

DECODING FOOTBALL STRATEGIES THROUGH NETWORK THEORY

DECONSTRUCTING SPAIN'S PLAYBOOK IN THE FIFA WORLD CUP™ 2010 FINAL

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DATA

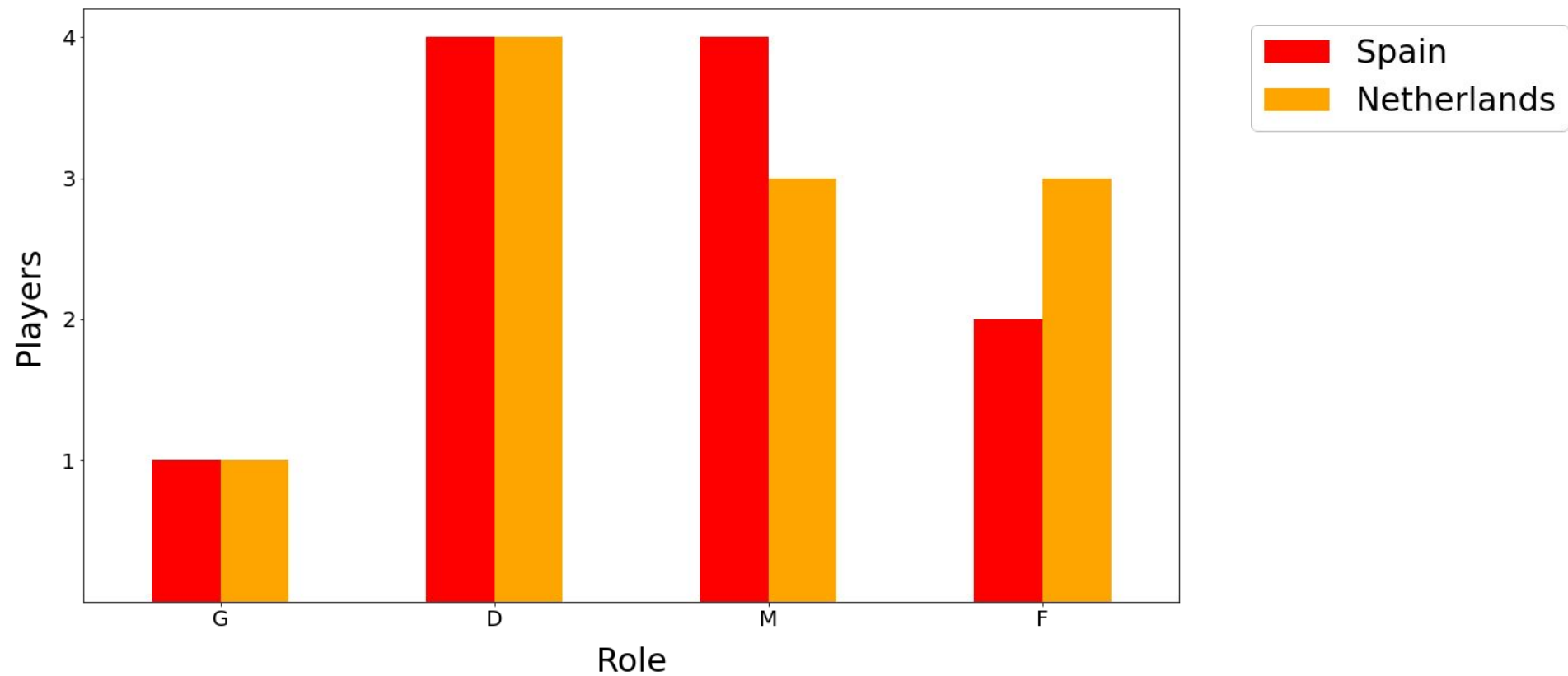
DATA SOURCE: FIFA WORLD CUP™ 2010

DATA TYPE: STATIC PASSING NETWORK (FOOTBALLERS AS NODES, PASSES AS WEIGHTED LINKS). WE INTEGRATED THE PASSING DONE BY POSSIBLE SUBSTITUTION PLAYERS.

