</i> They had done so considering that past crises had caused their governments to bear huge fiscal cost burdens.
<i>v+pass.diakibatkan</i> 'be caused by sth'	
<i>n+def.akibatnya</i> 'the result'	<i>Menurut sumber keamanan Palestina, satu orang Palestina terluka sebagai akibatnya.</i> According to a Palestinian security source, one Palestinian was wounded as a result.
<i>v+tr.berakibat</i> 'to impact on sth'	<i>Menurunnya kerapatan pigmen macular berakibat pada menurunnya kemampuan retina untuk menyaring cahaya yang masuk.</i> Reduction of macular pigment density impacts to decreasing retina ability to filter entering light.
<i>v+tr.berdampak</i> 'to have impact on sth/to affect'	<i>mengingat itu berdampak pada tingkat bunga, nilai tukar dan variable lain, katanya.</i> it could affect the interest rate, currency exchange rate and other variables.
<i>n+def.dampaknya</i> 'the impact'	<i>saya kira dalam dua bulan mendatang dampaknya masih terasa di pasar keuangan, katanya.</i> I think the impact on the financial market will remain in the next two months, he said.
<i>n+def.efeknya</i> 'the effect'	<i>Efeknya mungkin baru terlihat puluhan tahun mendatang.</i> The effect might take place in several decades to come.
<i>n+intr.berefek</i> 'to affect on sth'	<i>Polusi aerosol dari Asia Timur berefek besar bagi belahan dunia ini karena adanya transportasi jarak jauh.</i> Aerosol pollution from Asia has a huge impact on this part of the world because it transports over long distances.

on table 1, you see some of them are similar to English, such as *efek* 'effect' and *konsekuensi* 'consequence'. Badudu (2009) believed that these two words are loans from Latin. Jones (2007) on the other hand believed that they are Dutch loan. Although they disagreed on the origin of *efek* and *konsekuensi*, they both agreed that *hasil* and *akibat* are Arabic loans. However, neither of these scholars mentioned anything about *dampak*. I believe that this is the only Indonesian original word, or at least Malay origin. The retrieval of *dampak* on Malay Concordance Project Corpus results on six occurrences of *dampak* including *berdampak*, *berdampaklah* and *terdampak* (none of the last two words occurred in the corpus used in this paper) from texts between 1843 and 1940. Unfortunately, I found no previous works that relate to the words of effect in the donor language (English or Arabic). Such studies would be useful as the Indonesian prosody might be a form of interference of the donor language prosody.

The reference can be located on the left or right hand side of the word of effect. However, sometimes, we need to observe the extended co-text as well. Consider examples (5), (6) and (7):

- (5) *Berikut di bawah ini adalah dampak inflasi menurut para ekonom.*
'The followings are impacts of inflation according to economist.'
- (6) *harga logam timah dunia cenderung menguat sebagai dampak dilakukannya upaya penegakan hukum 'world tin prices had strengthened since the fourth quarter of 2006 as a result of law enforcement'*
- (7) *inflasi yang rendah juga membawa dampak turunnya penerimaan low inflation had also caused a decline in value-added tax receipts*

In example (5), expanded context is required as *inflasi* is not the impact. The impact reference itself is cataphoric (available on the extended context), as shown by the phrase *di bawah ini* 'the followings'. In example (6), *dampak* is predicative, and subject *harga logam timah dunia cenderung meningkat* 'the strengthening of world tin prices' is the effect. In example (7), the effect is on the right hand side *turunnya penerimaan* 'decline in value added tax receipt'. Now, see table 2 that shows the derivations formed by affix(es) and the location of the effects in my description.

Table 2 shows us some derivations that take affix(es). Some affixed words of the same lemma are put under the same box, such as *meN-kan* and *di-kan* (*mengakibatkan*, *diakibatkan*, *menghasilkan*, *dihasilkan*). Prefix *di-* indicates passive voice, while *meN-* indicates active voice. The stem also takes suffix *-kan*. The presence of this suffix means that the verb is transitive and the presence of an object (in this case the effect) is necessary. See the effects (underlined) in (8) and (9):

- (8) *krisis keuangan telah mengakibatkan beban¹⁰biaya*

fiskal bagi pemerintah.

Past crises had caused their governments to bear huge fiscal cost burdens.

- (9) *Zat ini hanya dihasilkan di tempat yang terluka.*
This substance is produced only at the location of the wound.

