

Verónica Andrea González-López



University of Campinas (Unicamp)
Department of Statistics,
Institute of Mathematics, Statistics and Scientific Computing.
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Nationality: Argentine/Spanish

Current Position

Associate Professor, University of Campinas

Areas of Specialisation

Copula models and properties; Statistical inference in copula models; Dependence coefficients; Copula based procedures and applications; Markov models and properties; Statistical inference in Markov processes; Markov processes in practice.

Appointments held

- 2003-current University of Campinas, Campinas, Brazil
2000 San Andrés University, Buenos Aires, Argentina

Education and Degrees

- 2018 Habilitation in Statistics, University of São Paulo, São Paulo, Brazil
2003 Post-doctorate, University of São Paulo, São Paulo, Brazil- Scholarship: Fundação de Amparo à Pesquisa do Estado de São Paulo
2000 Post-doctorate, University of Buenos Aires, Buenos Aires, Argentina- Scholarship: UBATEC
1999 Ph.D in Statistics (adviser: Carlos Alberto de Bragança Pereira) University of São Paulo, São Paulo Brazil- Scholarship: CAPES
1995 Graduate in Mathematics (adviser: José Raúl Martínez) National University of Córdoba, Córdoba, Argentina

Publications

Journal articles

- 2023a Fernandes-Svartman FR, Santos VG, González-López VA, Rodrigues de Moraes R, García JE, Tasca GH. Calling vocatives duration in Libolo Portuguese. *Studies in Hispanic and Lusophone Linguistics*, 2023; 16: 2, 377-395. <https://doi.org/10.1515/shll-2023-2013>
- 2023b García JE, González-López VA, Alvaro MMK. Statistical dependence and shape of Young tableau. *4open*. 2023; 6:4. <https://doi.org/10.1051/fopen/2023003>
- 2023c González-López VA, Litvinoff Justus V. A method for the elicitation of copulas. *4open*. 2023; 6:2. <https://doi.org/10.1051/fopen/2023001>
- 2022a González-López VA, Litvinoff Justus V. Conditional independence and predictive copula. *4open*. 2022; 5:20. <https://doi.org/10.1051/fopen/2022022>
- 2022b García JE, González-López VA, Tasca GH. Multiple partition Markov model for B.1.1.7, B.1.351, B.1.617.2, and P.1 variants of SARS-CoV 2 virus. *Computational Statistics*. 2022 <https://doi.org/10.1007/s00180-022-01291-8>
- 2022c García JE, González-López VA, Tasca GH, Yaginuma KY. An Efficient Coding Technique for Stochastic Processes. *Entropy*. 2022; 24(1):65.
- 2020a García JE, González-López VA. Random Permutations, Non-Decreasing Subsequences and Statistical Independence. *Symmetry*. 2020; 12(9): 1415.
- 2020b Cordeiro MT, García JE, González-López VA, Mercado Londoño SL. Partition Markov model for multiple processes. *Mathematical Methods in the Applied Sciences*. 2020; 43, 7677 - 7691.
- 2020c Fais LMCF, González-López VA, Rodrigues DS, de Moraes R. A copula based representation for tailings dam failures. *4open*. 2020; 3: 12.
- 2020d González-López VA, de Moraes R. A copula-based quantifying of the relationship between race inequality among neighbourhoods in São Paulo and age at death. *4open*. 2020; 3: 11.
- 2020e García JE, González-López VA, Da Silva HH, Silva TS. Risk of fraud classification. *4open*. 2020; 3: 9.
- 2020f García JE, González-López VA, Tasca GH. Partition Markov Model for Covid-19 Virus. *4open*. 2020; 3: 13.
- 2019a Fernández M, García JE, Gholizadeh R, González-López VA. Sample selection procedure in daily trading volume processes. *Mathematical Methods in the Applied Sciences*. 2019; 43(13), 7537-7549.
- 2019b Cunha C, Fernández M, García JE, González-López VA, Romano, N. A copula-based consistency analysis of education indicators. *4open*. 2019; 2: 19.
- 2019c Cordeiro MT, García JE, González-López VA, Mercado Londoño SL. Classification of autochthonous dengue virus type 1 strains circulating in Japan in 2014. *4open*. 2019; 2: 20.
- 2019d Cordeiro MT, García JE, González-López VA, Mercado Londoño SL. Stochastic profile of Epstein-Barr virus in nasopharyngeal carcinoma settings. *4open*. 2019; 2: 25.
- 2019e González-López VA, Piovesana MC, Romano N. Tail conditional probabilities to predict academic performance. *4open*. 2019; 2: 18.
- 2018a García JE, Gholizadeh R, González-López VA. A BIC based consistent metric between Markovian processes. *Applied Stochastic Models in Business and Industry*,

