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Natural Semantic Metalanguage of Action Verbs in Balinese

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Abstract--- *The current article aims at explaining the components and semantic structure of event verbs in Balinese. In explaining the components and the semantic structure, this research applied the design of Natural Semantic Metalanguage (NSM) approach, which is a semantic theory that uses the semantic primitive device, proposed by Wiezbicka. The results of the research has described how the components as well as semantic structure of event verbs in Balinese appeared.*

Keywords--- *Natural Semantic Metalanguage, Action Verbs, Balinese, Paraphrase*.

I. INTRODUCTION

The event type process verb is part of the process verb that expresses a stationary event. The event verb has specific semantic components and structures that distinguish them from action verbs and state verbs. This paper aims to explain the components and semantic structure of event verbs in Balinese. In explaining the components and the semantic structure, this research applied the design of Natural Semantic Metalanguage (NSM), which is a semantic theory that uses the semantic primitive device, which was developed by Wiezbicka.

Balinese is one of the many regional languages that are still alive and exist in the State of Indonesia, which is well maintained by the community of speakers, namely ethnic Balinese. Balinese as the mother tongue or first language for most Balinese people has an important role, namely as a symbol of pride, a symbol of identity, and is widely used as a means of communication in various activities within the household and outside the household which includes various social life activities of the community Bali. Therefore, the Balinese language is a supporter of Balinese culture which continues to live and thrive in Bali. Based on this position and function, its development and development need special and serious attention for its preservation.

NSM Theory is a theory of meaning analysis that unites philosophical and logical traditions in the study of meaning with the design of typology for language studies. The primary assumption of NSM theory is that meaning cannot yet be fully described without a set of 'semantic primitives'. This means that the meaning of a word is a configuration of 'semantic primitive'. Given this fact, the analysis of meaning will be discrete and complete, in the sense of the complexity of any complex meaning can be explained without having to spin around and without residue in a combination of other discrete meanings. Several important concepts used in NSM theory are the semantic primitive, allocation, in composition polysemy, universal syntax, valence choice, and resonance.

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II. MATERIAL AND METHOD

2.1 NSM Theory

Language is an element of culture. No human culture is without a central element in culture. It is stated so because, with the language of culture, a community can be contained and passed on from generation to generation. With language media also, the culture of a community can be developed progressively and continuously. Language and culture are related to one another. Wierzbicka (1996: 1) and Sutjiati Beratha (2003) formulated some underlying assumptions about language and culture. The assumptions are (i) differences in social groups and differences in communities have implications for differences in ways of communicating, (ii) differences in ways of communicating are obvious and systematic, (iii) these differences reflect differences in cultural values or at least reflect the hierarchy of values, (iv) differences in ways of speaking, differences in communication styles can be explained and can be understood in terms of different cultural values and terminology.

NSM theory is a theory of meaning analysis that unites philosophical and logical traditions in the study of meaning with the design of typology for the study of language. NSM theory assumes that a sign cannot be analysed in a form that is not a sign itself. This means that it is not possible to analyse the meaning of a combination of forms which is not the meaning of the form itself. This assumption departs from the semiotic principle, namely the theory of signs (Goddard, 1994: 1; Sutjiati Beratha, 2000a: 1), whose primary assumption is that meaning cannot yet be fully described without a set of 'semantic primitives'. This means that the meaning of a word is a configuration of 'semantic primitive'. Given this reality, the meaning analysis will be discrete and complete; any complex meaning can be explained without having to spin around and without residue in a combination of other discrete meanings (Goddard, 1994: 2; 1996: 24; Wierzbicka, 1996b: 10; Sutjiati Beratha, 2000a: 1, Sutjiati Beratha 2000b: 243), such as seems evident in the following quote.

A sign cannot be reduced to or analysed into any combination of thing which are not themselves signs; consequently, it is impossible to reduce meanings to any combination of things which are not themselves things.

Several important concepts used in NSM theory are the semantic primitive, allocation, in composition polysemy, universal syntax, valence choice, and resonance. However, to formulate semantic structures, there are three relevant theoretical concepts to be put forward, namely (a) the semantic primitive (semantic primitive/semantic prime) and (b) non-compositional polysemy.