The effect of active voice (*meN-*) is located on the right hand side. See *beban* 'burden' in (8). Here huge fiscal cost is the effect of past crises. And, the object of passive voice is situated on the left hand side as shown by *zat* 'substance'. The presence of this substance is the effect of the wound.

Another marker of active voice is prefix *beR-* as in *berdampak* or *berakibat*. The effect is usually located on the right hand side. However, often the evaluative words of the effect are used without the textual presence of the head. See (10):

- (10) *kejadian yang dapat berakibat fatal.*
'An incident that may cause something lethal'

The Indonesian version does not mention anything about the reference. In the English translation, 'something' is inserted to make the reference explicit. However, the presence of the Indonesian equivalence of 'something' is not important for Indonesian speakers, as they are quite sure that the effect does exist and is lethal. This might be the effect of the word formation as *beR-* prefix attaches to noun stem which means 'to have N'.

This phenomenon also happens for some words, where the grammar class is marked by +def (definite) feature. In example (11), the noun reference is omitted, and only the evaluation '10 times worse' is present:

- (11) *kalaupun masyarakat internasional gagal melakukan itu, konsekuensinya akan 10 kali lebih buruk.*
if the international community failed to do that, the consequences would be 10 times worse.

Here, the presence of noun is unnecessary as *konsekuensi* itself is the noun, and the evaluative phrase *10 kali lebih buruk* '10 times worse' is its modifier.

Up to now, we have discussed how to identify the effect reference from the structural point of view. When we did so in the previous discussion, we know that some of the effect reference or the evaluative word (usually adjective) or phrase may bring the impression that the effect is either something expected, or unexpected depending on the positive or negative evaluation that it conceives.

Semantic prosody

I assign prosodies to the extracted data in the corpus by three types: positive, negative and neutral. Positive prosody means the effect is positive or comes as expected, while negative prosody means that the result is negative or unexpected. Neutral indicates that the prosody is neither positive nor negative. The decision of assigning prosody comes after observing collocates of the words of effect. Consider example 12 to 14:

- (12) *sistem kehidupan lainnya yang menghasilkangerak mekanik*
'all other organic systems that produce mechanical motion'
- (13) *melepas cadangan devisa mengakibatkanrupiah menguat*
'released funds from its foreign exchange reserves, causing the rupiah to strengthen'
- (14) *sebagai konsekuensinya, perusahaan penerbangan Nepal tersebut memecat seorang pegawai*
As a consequence, the Nepalese airline -fired an employee

Example (12) is obtained from a scientific text. The effect of the verb *menghasilkan* is *gerak mekanik* 'mechanical motion'. The collocate, motion, is the obligatory argument as the nature of {-kan} suffix. This collocate semantically indicates that the prosody of *menghasilkan* is neither positive nor negative. It is simply a result declaration of organic systems.

As for example (13), the phrase *rupiah menguat* 'rupiah to strengthen' is positive in prosody. Unlike example (12), in example (13), the word *mengakibatkan* (also takes -kan suffix) introduces an object clause consisting of the noun *rupiah* (Indonesian currency) and the verb *menguat* 'strengthen' where the verb is a positive evaluation, which means that the benefactor, *rupiah*,

strengthens as a result of releasing the foreign exchange reserve on the left hand side of *mengakibatkan*.

In example 14, the word of effect is a noun *konsekuensi* that takes a definite marker suffix-nya (which makes the presence of effect obligatory). The verb *memecat* 'to fire' is negative in meaning. This collocate makes the prosody negative in (14).

Collocates here play an important role in determining polarity. Often, the list of the collocates of a word of effect may point out to what polarity the prosody leads. Consider table 3, which is the list of 10 evaluative collocates of the noun *konsekuensi*. The list is obtained by T-score (performed by AntConc):

Table 3. Ten collocates of *hasil* by AntConc

Positive Collocate	Negative Collocate
<i>baik</i> 'good'	<i>mengecewakan</i> 'disappointing'
<i>menarik</i> 'interesting'	<i>terpuruk</i> 'went down'
<i>positif</i> 'positive'	
<i>gembira</i> 'happy'	
<i>laba</i> '(bank) interest'	
<i>puas</i> 'satisfied'	
<i>sesuai</i> 'proper'	