GOAL: ANALYZING THE STRUCTURAL DYNAMICS OF THE SPANISH TEAM'S PASSING STRATEGIES AND PLAYER ROLES, CONTRASTED WITH THE NETHERLANDS STYLE OF PLAY



TEAM COMPOSITION BY ROLE



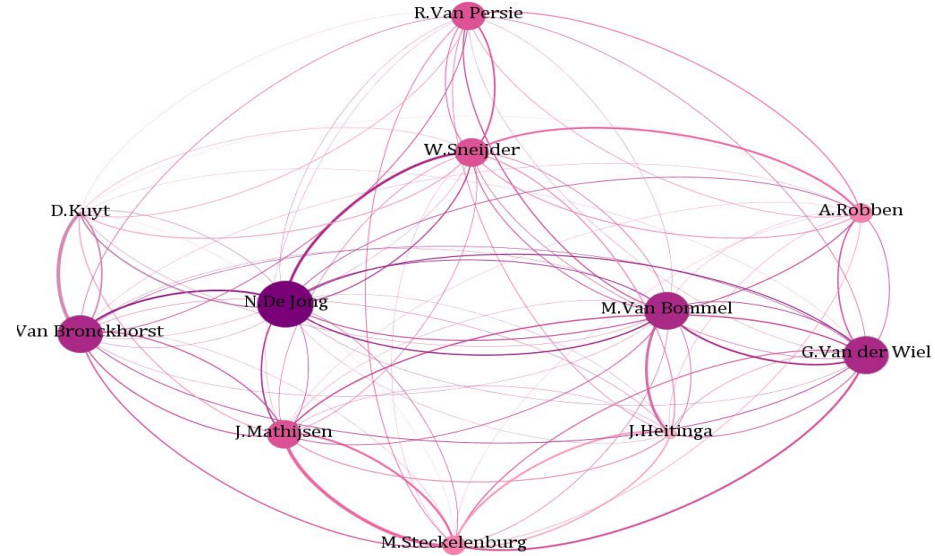
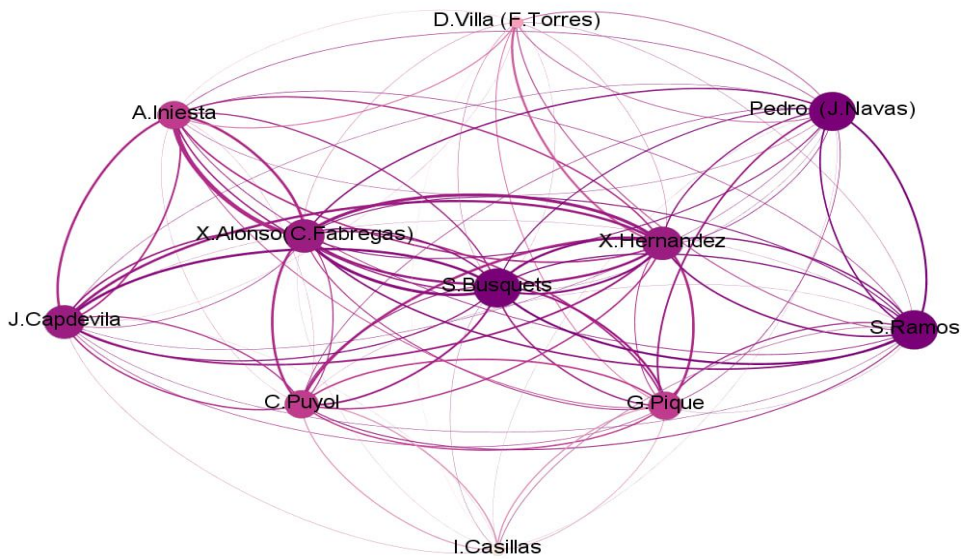
SPAIN VS NETHERLANDS: TEAM COMPOSITION

AT A GLANCE

WE CAN ALREADY SEE A DISTINCT DIFFERENCE IN THE COMPOSITION OF THE TWO TEAMS.

THE SPANISH TEAM TENDS TO FAVOR AN IMBALANCE OF ATTACKING PLAYERS WITH A PREFERENCE FOR MORE MIDFIELDERS, WHEREAS THE DUTCH TEAM LEANS TOWARDS A MORE CONVENTIONAL STYLE OF PLAY.