2.2 Semantic Primitive

Semantic Primitive is a set of meanings that cannot be changed and have been inherited from birth, or, in other words, the meaning of the first word of a word that is not easily changed despite changes in culture (changing times). Semantic Primitive is a reflection and formation of thoughts that can be applied from natural language (ordinary language) which is the only way to present meaning (Wierzbicka, 1996b: 31; Sutjiati Beratha, 2000a: 3; Sutjiati Beratha, 2000b: 243). The application of meaning must include the meaning of words that are intuitively related or at least have the same meaning field—a set of Semantic Primitive as a common parameter to examine semantic differences between languages.

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The meaning of a word is a Primitive Semantic configuration and is not determined by the meaning of other words in the lexicon. Semantic Primitive is implemented by paraphrasing using natural language (ordinary language), and not using technical language (Wierzbicka, 1996d: 31). The theoretical implication of the existence of Semantic Primitive is to explain all complex meanings in a simpler way. This is due to the Semantic Primitive containing order. Starting from the regularity of meaning, finally developed other more complex meanings which then tend to show disorder. Furthermore, if all lexicons are analysed in-depth, it is assumed that regular features can be found. This implies that the extent to which development and change in meaning can basically be determined. Of course, with the terms of the Semantic Primitiveness can be described.

Wierzbicka has proposed a number of semantic primitives based on research in a number of languages in the world: Chinese, Japanese, English, Acehnese, Aboriginal languages in Australia, and others. According to Goddard (1996: 24), in 1972, there were 14 elements that Wierzbicka had discovered based on typological and genetic studies of languages in the world. In 1980 that number became 15 elements, and a number of other elements that were considered later could become Semantic Primitive. Furthermore, Wierzbicka (1996d: 35) and Goddard (1996: 24-37) propose 55 Semantic Primitive. Tarakhir, Wierzbicka and Goddard (in Yoon, 2001) found 61 Semantic Primitive elements. All Semantic Primitive elements are presented in the following table.

Table 1: Semantic Primitive Elements

Time	When/Time, Now, Before, After, A Long Time, A Short Time, For Some Time, Moment
Substantives	I, You, Someone, People, Something/Thing, Body
Speech	Say, Words, True
Space	Where/Place, Here, Above, Below, Far, Near, Side, Inside, Touch (Contact)
Similarity	Like/As/Way
Relational Substantives	Kind, Part
Quantifiers	One, Two, Some, All, Much/Many, Little/Few
Mental Predicates	Think, Know, Want, Don't Want, Feel, See, Hear
Logical Concepts	Not, Maybe, Can, Because, If
Life And Death	Live, Die
Intensifier, Augmentor	Very, More
Existence, Possession	Be (Somewhere), There Is, Be (Someone/Something), (Is) Mine
Evaluators	Good, Bad
Determiners	This, The Same, Other~Else~Another
Descriptors	Big, Small
Actions, Events, Movement	Do, Happen, Move
Descriptors	Big, Small
Determiners	This, The Same, Other~Else~Another
Evaluators	Good, Bad
Existence, Possession	Be (Somewhere), There Is, Be (Someone/Something), (Is) Mine
Intensifier, Augmentor	Very, More
Life And Death	Live, Die
Logical Concepts	Not, Maybe, Can, Because, If
Mental Predicates	Think, Know, Want, Don't Want, Feel, See, Hear
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Substantives	I, You, Someone, People, Something/Thing, Body
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2.3 Incomposition Polysemy

Polysemy is not a new term in semantic studies (Goddard, 1996: 29; Sutjiati Beratha, 2000a: 4). In compositionpolysemy, according to NSM, is a single lexicon that can express two different Semantic Primitive and there is no composition relationship between one exponent with another exponent because the exponent has a different grammatical framework (Wierzbicka, 1996c: 27-29). At a simple level, exponents of the same Semantic Primitive might become polysemic in different ways in different languages. For example, according to Goddard (1996: 29), the word makuringanyi in Yankunytjatjara means 'want' and in English can be given meaning like, be fond of, and need, even though the realm of its use is not related to the English want domain. Goddard further stated that there are two types of in composition relationships, namely relationships that resemble, such as doing/happening and implicational relationships (implicational relationships), such as feeling/happening. Consider the following example.

(1) X *does something to* Y

Something has happened to Y

(2) if X *feels something*

It means something has happened to X

2.4 Universal Syntax

The universal syntax developed by Wierzbicka in the late 1980s (Goddard, 1996: 24) is an extension of the Primitive Semantic system. Wierzbicka (1996d: 171) states that meaning has a very complex structure, and is not only formed from simple elements, such as someone, wants, knows, but from complex structured components. The universal syntax consists of a combination of universal Semantic Primitive item lexicons that form simple propositions in accordance with the morphosyntactic language device in question. For example, wanting to have certain universal rules in context: I want to do this.