Table 3 shows that the collocates of *hasil* are mostly positive. Only two collocates are negatives, and the rest eight collocates give positive evaluation. Although the tendency of the prosody here is positive, but I may say that the prosody of the stem *hasil* is flexible. This

Concordance 1. *konsekuensi*

1 <i>karena anda memahami bahwa</i> 'because you understand that the	<i>konsekuensi</i> consequences	<i>dari kegagalan akan menyedihkan</i> of failure would be grievous...'
2 <i>mengalami kenaikan, yang membawa</i> 'were relatively highthis had	<i>konsekuensi</i> affected	<i>terhadap beban suku bunga</i> the interest burden in the state budget.'
3 <i>tapi saya percaya</i> 'but I believe the	<i>konsekuensi</i> consequences	<i>bagi keamanan Amerika akan menghancurkan</i> for American security would be devastating.
4 <i>Hanya</i> 'Only tragic	<i>konsekuensi</i> consequences	<i>tragis akan mengikuti jika kita</i> will follow if we...'
5 <i>ekonomi rendah karena memang</i> 'economic growth ...low	<i>konsekuensi</i> as a result of	<i>dari kenaikan harga minyak</i> the increase in the prices of fuel oils...'
6 <i>lahir berbagai</i> 'emerge various poor	<i>konsekuensi</i> consequences.	<i>buruk. Dalam hal tingkat pendapatan</i> In term of income level'
7 <i>karena kami memahami</i> 'because we understand the	<i>konsekuensi</i> consequences	<i>kegagalan. Kalau koalisi kami mundur</i> of failure. If our coalition withdrew...'
8 <i>tetap kita lakukan dengan</i> 'We will continue to''	<i>konsekuensi</i>	<i>biaya yang lebih mahal</i> even at higher cost
9 <i>mencatat kemungkinan</i> noted several possible negative	<i>konsekuensi-konsekuensi</i> consequences	<i>negatif atas setiap aksi</i> pof any military action, '
10 <i>lembaga Kristen yang anti perang.</i> 'Christian anti-war charity.	<i>Konsekuensi-konsekuensi</i> The consequences	<i>dari kemungkinan</i> of any possible...'

property is assigned to words of effect where they may co-select words with either positive or negative evaluation.

Besides flexible, another property of the prosody is 'absolute'. 'Absolute' is the property of words of effect, where all the collocates suggest either positive or negative evaluation. Consider concordance 1:

The prosody of *konsekuensi* is negative for all, as shown by 10 concordance lines shown by concordance 1. See line one *menyedihkan* 'sad' and *kegagalan* 'failure' (also repeated in line 7), *beban* 'burden' in line 3, *menghancurkan* 'to destroy' in line 3, *tragis* 'tragic' in line 4, *buruk* 'bad' in line 6, *mahal* 'expensive' in line 8, and *negatif* 'negative' in line 9. We find *kenaikan* 'raise' in line

5. This word is interesting as it may be positive or negative. But here, it configures itself as the modifier of *harga minyak* 'oil price'. Where the raise of salary is expected, the raise of oil price is unexpected, as it may trigger the price of other items to rise as well. It is therefore negative. To understand why *konsekuensi-konsekuensi* 'the plural form of consequence' is negative in line 10, we need to observe the expanded context. See example (15):

(15) *Konsekuensi-konsekuensi dari kemungkinan serangan militer mendatang sama sekali kontra produktif serta*

sangat berbahaya.

'The consequences of any possible future military action could be wholly counter-productive as well as highly dangerous'

The cause of effect in example (15) is *serangan militer* 'military action'. Here, the meaning is already negative that almost everyone believes that peaceful resolution is always prioritized and military action is one last option to consider. However, what determines the negative prosody of *konsekuensi-konsekuensi* is the