NETWORK VISUALIZATION



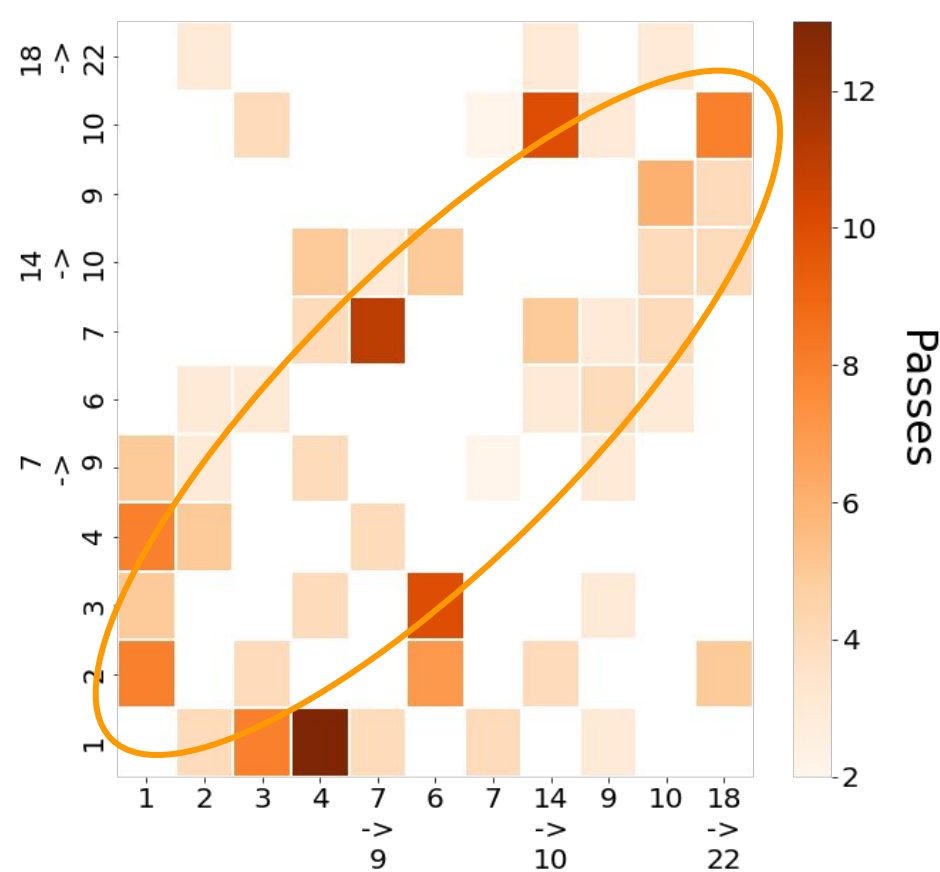
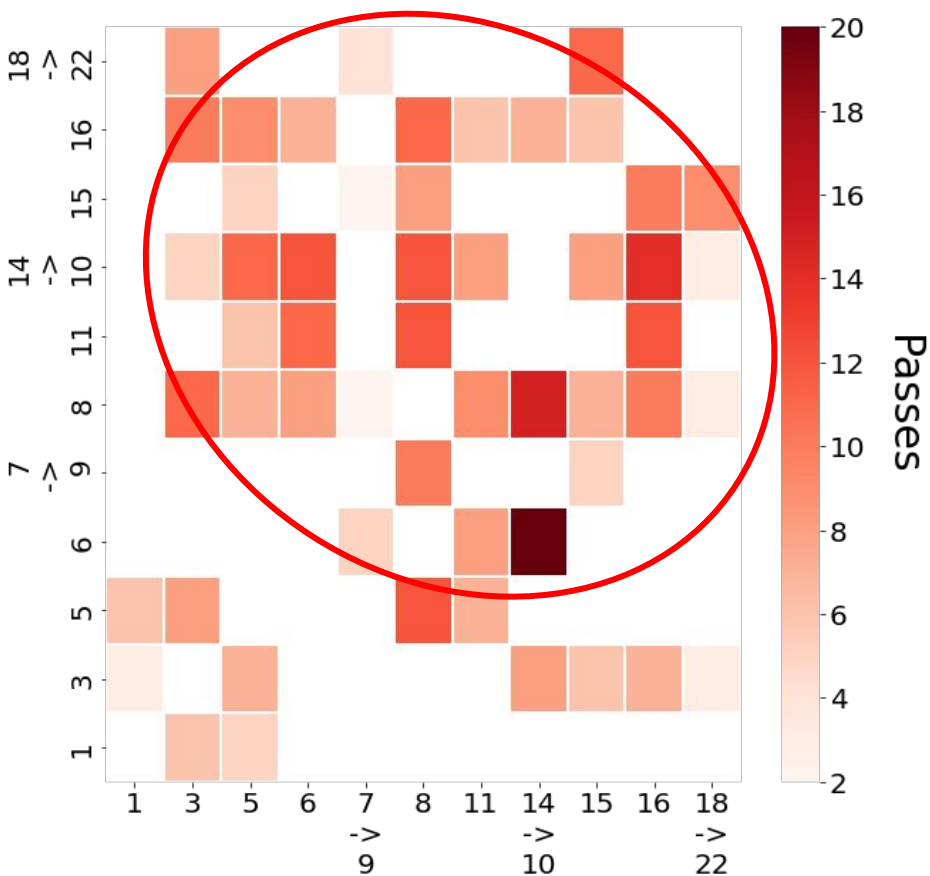
SPAIN VS NETHERLANDS: NETWORK GRAPHIC