- 2018; 34(6), 868-878.
- 2018b Fernández M, González-López VA. Cumulative Conditional Expectation Index. *Journal of Computational Methods in Sciences and Engineering*. 2018; 18(2), 387-403.
- 2017a Fernández M, García JE, González-López VA. A copula-based partition Markov procedure. *Communications in Statistics. Theory and Methods*. 2017; 47(14), 3408-3417.
- 2017b García JE, González-López VA. Consistent Estimation of Partition Markov Models. *Entropy*. 2017; 19(4): 160.
- 2017c Fernández M, García JE, González-López VA, Viola MLL. Full Interaction Partition Estimation in Stochastic Processes. *Stochastic Modelling and Applications*. 2017; 21(1), 31 - 42.
- 2017d García JE, Gholizadeh R, González-López VA. Linguistic Compositions Highly Volatile in Portuguese. *Cadernos de Estudos Linguísticos*. 2017; 59(3), 617 - 630.
- 2016a García JE, González-López VA, Nelsen RB. The Structure of the Class of Maximum Tsallis-Havrda-Chavát Entropy Copulas. *Entropy*. 2016; 18(7): 264.
- 2016b García JE, González-López VA, Simis M, Terranova T, Battistella LR. A New Test in the Longest Increasing Subsequence Family of Independence Tests. *Stochastic Modelling and Applications*. 2016; 20(1), 35 - 53.
- 2016c González-López VA, Gholizadeh R, Galarza CE. E-Bayesian Estimation for System Reliability and Availability Analysis based on Exponential Distribution. *Communications in Statistics. Simulation and Computation*. 2016; 46(8), 6221-6241.
- 2016d González-López VA, Gholizadeh R, Shirazi AM. Optimization of Queuing Theory Based on Vague Environment. *International Journal of Fuzzy System Applications*. 2016; 5(1), 01 - 26.
- 2015 Fernández M, González-López VA, Rifo LR. A note on conjugate distributions for copulas. *Mathematical Methods in the Applied Sciences*. 2015; 38(18), 4797-4803.
- 2014a García JE, González-López VA. Independence tests for continuous random variables based on the longest increasing subsequence. *Journal of Multivariate Analysis*. 2014; 127, 126-146.
- 2014b García JE, González-López VA, Viola MLL. Robust Model Selection for Stochastic Processes. *Communications in Statistics. Theory and Methods*. 2014; 43(10-12), 2516 - 2526.
- 2014c García JE, González-López VA. Modeling of acoustic signal energies with a generalized Frank copula. A linguistic conjecture is reviewed. *Communications in Statistics. Theory and Methods*. 2014; 43(10-12), 2034-2044.
- 2014d Abaurre MB, Sandalo F, González-López VA. Apagamento vocálico e binariedade no português: uma investigação baseada em preditivas Bayesianas. *Documentação de Estudos em Linguística Teórica e Aplicada*. 2014; 30, 01 - 21.
- 2013 García JE, González-López VA, Nelsen RB. A new index to measure positive dependence in trivariate distributions. *Journal of Multivariate Analysis*. 2013; 115, 481-495.
- 2012a Rifo LLR, González-López VA. Full Bayesian Analysis for a Model of Tail Dependence. *Communications in Statistics, Theory and Methods*. 2012; 41, 4107 - 4123.
- 2012b Frota S, Galves C, Vigário M, González-López VA, Abaurre B. The phonology of rhythm from Classical to Modern Portuguese. *Journal of Historical Linguistics*. 2012; 2, 173 - 207.
- 2012c Fernandes-Svartman FR, Abaurre MB, González-López VA, Bianchi MC. Secondary

- stress, intensity and fundamental frequency in Brazilian Portuguese. *Journal of Portuguese Linguistics*. 2012; 11, 51.
- 2007 Singer JM, Lima ACP, Tanaka NI, González-López VA. To Triplicate or not to triplicate?. *Chemometrics and Intelligent Laboratory Systems*. 2007; 86(1), 82 - 85.
- 2000 Esteves LG, Wechsler S, Leite JG, González-López VA. DeFinettian Consensus. *Theory and Decision*. 2000; 49, 79 - 96.