Concordance 2. dampak

1 lebih dari 100 persen, '...the high inflation rate	dampak	berupa inflasi yang tinggi baru mereda ..percent abated only ...'
2 terpusat pada satu titik tunggal. '... all focus onto a single point.	Dampak	kerugian nyata lainnya yakni The side impact of the event was ...'
3 mengenai manfaat atau '...how useful or harmful oxygen administration is during the resuscitation of newborns'	dampak	buruk dari pemberian oksigen untuk hukum yang serius bagi Antam sebagai
4 dilanjutkan akan mengakibatkan 'continuing ... would make Antam as the concession-holder liable to legal sanctions'	dampak	
5 Menurut Paskah, soal penanganan 'Paskah... discussing the material losses caused	dampak	kerugian Lumpur Lapindo masih dibicarakan by the Lapindo mudflow...'
6 prinsip kehati-hatian atas 'still carefully considering	dampak	krisis subprime mortgage of the subprime mortgage turmoil ...'
7 atas 10 persen bisa memberikan above 10 percent will result on worse impact...'	dampak	negatif yang lebih besar
8 mortgage', akan memberikan '...mortgage ... will ... have a positive impact	dampak	positif terhadap nilai tukar rupiah on the rupiah's exchange rate..'
9 terkendali sehingga akan memberikan dampak 'can be kept in check ... have a positive impact	dampak	positif bagi perekonomian on the economy....
10 yang turun akan memberikan '...the drop ... would have a positive impact	dampak	positif bagi APBN di mana belanja subsidi on the state budget... would reduce... subsidy'

evaluation marked by the predicative compound *kontra produktif* 'counter-productive' and adjective *berbahaya* 'dangerous'. The adjective is even modified by an intensifier *sangat* 'highly' to indicate that the danger behind the military attack is serious.

So far we have come to three prosodies; positive, negative and neutral. Besides the polarities, another property of the prosody of words of effect here is 'flexible' or 'absolute'. The data shows that the prosody of *konsekuensi* is negative for all data. It means that it is *konsekuensi* that co-selects its collocates and not the other way round. Cognitively, Indonesian speakers would use words or constructions that lead to negative effect as the collocates of *konsekuensi* or its derivatives.

Unlike 'absolute', words that fall to the category of 'flexible' are not definite in prosody. The collocates determine whether they are positive or negative (or neutral, as I have commented previously). However, the statistics showed that the term 'flexible' must be elaborated somehow, as the tendency either may extremely goes toward one side, positive or negative. Table 3 has shown that *hasil* can be used when the result is negative or positive. But the data indicate that *hasil* has the extreme tendency towards positive prosody. On the other side, *dampak* seems to have an extreme tendency to negative prosody:

In concordance 2, the prosody of *dampak* 'impact' from lines 1-7 is negative. Only three are positive in prosody (they are marked by attributive adjective *positif* 'positive'). I believe that unless they are marked by positive evaluation word, the prosody of *dampak* is negative.

As I have commented previously, collocates are not the only clue in determining the prosody. Consider 16, where the evaluation word *separah* (from *parah* 'bad') stands as the collocate. Here, the collocate seems to be negative, but the prosody is actually positive as the grammatical construction in the co-text shows that it is negated by *tidak* 'not'. The whole phrase *tidak separah* 'not as bad as' indicates that the impact of the raise of oil price is not as bad as the previous one.

(16) *dampak kenaikan BBM tahun ini tidak separah tahun 2005*
'the impact of fuel oil price hikes would not be as bad as those in 2005'

These two important findings have confirmed the belief that certain collocates and particular grammatical constructions are helpful in determining the semantic prosody. Now have a look at *alhasil*. It is derived from lemma *hasil*, but in the standard Indonesian dictionary, it is a separate lemma with conjunction as its part of speech (POS) category. This word is *hapax legomena*: a word

that only appears once in the corpus:

- (17) *alhasil, ukuran populasi ... dibatasi oleh faktor-faktor lingkungan*
 “as a result, the population is limited by environmental factors”

Here, on one time occurrence, the prosody is negative. I cannot decide now that the prosody is extremely or absolutely negative as it only occurs once in the corpus. However, my recent search by using Google

search has retrieved sentences where the prosody is all negative. Here are the top three sentences that I obtained:

- (18) *Alhasil, pemerintah masih memberikan subsidi sebesar Rp 1.500 per liter.*
 “As a result, the government still has to subsidize 1.500 per liter”
- (19) *Alhasil, Juventus hanya mampu meraih satu poin dalam laga ini*
 ‘As a result, Juventus only managed to get one point