AT A GLANCE

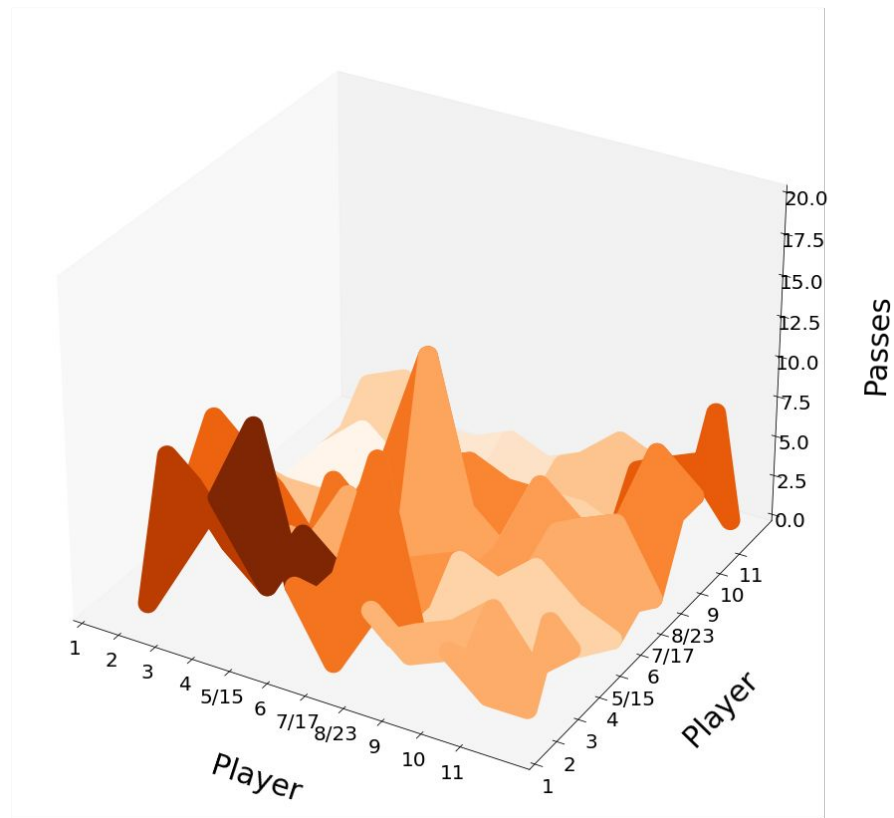
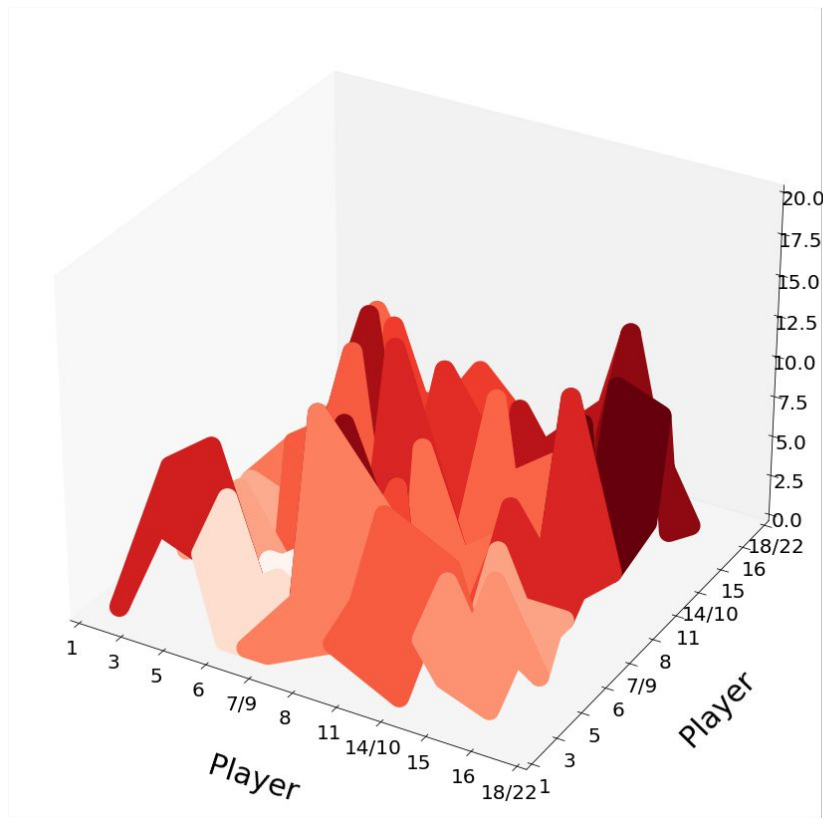
WE CAN OBSERVE CLEAR DIFFERENCES IN THE TEAM NETWORKS AS WELL.