The basic unit of universal syntax can be likened to a clause formed by the substantive, predicate, and some additional elements required by the predicate. The combination of these elements will form a universal syntax which, according to NSM theory, is called a "canonical sentence", i.e. the context in which the original lexicon is thought to appear universally (Goddard, 1996: 27-34; Wierzbicka, 1996d: 30-44; Sutjiati Beratha, 2000a: 5; Sutjiati Beratha, 2000b: 247). In formulating the semantic structure of a language, NSM theory uses a paraphrase system. According to Wierzbicka (1996) in Sutjiati Beratha (2000b: 249), paraphrasing must follow the following rules.

1. Paraphrasing must use a combination of a number of Semantic Primitives that have been proposed by Wierzbicka. The combination of a number of Semantic Primitive is needed to be related to the claim of NSM theory, that is a form cannot be deciphered using only a Semantic Primitive.
2. Paraphrasing can also be done by using elements that are unique to a language. This can be done by combining elements that are unique to the language itself to decipher the meaning.
3. The paraphrase sentence must follow the syntactic rules of the language used to paraphrase.
4. Paraphrase always uses simple language.
5. Paraphrasing sentences sometimes require special indentations and spaces.

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The model specified in the paraphrase is a model developed by Wierzbicka with the formulation as below.

I (X) do something to you (Y).

Therefore, something happens to Y.

X want this.

X does something like this.

III. DISCUSSION

3.1 Semantics Primitive of Balinese

Semantic Primitive is a limited set of meanings that have not changed and have been inherited since birth, or, in other words, the first meaning of a word that is not easily changed despite cultural changes (changing times) (Wierzbicka, 1996b: 31; Sutjiati Beratha 2000a: 3). This assumption of the theory of natural metallic meaning (NSM) is used as a basis for identifying and classifying Semantic Primitive Balinese Verbs.

The classification of Semantic Primitive Balinese Verbs is based on the similarity of the semantic properties of each verb. Verbs that present related meaning are stated to be derived from the same Semantic Primitive. Semantic Primitive classification testing is performed using the NSM syntactic pattern. In summary, the classification of Semantic Primitive verbs in Balinese Verbs of actions can be seen in the following table.

Table 2: Semantic Primitive of Action Verbs in Balinese

Verbs	**Semantic Primitive**	**Example**
Action Verbs	Think	*ngitungang* ‘to think’, *grencanayang* ‘to plan’, *mitungang* ‘to discuss’
	See	*ngintip* ‘peek’, *nolih* ‘look’, *nlektekang* ‘notice’
	Listen	*ningehang/mirengang* ‘To listen’
	Do	*ngadekin* ‘Kiss’, *ngusudin* ‘Touch’, *nyicipin* ‘Testing’
	Say	*matakon* 'Ask, *nuturin*' advice, *nombang* 'Forbid, *matari* 'Ask Permition, *nundung* 'Oust, *miyegang* 'Contend'
	Move	*ngajanang* 'Go to North, *macelep* 'Go inside', *mai* 'Come here, *mapagin* 'Fetch', *kundangan* 'attend invitation'
	Move	*ngacemed* ‘Mock, *mamengos* ‘looked away, *manggutan* ‘Nod, *nengok* ‘emerged from the hole’
	Do	*nyuang* 'take for granted', *negen* 'shouldered', *ngejang* 'Put', *mayah* 'Pay, *ngurupin* 'barter', *ngalap* 'Pick, *ngabut* 'Revoke, *nyambak* 'fuss', *makerah* 'competing'

3.2 Semantic Structure of the Action Verb

The meaning of speech verbs involves the purpose of illocution, which is the intention of the speaker in saying something. It is framed in the pattern of 'I say this because […]'. This empty slot is filled with a number of different

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elements, depending on the verb property. The polysemic that forms the meaning of this verb is to say (*matakon/mataken* 'ask'), speak/think (*masaut*/*masaur* 'answer', *nuduh* 'accuse), *to* say/ to know (*ngorahang* 'tell, *nuturin*' advice', *ngajum'* praise'), to say /to do (*nunden/nikain* 'ask/order', *matari/ngorang* 'ask permition', *nyindir*' quip), to say /happen (*ngidih/nunas* 'ask', *ngamadakang* 'pray for', *misunang* 'defame'), To say/to feel (*matbat* 'berate'), *to say* /*move* (*nundung* 'drive out', *ngundang* 'invite). Some examples of semantic structures can be paraphrased as follows.