Table 4. Prosodic categorization of words of effect

Token	Prosody		absolute	Flexible	
	[+]	[-]		Extremely [+]	Extremely [-]
<i>hasil</i> ‘result’	✓	✓	✗	✓	✗
<i>menghasilkan</i> ‘to result’	✓	✓	✗	✓	✗
<i>dihasilkan</i> ‘be resulted’	✓	✓	✗	✓	✗
<i>dihasilkannya</i> ‘the resulted’	✓	✓	✗	✓	✗
<i>konsekuensi</i> ‘consequence’	✗	✓	✓	✗	✗
<i>konsekuensinya</i> ‘the consequence’	✗	✓	✓	✗	✗
<i>akibat</i> ‘cause’	✓	✓	✗	✗	✓
<i>mengakibatkan</i> ‘to cause’	✓	✓	✗	✗	✓
<i>diakibatkan</i> ‘be caused’	✓	✓	✗	✗	✓
<i>akibatnya</i> ‘the impact’	✓	✓	✗	✗	✓
<i>berakibat</i> ‘to have impact’	✓	✓	✗	✗	✓
<i>dampak</i> ‘impact’	✓	✓	✗	✗	✓
<i>berdampak</i> ‘to have impact’	✓	✓	✗	✗	✓
<i>dampaknya</i> ‘the impact’	✓	✓	✗	✗	✓
<i>efek</i> ‘effect’	✓	✓	✗	✗	✓
<i>efeknya</i> ‘the effect’	✓	✓	✗	✗	✓
<i>berefek</i> ‘to have effect’	✓	✓	✗	✗	✓

from this match”

- (20) *Alhasil, Jakarta harus puas berada di posisi ke-34 dari 40 kota yang dinilai*
 “As a result, Jakarta must be satisfied by just being the 34th over 40 assessed cities”

The word *alhasil*, is always sentence initial, followed by a comma and the effect (the cause is on the previous sentence). This pattern (*alhasil* + , + EFFECT) applies for the data, either by the Google search or the corpus. We can say here that *alhasil* introduces a negative impact. The context in all of the sample sentences I obtained suggests that the prosody is negative. However, since they are not the part of the corpus, I decide to exclude the sentences from this research and study this word in more details for future research. As for now, the details that we have previously discussed are summarized by table 4 (*alhasil* is excluded):

Table 4 summarizes the details that we have discussed so far. Among the words of effects, there are only two words where the data show only negative prosody; *konsekuensi* and *konsekuensinya*. Based on the data, the semantic prosody of these two words are

absolutely negative.

The prosody of the rest of the words is both negative and positive, which means they are flexible. But there is a tendency toward positive or negative. Words from lemma *akibat*, *dampak* and *efek* are extremely negative. The comparison may reach 70% (negative) – 30% (positive). The frequency of the occurrence of these words in positive prosody is scarce in the corpus. Interestingly, none of the words of effect has tendency towards positive prosody.

The words of effect that are derived from lemma *hasil* are more positive in prosody, although the gap is relatively small as compared to others. The comparison is 65% (positive) and 35% (negative). Besides used for effects under 'neutral' (neither positive nor negative) category, these words of effect are mostly used for the effect that is not yet obtained. Consider example 21.

- (21) *Saat ini kami masih menunggu hasil penyelidikan*
 “Now we are waiting for the result of the governmental investigation”

The result in example 21 is future in aspect; it is not yet known whether it is negative or positive or neutral.

Table 5. Distribution of words of effects across text types

Token		Text Types			
		Economy	International	Science	Sport
<i>Hasil</i>	'result'	65	63	112	117
<i>berhasil</i>	'successful'	62	40	66	70
<i>menghasilkan</i>	'to result'	11	20	97	20
<i>dihasilkan</i>	'be resulted'	6	5	45	4
<i>dihasilkannya</i>	'the resulted'	0	0	4	1
<i>konsekuensi</i>	'consequence'	5	13	1	1
<i>konsekuensinya</i>	'the consequence'	1	2	0	0
<i>akibat</i>	'cause'	129	110	57	9
<i>mengakibatkan</i>	'to cause'	28	56	32	0
<i>diakibatkan</i>	'be caused'	2	3	8	0
<i>akibatnya</i>	'the impact'	16	4	8	0
<i>berakibat</i>	'to have impact'	4	1	4	0
<i>dampak</i>	'impact'	82	37	25	0
<i>berdampak</i>	'to have impact'	19	6	3	0
<i>dampaknya</i>	'the impact'	7	1	3	0
<i>efek</i>	'effect'	136	23	0	0
<i>efeknya</i>	'the effect'	2	2	0	0
<i>berefek</i>	'to have effect'	2	0	0	0
Total		577	386	465	222