THE SPANISH TEAM TENDS TO HAVE MORE CONNECTIONS BETWEEN PLAYERS ON AVERAGE, ESPECIALLY BETWEEN THE DEFENDERS AND MIDFIELDERS. ON THE OTHER HAND, THE NETHERLANDS' STYLE OF PLAY IS MORE VERTICALLY ORIENTED. IT'S WORTH NOTING THAT DUTCH PLAYERS RECEIVE MORE PASSES THAN THE SPANISH PLAYERS, WITH LESS EMPHASIS ON HIS INVOLVEMENT IN THE GAME IN FAVOR OF INCREASED HORIZONTAL PASSING BETWEEN PLAYERS.

STATIC ADJACENCY MATRICES



SPAIN VS NETHERLANDS: TEAM PASSING STRUCTURE

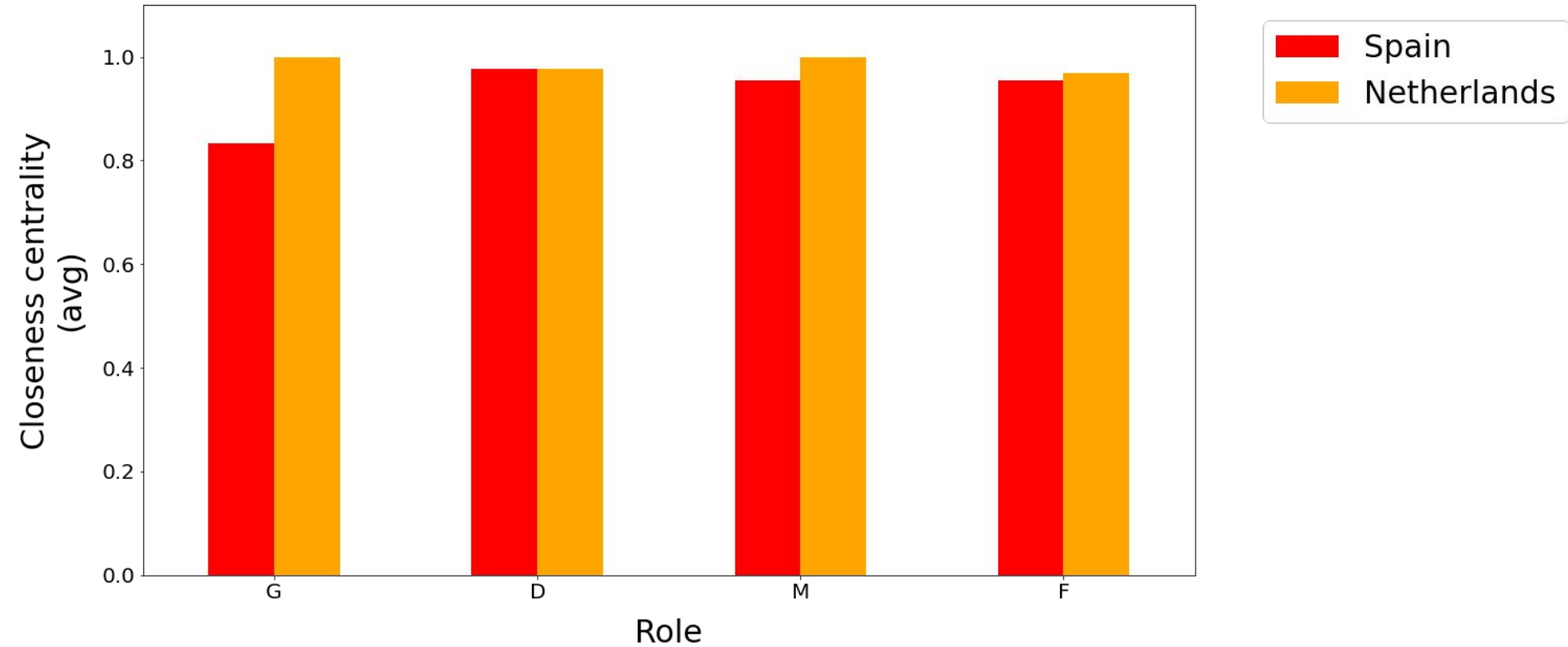


SPAIN VS NETHERLANDS: TEAM PASSING STRUCTURE

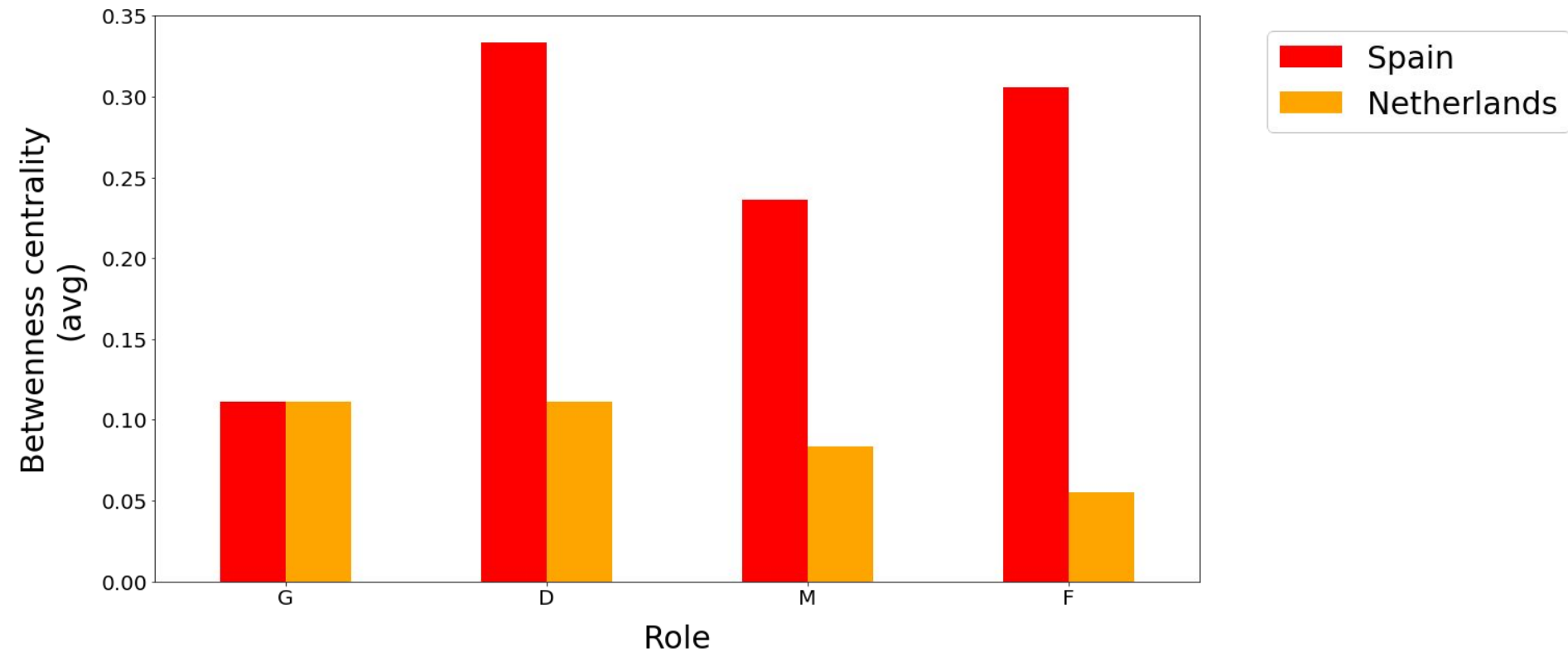
AT A GLANCE

CONSIDERING THE ADJACENCY MATRICES OF BOTH TEAMS, ONCE AGAIN, THE HORIZONTAL NATURE OF THE SPANISH GAME IS CONFIRMED IN CONTRAST TO THE MORE STANDARD VERTICALITY OF THE DUTCH STYLE OF PLAY. IN THE MATRICES PRESENTED IN THE