Chapters in Books

- 2023 García JE, González-López VA. A Stochastic Characterization of Omicron Variant of SARS-CoV 2 Virus. In: Skiadas, C.H., Skiadas, C. (eds) Quantitative Demography and Health Estimates. The Springer Series on Demographic Methods and Population Analysis, vol 55. Springer, Cham; 2023; 91-104. https://doi.org/10.1007/978-3-031-28697-1_8
- 2022a García JE, González-López VA, Tasca, GH. Stochastic Comparison Between the Original SARS-CoV 2 Genetic Structure and SARS-CoV 2 - P.1 Variant. In: Skiadas, C.H., Skiadas, C. (eds) Quantitative Methods in Demography. The Springer Series on Demographic Methods and Population Analysis, vol 52. Springer, Cham; 2022; 63-75. https://doi.org/10.1007/978-3-030-93005-9_5
- 2022b García JE, González-López VA. America's Zika Virus and Its Similarities with African and Asian Lineages. In: Skiadas, C.H., Skiadas, C. (eds) Quantitative Methods in Demography. The Springer Series on Demographic Methods and Population Analysis, vol 52. Springer, Cham; 2022; 337-349. https://doi.org/10.1007/978-3-030-93005-9_21
- 2020a García JE, González-López VA. Robust Minimal Markov Model for Dengue Virus Type 3. In: Skiadas, C.H., Skiadas, C. (eds) Demography of Population Health, Aging and Health Expenditures. The Springer Series on Demographic Methods and Population Analysis, vol 50. Springer, Cham; 2020; 335-346. https://doi.org/10.1007/978-3-030-44695-6_21
- 2020b García JE, Gholizadeh R, González-López VA. Comparison of Stochastic Processes. In: Makrides A, Karagrigoriou A, Skiadas CH, eds. Data Analysis and Applications 4: Financial Data Analysis and Methods. ISTE Ltd and John Wiley & Sons, Inc.; 2020; 185-196. <https://doi.org/10.1002/9781119721611.ch11> ISBN: 9781786306241
- 2018 García JE, Gholizadeh R, González-López VA. Stochastic Distance Between Burkitt Lymphoma/Leukemia Strains. In: Skiadas C, Skiadas C, eds. Demography and Health Issues. The Springer Series on Demographic Methods and Population Analysis, Springer, Cham; 2018; 143-153. https://doi.org/10.1007/978-3-319-76002-5_13 ISBN: 978-3-319-76001-8
- 2016a García JE, González-López VA. Markov Partition Models for Epstein Barr Virus. In: Bozeman JR, Oliveira T and Skiadas CH, eds. Stochastic and Data Analysis Methods and Applications in Statistics and Demography (book 2); ISAST; 2016; 217-225. ISBN: 9786185180188
- 2016b García JE, González-López VA. Optimal Partition of Markov Models and Automatic Classification of Languages. In: Bozeman JR, Oliveira T and Skiadas CH, eds. Stochastic and Data Analysis Methods and Applications in Statistics and De-

- mography (book 2); ISAST; 2016; 207-215. ISBN: 9786185180188
- 2015a García JE, González-López VA. Detecting regime changes in Markov models In: Manca R, McClean S, Skiadas CH, eds. New Trends in Stochastic Modeling and Data Analysis; ISAST; 2015; 103-109. ISBN: 9786185180065
- 2015b Fernández M, García JE, González-López VA. Multivariate Markov chain predictions adjusted with copula models In: Manca R, McClean S, Skiadas CH, eds. New Trends in Stochastic Modeling and Data Analysis; ISAST; 2015; 389-394. ISBN: 9786185180065