1. *nuturin* 'advice'

For several times, X says something to Y.

X says this because X wants Y to know what s/he can do.

X thinks that X can cause Y to do Z.

If Y wants to do Z, X thinks that Y will be good in the future

X said something like this.

2. *ngamadakang* 'Pray for'

At that time, X said something to Y.

X says this because X wants something bad to happen to Y in the future.

X wants this because Y has done something really bad to X.

X said something like this.

The semantic structure of conducting verbs is formed by polysemy, as follows. (1) Do /move (*ngemaling* 'steal, *nyendok* 'scoop', *ngejang/ngenahang* 'put'); (2) Do /feel (*males/ngwales*' reply', *niman* 'kiss', *ngusuh-ngushin* 'stroking'); (3) Do /happen (*nyuahin* 'comb', *ngorok* 'slitting' *ninjak* 'crashing'). Do/ happen (3) illustrates the highest level of patient affection. The semantic structure of this verb can be paraphrased as below.

3. *nyendok* 'scoop'

At that time / for some time, X did something to Y (rice, vegetables, rice, water, oil, soup, etc.).

X does this with Z (spoon, dipper, or canting).

Because of this, Y moves to Z at the same time.

X wants this.

X does something like this.

4. *ngalap* 'pick'

At that time / for some time, X did something to Y.

Because of this, something happened to Y at the same time.

X does this where Y lives (tree).

X does this with part of X (hand) or Z (knife, pole, machete)

X wants this.

X does something like this.

Semantic structure of reflexive verbs (*masugi*' wash face, *mapayas/marias*' ornate', *magasgasan* 'scratching') and reciprocity (*mepantig* 'fight, *masiat*' war, *mapalu* 'competing', *madiman* 'kiss', *magelut* 'hug, *majangkut*' sleep together and hug each other') are formed of polysemy *do/something* and *do /feel*. The difference, in reflexive, the

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actors act on themselves, while in reciprocity, the two actors act with each other. Consider the following sample structure.

5. *magasgasan*' scratching'

For some time, X did something on the part of X (head, hands, feet, body, etc.)

X does this because X feels something bad on the part of X (itching)

X does this with Z (fingers).

After this, X feels something good (delicious).

X wants this.

X does something like this.

6. *mapantig* 'Fight'

At that time, these two people did the same thing.

Because of this, something bad happened to these two people at the same time.

These two people do this with Z (hands, wood or other tools).

These two people want this.

These two people do something like this.

Moreover, the following table shows the Balinese words are grouped based on Semantic Primitive word of 'see'

Table 3: Semantic Primitive word of *'see'*

No.	Balinese Word of "see"	Semantic Primitive "See"
1.	*nyledet*	see something/someone to the side quickly and sharply because they want to know something
2.	*nyrere*	seeing something/someone aside for some time because they want to know something about something/someone
3.	*nyledep*	seeing someone sideways is followed by closing their eyes for some time because they feel something bad not because they want to know something
4.	*nolih*	see someone/something for some time because you want to know the place of something/someone
5.	*nlektekang*	seeing something/someone up close during the time because it's something about all parts of something /someone well
6.	*nganengneng/nglingling*	seeing someone up close for some time because they feel something about someone
7.	*ngintip*	see someone for some time from a small hole / hidden place because you want to know something about someone
8.	*mabalih/nonton*	seeing something for some time thinking that something can happen to something
9.	*ngawasin*	see someone for some time thinking that this person will do something bad
10.	*mreksa*	see something/someone for some time because they want to know something about
11.	*matemu/matepuk/kacunduk*	someone sees someone else accidentally and at the same time that person sees
12.	*mapapas*	someone looks at someone else up close accidentally, and at the same time he looks at this person; these two people are moving in the opposite direction.

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IV. CONCLUSION

NSM theory is a theory of meaning analysis that unites philosophical and logical traditions in the study of meaning with the design of typology for the study of language. The main assumption of NSM theory is that meaning cannot be fully described without a 'Semantic Primitive' set. This means that the meaning of a word is a configuration of 'Semantic Primitive'. In view of this fact, the analysis of meaning will be discrete and complete, in the sense of the complexity of any complex meaning can be explained without having to spin around and without residue in a combination of other discrete meanings. Three important concepts from NSM theory that are used to formulate the semantic structure of a word are Semantic Primitive, in composition polysemy, and universal syntax.