Table 6. Validation sample from subject 2

Token		Sentence Production	Prosody
<i>hasil</i>	'result'	<i>hasil yang diperoleh adalah meningkatnya jumlah penderita ebola</i> the result obtained is the increase on ebola patients	+
<i>menghasilkan</i>	'to result'	<i>pupuk alami menghasilkan panen lebih besar</i> natural fertilizer results on better crops	+
<i>dihasilkan</i>	'be resulted'		
<i>dihasilkannya</i>	'the resulted'		
<i>konsekuensi</i>	'consequence'	<i>Sebagai konsekuensi, kamu tidak lulus ujian.</i> as a consequence, you failed	-
<i>konsekuensinya</i>	'the consequence'	<i>konsekuensinya adalah turunnya minat belajar.</i> the consequence is low enthusiasm to study	-
<i>akibat</i>	'cause'	<i>Tiga orang tewas sebagai akibat tabrak-lari itu.</i> three died as a result of the hit and run	-
<i>mengakibatkan</i>	'to cause'	<i>meningkatnya kriminalitas diakibatkan oleh naiknya harga BBM</i> the increase of crime is resulted by the raise of oil price	-
<i> diakibatkan</i>	'be caused'		
<i>akibatnya</i>	'the impact'	<i>Akibatnya, pabrik minuman keras itu disegel oleh polisi.</i> as a result, the liquor factory was sealed by the police	-
<i>berakibat</i>	'to have impact'	<i>Lemahnya semangat belajar berakibat pada turunnya nilai.</i> the weak motivation to study has resulted on low grades	-
<i>dampak</i>	'impact'	<i>Banyak desa tenggelam sebagai dampak semburan lumpur</i> many villages were drown as the impact of mudflood	-
<i>berdampak</i>	'to have impact'	<i>Naiknya harga BBM berdampak pada langkanya pasokan</i> the raise of oil price impacted on low supply	-
<i>dampaknya</i>	'the impact'	<i>Dampaknya adalah turunnya perolehan suara.</i> the impact is low vote	-
<i>efek</i>	'effect'	<i>Efek samping yang ditimbulkan cukup membahayakan.</i> the side effect that it causes is dangerous	-
<i>efeknya</i>	'the effect'	<i>Efeknya, tiga orang pemuda meninggal dunia</i> the effect is, three died	-
<i>berefek</i>	'to have effect'	<i>Murahnya harga berefek pada persaingan tak sehat</i> the low price has an effect of unhealthy competition	-

This is the 'safest' words of effect to use, avoiding writer's tone to look obvious. When the words of effect of this lemma <*hasil*> are added together, they rank first among other words of effect that are derived from other lemmas.

Table 5 confirms this:

Table 5 indicates that the derivation by non-affix is the most productive forms for each lemma. The distribution across text types has shown that all derivations are used

Table 7. Validation from production test

Token		Respondents									
		1	2	3	4	5	6	7	8	9	10
<i>hasil</i>	'result'	+	+	+	+	+	+	+	+	+	+
<i>menghasilkan</i>	'to result'	+	+	+	+	-	+	+	+	+	-
<i>dihasilkan</i>	'be resulted'	+	+	+	+	+	+	+	-	+	+
<i>dihasilkannya</i>	'the resulted'	+	+	+	+	+	+	+	+	-	+
<i>konsekuensi</i>	'consequence'	-	-	-	-	-	-	-	-	-	-
<i>konsekuensinya</i>	'the consequence'	-	-	-	-	-	-	-	-	-	-
<i>akibat</i>	'cause'	-	-	-	-	-	-	-	-	-	+
<i>mengakibatkan</i>	'to cause'	-	-	-	-	-	-	-	-	-	-
<i>diakibatkan</i>	'be caused'	-	-	-	-	-	-	-	-	-	+
<i>akibatnya</i>	'the impact'	-	-	-	-	-	-	-	-	-	+
<i>berakibat</i>	'to have impact'	-	-	-	-	-	-	-	-	-	+
<i>dampak</i>	'impact'	-	-	-	-	-	+	-	-	-	-
<i>berdampak</i>	'to have impact'	-	-	-	-	-	-	-	-	-	-
<i>dampaknya</i>	'the impact'	-	-	-	-	-	+	-	-	-	-
<i>efek</i>	'effect'	-	-	-	+	+	-	-	-	-	-
<i>efeknya</i>	'the effect'	+	-	+	-	-	-	-	-	-	-
<i>berefek</i>	'to have effect'	+	-	+	-	+	-	-	-	-	-

except for sport texts. In this type of text, the only one derivations of extreme negative prosody are used *konsekuensi* (1 hit) and *akibat* (9 hits). Other derivations, which are extremely negative in prosody, are not used. The words of effect used in this corpus are mostly derived from stem *hasil*. As a result, it ranks the lowest among others in terms of the use of words of effect.