Selection of Full Articles in Proceedings

- 2023a García JE, González-López VA, Tasca GH. Huffman Coding and Minimal Markov Models to Improve the Data Compression. In: ICNAAM 2021; AIP Publishing; 2023; 2849; 110002-1, 110002-4 <https://doi.org/10.1063/5.0162106>
- 2023b Lanfredi Viola ML, García JE, González-López VA. Markovian structure of interaction for three indicators of linguistic rhythm. In: ICNAAM 2021; AIP Publishing; 2023; 2849; 110003-1, 110003-4 <https://doi.org/10.1063/5.0162079>
- 2023c García JE, González-López VA, Tasca GH. Comparison Between Genomic Sequences of SARS-CoV 2 Virus: Original Versus P.1 Variant. In: ICNAAM 2021; AIP Publishing; 2023; 2849; 110001-1, 110001-4 <https://doi.org/10.1063/5.0162076>
- 2022a García JE, González-López VA, Tasca GH. A Stochastic Inspection about Genetic Variants of Covid-19 Circulating in Brazil during 2020. In: ICNAAM 2020; Rhodes-Virtual; AIP Publishing; 2022; 2425: 230002 <https://doi.org/10.1063/5.0081337>
- 2022b García JE, González-López VA, Viola MLL. Conditional Independence between Markov Random Fields. In: ICNAAM 2020; Rhodes-Virtual; AIP Publishing; 2022; 2425: 420002 <https://doi.org/10.1063/5.0081593>
- 2022c González-López VA, Picanço JL, de Moraes R. Semi-Parametric Copula-Based Estimation of Risk of Tailings Dams. In: ICNAAM 2020; Rhodes-Virtual; AIP Publishing; 2022; 2425: 420001 <https://doi.org/10.1063/5.0081339>
- 2020a González-López VA, de Moraes R. A Bayesian copula-based modelling for income concentration and inequality indexes. In: ICNAAM 2019; Rhodes; AIP Publishing; 2020; 2293: 160004 <https://doi.org/10.1063/5.0031686>
- 2020b García JE, González-López VA, Silva TS, Dias DH. Discrete representation of an annual precipitation process. In: ICNAAM 2019; Rhodes; AIP Publishing; 2020; Rhodes; AIP Publishing; 2020; 2293: 160003 <https://doi.org/10.1063/5.0026455>
- 2019a González-López VA, Rodrigues N, Romano N. Copula model between rates of sexually transmitted diseases and rates of unemployment. In: ICNAAM 2018; Rhodes; AIP Publishing; 2019; 2116: 130003 <https://doi.org/10.1063/1.5114126>
- 2019b González-López VA, Rodrigues N, Romano N. Upper tail dependence between rates of sexually transmitted diseases and rates of unemployment/poverty. In: ICNAAM 2018; Rhodes; AIP Publishing; 2019; 2116: 130004 <https://doi.org/10.1063/1.5114127>
- 2018a Fernández M, García JE, González-López VA, Romano, N. Bayesian sensitivity analysis for asymmetric copulas with cubic sections. In: ICNAAM 2017; Thessaloniki; AIP Publishing; 2018; 1978: 170002 <https://doi.org/10.1063/1.5043821>
- 2018b Fernández M, García JE, González-López VA, Romano, N, Tessler JF. Foreign ex-