REFERENCES

[1] Goddard, C. 1994. "Semantic Theory and Semantic Universal". Goddard (Convenor). 1996. *Cross-Linguistic Syntax from a Semantik Point of View (NSM Approach),* 24—37.

[2] Goddard, C. 1996. "Building a Universal Semantic Metalanguage: the Semantic Theory of Anna Wierzbicka". Goddard (Convenor). 1996. *Cross-Linguistic Syntax from Semantik Point of View (NSM Approach). Australia: The Australian National University.*

[3] Mulyadi. 1998. "Struktur Semantis Verba Bahasa Indonesia" (Tesis). *Denpasar: Program Pascasarjana, Universitas Udayana.*

[4] Sudipa, I Nengah. 2004. Verba Bahasa Bali : sebuah Analisis Metabahasa Semantik Alami (Disertasi) Universitas Udayana (Unpublised)

[5] Sutjiati Beratha, N.L. 1998. "Materi Kajian Linguistik Kebudayaan". Linguistika, Edisi Kesembilan, September 1998, 41—45. *Denpasar: Program Magister (S2) Linguistik, Universitas Udayana.*

[6] Sutjiati Beratha, N.L. 2000a. "Struktur dan Peran Semantis Verba Ujaran Bahasa Bali". *Makalah yang Dipresentasikan pada Matrikulasi Program Studi Magister (S2) Linguistik, Program Pascasarjana Universitas Udayana, Denpasar.*

[7] Sutjiati Beratha, N.L. 2000b. Struktur dan Peran Semantis Verba Ujaran Bahasa Bali. *Dalam: Bambang Kaswanti Purwo, ed. Kajian Serba Linguistik: untuk Anton Moeliono Pereksa Bahasa, 241—257. Jakarta: PT BPK Gunung Mulia.*

[8] Tampubolon, D. P. 1988. "Semantik sebagai Titik Tolak Analisis Linguistik". *Dalam: Soenjono, peny. Pellba 1,1—29. Jakarata: Lembaga Bahasa Unika Atma Jaya.*

[9] Wierzbicka, A. 1996a. "Different Culture, Different Language, Different Speech Acts". Wierzbicka (Convenor). 1996. *Cross-Cultural Communication, 30—50. Canberra: Australian National University.*

[10] Wierzbicka, A. (Convenor). 1996b. Cross-Cultural Communication. Canberra: Australian National University.

[11] Wierzbicka, A. 1996c. "The Syntax of Universal Semantik Primitives". Goddard (Convenor). 1996. Cross-Linguistic Syntax from a Semantik Point of View (NSM Approach), 6—23. *Canberra: Australian National University.*

[12] Wierzbicka, A. 1996d. Semantics: Primes and Universals. *Oxford: Oxford University Press*

[13] Alabdullah, T. T. Y., Laadjal, A., Ahmed, E. R., & Al-Asadi, Y. A. A. (2018). Board features and capital structure in emerging markets. *Journal of Advanced Management Science*, Vol. 6, no.2, pp. 74-80.

[14] Alabdullah, T. T. Y., Nor, M. I., and E. Ries (2018). The Determination of Firm Performance in Emerging Nations: Do Board Size and Firm Size Matter. *Management* Vol. 5, no.3, pp. 57–66.

[15] Alabdullah, T. T. Y., Ahmed, E. R., &Thottoli, M. M. (2019). Effect of Board Size and Duality on Corporate Social Responsibility: What has Improved in Corporate Governance in Asia?. *Journal of Accounting Science*, Vol. 3, no.2, pp. 121–135.

[16] Ahmed, E. R., Islam, M. A., Alabdullah, T. T. Y & bin Amran, A. (2018). Proposed the pricing model as an alternative Islamic benchmark. *Benchmarking: An International Journal*, Vol. 25, no. 8, pp. 2892-2912.

[17] Ahmed, E. R., Islam, A., Zuqibeh, A., & Alabdullah, T. T. Y. (2014). Risks management in Islamic financial instruments. *Advances in Environmental Biology*, Vol. 8, no. 9, pp. 402-406.

[18] Ahmed, E. R., Alabdullah, T. T. Y., Amran, A., and Yahya, S. B. (2018). Indebtedness Theory and Shariah Boards: A Theoretical Approach. *Global Business & Management Research*, Vol. 10, no. 1, pp. 127-134.