FIRST SLIDE, WE HIGHLIGHT THE MOST FREQUENT PASSES BETWEEN PLAYERS, ILLUSTRATING A MORE SPREAD-OUT STYLE OF PLAY FOR THE SPANISH TEAM COMPARED TO THE ELONGATED PASSING PATTERNS OF THE DUTCH. THE SAME OBSERVATION HOLDS TRUE WHEN COMPARING THE 3D PLOTS IN THE FINAL SLIDE.

HOW TO QUANTIFY THE DIFFERENCE BETWEEN THE TEAMS: CENTRALITY MEASURES



CLOSENESS CENTRALITY: HOW MUCH I_{TH} PLAYER IS REACHABLE BY HIS TEAMMATES



BETWEENNESS CENTRALITY: HOW MUCH BALL-FLOW DEPENDS ON I_{TH} PLAYER

AT A GLANCE

THE FIRST CENTRALITY MEASURE FOLLOWS A QUITE SIMILAR FOR BOTH TEAMS, WHICH CAN BE EXPLAINED BY THE FACT THAT, DEPENDING ON THEIR ROLES, WE EXPECT PLAYERS TO BE REACHABLE BY THEIR TEAMMATES WITH ROUGHLY THE SAME PROBABILITY FOR BOTH NATIONAL TEAMS. WHAT CHANGES DRASTICALLY, HOWEVER, IS HOW IMPORTANT THE PLAYERS ARE TO THE BALL-FLOW, HERE