- change dependence through different copula models. In: ICNAAM 2017; Thessaloniki; AIP Publishing; 2018; 1978: 170003 <https://doi.org/10.1063/1.5043822>
- 2018c García JE, González-López VA, Kubo de Andrade FH. Inspecting discrepancies between industrial processes. In: ICNAAM 2017; Thessaloniki; AIP Publishing; 2018; 1978: 170004 <https://doi.org/10.1063/1.5043823>
- 2018d García JE, González-López VA, Londoño SLM, Cordeiro MT. Similarity between strains of Zika from tropical and subtropical regions In: Stochastic Modeling Techniques and Data Analysis International Conference with Demographics Workshop (SMTDA2018), 2018, Chania. Proceedings of 5th Stochastic Modeling Techniques and Data Analysis International Conference with Demographics Workshop-SMTDA 2018. Athens: International Society for the Advancement of Science and Technology (ISAT), 2018. v. 1. p. 235-258.
- 2017a García JE, González-López VA, Kubo de Andrade FH. Dissimilarity between Markovian processes applied to industrial processes. In: ICNAAM 2016; Rhodes; AIP Publishing; 2017; 1863: 220002 <https://doi.org/10.1063/1.4992383>
- 2017b Fernández M, González-López VA, Hergert BS. Prediction through a Gumbel Barnett copula. In: ICNAAM 2016; Rhodes; AIP Publishing; 2017; 1863: 220003 <https://doi.org/10.1063/1.4992384>
- 2017c Fernández M, García JE, González-López VA, Romano, N. Right tail increasing dependence between scores. In: ICNAAM 2016; Rhodes; AIP Publishing; 2017; 1863: 220004 <https://doi.org/10.1063/1.4992385>
- 2016a García JE, González-López VA, Viola MLL. Copula-based analysis of rhythm. In: ICNAAM 2015; Rhodes; AIP Publishing; 2016; 1738: 140004 <https://doi.org/10.1063/1.4951927>
- 2016b García JE, González-López VA, Hirsh ID. Copula-based prediction of economic movements. In: ICNAAM 2015; Rhodes; AIP Publishing; 2016; 1738: 140005 <https://doi.org/10.1063/1.4951928>
- 2016c García JE, González-López VA. Independence test for sparse data. In: ICNAAM 2015; Rhodes; AIP Publishing; 2016; 1738: 140002 <https://doi.org/10.1063/1.4951925>
- 2015a Fernández M, González-López VA. Bounds for the cumulative conditional expectation function. In: ICNAAM 2014; Rhodes; AIP Publishing; 2015; 1648: 060002 <https://doi.org/10.1063/1.4912372>
- 2015b Bianchi MCC, Fernandes-Svartman FR, Fernández M, González-López VA. Confidence bands in Kendall plots. In: ICNAAM 2014; Rhodes; AIP Publishing; 2015; 1648: 060004 <https://doi.org/10.1063/1.4912374>
- 2013a Fernández M, González-López VA. A Bayesian approach for convex combination of two Gumbel-Barnett copulas. In: ICNAAM 2013; Rhodes; AIP Publishing; 2013; 1558, 1491 -1494 <https://doi.org/10.1063/1.4825802>
- 2013b Fernández M, González-López VA. A copula model to analyze minimum admission scores. In: ICNAAM 2013; Rhodes; AIP Publishing; 2013; 1558, 1487 - 1490 <https://doi.org/10.1063/1.4825799>
- 2012a González-López VA, Singer JM, Tanaka NI, Pedroso-de-Lima AC. A Bayesian test for the intraclass correlation coefficient. In: EBEB 2012; Amparo-SP; AIP Publishing; 2012; 1490, 171 - 178 <https://doi.org/10.1063/1.4759601>
- 2012b García JE, González-López VA, Viola MLL. Robust model selection and the statistical classification of languages. In: EBEB 2012; Amparo-SP; AIP Publishing; 2012;

1490,160 - 170 <https://doi.org/10.1063/1.4759600>

Selected Technical Reports

- 2003 González-López VA, Tanaka NI. Bi-variate Data Modeling Through Generalized Archimedean Copula. RT-MAE 2003-03. Prof. Carlos Benjamin de Lyra Library
- 2001 González-López VA, Tanaka NI. Characterization of copula and its relationships with TP2(RR2) association. RT-MAE 2001-09. Prof. Carlos Benjamin de Lyra Library
- 2001 González-López VA, Tanaka NI. Dependence structures and a posterior distributions. RT-MAE 2001-12. Prof. Carlos Benjamin de Lyra Library
- 2000 González-López VA, Tanaka NI. Maximal Association, Frechet Bounds and Homotopy in Prediction. RT-MAE 2000-19. Prof. Carlos Benjamin de Lyra Library

Selected Courses Taught

Long-term courses

- Bayesian Statistical Inference
Discrete Mathematics
Frequentist Statistical Inference
Topics in Statistics: Robust Statistical Inference; Copula Theory

Short-term courses

- 2020 IASC-LARS Webinar/School on Computational Statistics and Data Science.
Statistical Inference in Markov Processes
<https://iasc-isi.org/events/iasc-lars-webinar-on-computational-statistics-and-data-science/>

Supervised Students

Post-Doctorate

- 2015 Mariela Fernández

PhD in Statistics

- 2021 Gustavo Henrique Tasca
2021 Marcos Tadeu Andrade Cordeiro
2018 Ramin Gholi zadeh
2011 Marcio Luis Lanfredi Viola (Co-adviser)