DOI: 10.37200/IJPR/V24I5/PR2020792
Received: 24 Apr 2020 | Revised: 30 Apr 2020 | Accepted: 25 May 2020

[19] Rajest, S. S., Suresh, D. (2018). The Deducible Teachings of Historiographic Metafiction of Modern Theories of Both Fiction and History. *Eurasian Journal of Analytical Chemistry*, 13(4), emEJAC191005.

[20] K.B. Adanov, S. Suman Rajest, Mustagaliyeva Gulnara, Khairzhanova Akhmaral (2019), "A Short View on the Backdrop of American's Literature". *Journal of Advanced Research in Dynamical and Control Systems*, Vol. 11, No. 12, pp. 182-192.

[21] Rao, A. N., Vijayapriya, P., Kowsalya, M., & Rajest, S. S. (2020). Computer Tools for Energy Systems. *In International Conference on Communication, Computing and Electronics Systems* (pp. 475-484). Springer, Singapore.

[22] Souza, J., Silva, A., Sales, M., Araújo, W., Rezende, A., Reis, G., Silveira, J., Hererra, S., Carvalho, C., Melo, M., Araújo, T., Teixeira, Á., Marra, L. and Zancanella, P. (2019). Analysis of failure in extubation of patients admitted to the intensive care unit of a regional hospital in the southern region of Tocantins. *International Journal of Advanced Engineering Research and Science*, 6(12), pp.527-533

[23] Marques, E., Silva, D., Frota, D. and Bitencourt, L. (2019). Endodontic Treatment of the first Maxillary Molar with 7 Root Canals: Case Report. *International Journal of Advanced Engineering Research and Science*, 6(12), pp.534-539.

[24] Abebe, T. (2019). Bayesian Spam Filter for Wolaytta. *International Journal of Advanced Engineering Research and Science*, 6(12), pp.540-544.

[25] Mali, M., & Waghmare, P. (2016). Embodied Energy Audit of Residential Building. *International Journal Of Advanced Engineering, Management And Science*, 2(7), 1141-1147.

[26] V R, A., & Indusekhar, P. (2016). A Novel Method for Classification of Wrist Pulse for Health Monitoring using Sparse Classifier. *International Journal Of Advanced Engineering, Management And Science*, 2(7), 1148-1152.

[27] Fri, M., Boukili, A., Belmajdoub, F., & Hammoumi, M. (2016). Developing a new method "PKPGA" by using a combination of the ABC method Knapsack Problem and Greedy algorithm as a tool for decision support. *International Journal Of Advanced Engineering, Management And Science*, 2(7), 1153-1159.

[28] Selvaraj, J., & Mohammed, A. S. (2020). Mutation-based PSO techniques for optimal location and parameter settings of STATCOM under generator contingency. *International Journal of Intelligence and Sustainable Computing*, 1(1), 53.

[29] Rao, S. S. (2020). Semantic SPA framework for situational student-project allocation in education. *International Journal of Intelligence and Sustainable Computing*, 1(1), 69.

[30] Jayasudha, K., & Kabadi, M. G. (2020). Soft tissues deformation and removal simulation modelling for virtual surgery. *International Journal of Intelligence and Sustainable Computing*, 1(1), 83.

[31] Anandakumar, H., Arulmurugan, R., & Onn, C. C. (Eds.). (2019). Computational Intelligence and Sustainable Systems. *EAI/Springer Innovations in Communication and Computing.*

[32] Haldorai, A., & Ramu, A. (Eds.). (2019). Cognitive Social Mining Applications in Data Analytics and Forensics. *Advances in Social Networking and Online Communities.* doi:10.4018/978-1-5225-7522-1

[33] Haldorai, A., Ramu, A., & Murugan, S. (2019). Computing and Communication Systems in Urban Development. *Urban Computing.*

[34] Putra, I. G. W. R., & Sedana, I. B. P. (2019). Capital structure as a mediation variable: Profitability and liquidity on company value in real estate companies in Indonesia stock exchange. *International Research Journal of Management, IT and Social Sciences*, 6(4), 62-72.

[35] Widyastuti, N. P. A., & Riana, I. G. (2019). Effect of empowerment and compensation on performance of honorary employees mediated by organizational commitments. *International Research Journal of Management, IT and Social Sciences*, 6(4), 73-85.

[36] Dewi, N. P. S. P., & Wirama, D. G. (2019). Debt covenant slack, earnings management, and value relevance of accounting information. *International Research Journal of Management, IT and Social Sciences*, 6(4), 86-96.

DOI: 10.37200/IJPR/V24I5/PR2020792
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