MEASURED WITH THE BETWEENNESS CENTRALITY. THE DUTCH GOALKEEPER, AS SEEN, PLAYS A MORE PROMINENT ROLE IN THE BALL FLOW COMPARED TO THE SPANISH GOALKEEPER, AS EVIDENCED BY THE GREATER VERTICALITY IN THE DUTCH GAME AS OPPOSED TO THE SPANISH GAME. ON THE OTHER HAND, THE SPANISH DEFENDERS AND MIDFIELDERS PLAY CRUCIAL ROLES IN THEIR TEAM'S BALL FLOW, IN CONTRAST TO THE DUTCH PLAYERS, WHO ARE EQUALLY ESSENTIAL IN CIRCULATING THE BALL (ALBEIT WITH SIGNIFICANTLY FEWER PASSES THAN THE SPANISH PLAYERS).

TAKE-HOME MESSAGE

- 1. SPAIN VS NETHERLANDS: HORIZONTAL VS VERTICAL
STYLE OF PLAY**
 - 2. THE COMPOSITION OF THE TEAMS SUPPORT THE
PREFERRED STYLE OF PLAY IN THE SPANISH TEAM**
 - 3. THE BALL-FLOW IS MAINLY CONTROLLED BY THE
SPANISH TEAM, FAVOURED IN THIS BY THE STRATEGY
ADOPTED**
- ... TIKI-TAKA WON THE 2010 WORLD FOOTBALL CUP!**