Master in Statistics

- 2023 Johsac Isbac Gomez Sanchez
2020a Rafael Rodrigues de Moraes
2020b Thainá Soares Silva
2011 José Adolfo de Almeida Schultz
2008 Marta Cristina Colozza Bianchi
2007 James Dean Oliveira dos Santos Junior (Co-adviser)
2006 Marcio Luis Lanfredi Viola

Master in Mathematics (Profmat)

- 2021 Alexandre Henrique Soares
2020a Flávio de Oliveira Silva
2020b Tiago da Silva Fonseca
2017 César Carlos Camelo da Cunha

Scientific Initiation

- 2022b Akemi Vanessa Higa Hayashi
2022a Vinícius Litvinoff Justus
2013 Marcos Vinicios Minucci Scarpim
2012 Thiago Cedran Santos
2011 Liamarcia Vicente Bifano

Service to the Profession

- 2023-current Elected Member of the University Board of University of Campinas
2021-current Elected Member of the International Statistical Institute (ISI).
2023-2024 Past Chairperson of Latin American Regional Section (LARS) of the International Association for Statistical Computing (IASC)
2021-2023 Elected Member of the University Board of University of Campinas
2021-2022 Treasurer of Brazilian Chapter of the International Society for Bayesian Analysis (ISBrA)
2021-2022 Chairperson of Latin American Regional Section (LARS) of the International Association for Statistical Computing (IASC)
2019-2020 Chairperson Elect of Latin American Regional Section (LARS) of the International Association for Statistical Computing (IASC)
2016-current Research group leader "Stochastic dependence theory and applications" (<http://dgp.cnpq.br/dgp/espelhogrupo/1815992558330177>)
2010-2014 Vice Dean of Institute of Mathematics, Statistics and Scientific Computing, University of Campinas
2008-2010 Vice President of the Committee of Undergraduate Programs of University of Campinas
2007-2010 Coordinator of Undergraduate Program in Statistics, University of Campinas
2005-2006 Vice-Coordinator of Undergraduate Program in Statistics, University of Campinas

Selection of Organized Meetings

- 2023 Statistical Inference in Copula Models and Markov Processes VIII. In ICNAAM 2023, Greece
- 2022 Statistical Inference in Copula Models and Markov Processes VII. In ICNAAM 2022, Greece
- 2022 16th Brazilian Meeting of Bayesian Statistics and VI Latin American Conference on Statistical Computing, 2022, University of São Paulo - University of Campinas, Brazil <https://eventos.galoa.com.br/ebeb-lacsc-2022/page/1381-home>
- 2021 Statistical Inference in Copula Models and Markov Processes VI. In ICNAAM 2021, Greece
- 2020 Statistical Inference in Copula Models and Markov Processes V. In ICNAAM 2020, Greece
- 2019 Statistical Inference in Copula Models and Markov Processes IV. In ICNAAM 2019, Greece
- 2018 Statistical Inference in Copula Models and Markov Processes III. In ICNAAM 2018, Greece
- 2017 Statistical Inference in Copula Models and Markov Processes II. In ICNAAM 2017, Greece
- 2016 Statistical Inference in Copula Models and Markov Processes. In ICNAAM 2016, Greece
- 2015 3rd Symposium on Highlights in Copula Modeling. In ICNAAM 2015, Greece
- 2015 International Society for Business and Industrial Statistics (ISBIS) Satellite Conference with Focus on Quality Control and Improvement. In memoriam of Emanuel Pimentel Barbosa (1951-2014). University of Campinas, Brazil. <https://2015.isbis.galoa.com.br/>
- 2014 Second Symposium on Highlights in Copula Modeling. In ICNAAM 2014, Greece
- 2013 Highlights in Copula Modeling. In ICNAAM 2013, Greece
- 2013 Sixth Brazilian Conference on Statistical Modelling in Insurance and Finance, 2013, Brazil <https://www.ime.usp.br/bcsmif/6th/>
- 2013 Satellite Copula Workshop - University of Campinas. In Sixth Brazilian Conference on Statistical Modelling in Insurance and Finance, 2013, Brazil <https://www.ime.usp.br/bcsmif/6th/?inc=satellite>
- 2011 Fifth Brazilian Conference on Statistical Modelling in Insurance and Finance, 2011, Brazil <https://www.ime.usp.br/bcsmif/5th/>