Validation from Production Test

The discussion on corpus data has shown that the only absolute prosody is for *konsekuensi* and *konsekuensinya* (negative prosody); the prosody for rest of the words of effect is flexible. To validate this, I conducted a production test. Ten respondents (Indonesian native speakers) participated in this test by filling out the questionnaire I devised. It is composed of a list of words of effect and the respondents are required to respond by writing a sentence using the word. Table 6 is the result of production test for one of the respondents.

The data in table 6 are obtained from respondent number two as a sample. However, each respondent shows the same tendency, which is to use evaluative words as a clue to prosody. From the production test, the result is binary: positive or negative. Neutral prosody is not found. In table 7, I summarized the result for all ten respondents.

The result presented in table 7 is similar to some of the previous findings; *konsekuensi* and *konsekuensinya* are always negative in prosody. The result for other words is almost similar, especially for words with extremeness toward negative prosody (*akibat*, *dampak*, *efek* and etc). A little variation is observed for the derivations of *hasil* where they are mostly positive in prosody (more than

80%). Although the gap between positive and negative prosody of *hasil* in the corpus is not significant, but it complies with the result on the production test that the positive prosody of *hasil* is more than the negative ones.

CONCLUSION

Findings in this paper have shown that among five lemmas of words of effect, only lemma *hasil* that has the orientation towards positive prosody. Derivations from lemma *konsekuensi* are absolutely negative in prosody, which means they only co-select effects that are negative in meaning, poor in impression or unexpected. The rest of the derivations (*akibat*, *dampak*, *efek*) are used for both positive and negative, but have tendency over negative prosody as well. The distribution of words of effect across text types indicate that the derivations of lemma *hasil* (*hasil*, *menghasilkan* and *dihasilkan*) are the most frequently used words of effect. The reasons are: 1) the words can be used for negative or positive effect, 2) the effect is neutral, 3) the effect is not yet known.

These findings are confirmed by the native speakers' intuition via production test. An interesting result is *hasil* is mostly used for effects that are positive. Although the corpus finding also shows similar tendency, the gap between negative and positive effect is not as high as in the production test. As for future studies, it is recommended that there is a comparison with another corpus, or the enrichment of the words of effect itself. The main recommendation of this study is for the developer of KBBI to incorporate the feature of semantic prosody in the dictionary entry or description.

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¹ www.daring.kbbi.co.id

² <http://www.pan110n.net/indonesia/>

³ A localization project undertaken by the Indonesian Agency for the Assessment & Applications of Technology, known as BPPT (*Badan Pengkajian dan Penerapan Teknologi*)

⁴ I here use the term co-text to refer to lexis and grammar contexts, which follows the tradition of corpus linguist. The term 'context' is also possible to use, but it might also cover situational contexts such as culture or pragmatics. The use of 'co-text' restricts the context to lexis and grammar. The title of this paper itself is self explanatory that the discussion will not go beyond semantics.

⁵ See Sinclair's proposal for headword BUDGE (Sinclair, 2003, p. 90)

⁶ For the description of Indonesian affix(es), see Alwi, et al (1998), Sneddon (2000), Kridalaksana (2007), and Chaer (2008).

⁷ <http://mcp.anu.edu.au>

⁸ The reference is not present on phrase or sentence level, but is available on discourse level such as anaphoric, or cataphoric reference of pronoun.

⁹ N is capitalized here, as it represents the abstract form (phoneme). The surface forms might take *n*, *ng*, and *m* as the orthographical forms, which correspond to [n], [ŋ], and [m] respectively as the allophonic variants of N. This convention has been used widely by Indonesian linguists. See 'morphophonemic' in Alwi, et al (1998), Chaer (2008) or Kridalaksana (2007).

¹⁰ Similar to N, R also represents the abstract form of orthographical variants *r* and *l*, which corresponds to the laterals [r] and [l] as the phonetic forms.