

Abstract Submitted
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Color Triads in Complex Networks: Uncovering Racial Segregation Patterns in US High Schools JULIAN CANDIA, MARTA GONZALEZ, Northeastern University — Introducing color subgraph analysis as a novel tool for characterizing complex network structures, we identify the basic racial patterns in a nationally representative sample of all public and private High Schools in the US. We apply this method on color triad subgraphs and obtain quantitative measurements on racial homophily effects, as well as on interracial mixing patterns. Strongest homophily phenomena are observed within the white student population, followed in decreasing order by black, hispanic and asian students. Racial reciprocity measurements reveal that white students tend to form triads in which they constitute a racial majority. Black-hispanic triads are also observed to be non-reciprocal, while black-asian and hispanic-asian triads show a stronger tendency towards symmetric ties. Racial preference measurements show a rather weak white-black affinity. Since both white and black triad majorities prefer a hispanic third party, hispanic students may play the role of a bridge between white and black students. In order to design better integration strategies, quantitative observations on homophily and interracial mixing patterns could be used to redefine school organizational features. Moreover, the color subgraph analysis method can be applied to a large variety of complex network systems on other interdisciplinary fields of science.

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