(1) 在playOn模式下,拿到球以后朝前方快速带球。

```
if ( WM->isBallKickable())
{
    AngDeg ang = 0.0;
    soc = dribble(ang, DRIBBLE_FAST);
    ACT->putCommandInQueue(soc);
    ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
}
```

(2) 在PlayOn模式下,拿到球以后朝球门方向慢速带球。

```
if ( WM->isBallKickable())
{
    AngDeg ang = 0.0;
    soc = dribble(ang, DRIBBLE_SLOW);
    ACT->putCommandInQueue(soc);
    ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
}
```

(3) 在playOn模式下,拿到球以后把球围绕自己身体逆时针转。

```
if ( WM->isBallKickable())
{

    soc = kickBallCloseToBody(WM->getAgentGlobalBodyAngle() + 45);
    ACT->putCommandInQueue(soc);
    ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
}
```

(4) 在playOn模式下,拿到球后,有人逼抢(自身周围7米范围有至少1名对方球员),则把球踢到距离对手的另外一侧,安全带球
(如对手在右侧,把球踢到左侧,如对手仔左侧,把球踢到右侧)。

```
if ( WM->isBallKickable())
       {
           ObjectT opponent =
WM->getClosestRelativeInSet(OBJECT_SET_OPPONENTS);

           if (opponent != OBJECT_ILLEGAL &&

WM->getAgentGlobalPosition().getDistanceTo(WM->getGlobalPosition(
opponent)) < 7 &&
               WM->getAgentGlobalPosition().getX() <
WM->getGlobalPosition(opponent).getX())
           {
               VecPosition pos = WM->getAgentGlobalPosition() * 2 -
WM->getGlobalPosition(opponent);

               soc = kickTo(pos, SS->getBallSpeedMax() / 3);
           }
           else
           {
               soc = dribble(0.0, DRIBBLE_WITHBALL);
           }


           ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
       }
```

(5)在 playOn 模式下,拿到球以后,有人逼抢,传球给最近的队友;否则向球门方向快速带球。

```
if ( WM->isBallKickable())
       {
           ObjectT opponent =
WM->getClosestRelativeInSet(OBJECT_SET_OPPONENTS);

           if (opponent != OBJECT_ILLEGAL &&

WM->getAgentGlobalPosition().getDistanceTo(WM->getGlobalPosition(
opponent)) < 7)
           {
               ObjectT mate =
WM->getClosestRelativeInSet(OBJECT_SET_TEAMMATES);

               soc = leadingPass(mate, 1);
           }
           else
           {
               soc = dribble((WM->getPosOpponentGoal() -
WM->getAgentGlobalPosition()).getDirection(), DRIBBLE_FAST);
           }


           ACT->putCommandInQueue(soc);
ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
       }
```

(6)在playOn模式下,如果有人逼抢(自身周围7米范围有至少1名对方球员),则安全带球;否则向球门方向快速带球。

```
      if ( WM->isBallKickable())
       {
           ObjectT opponent = 
WM->getClosestRelativeInSet(OBJECT_SET_OPPONENTS);

           if (opponent != OBJECT_ILLEGAL && 

WM->getAgentGlobalPosition().getDistanceTo(WM->getGlobalPosition(
opponent)) < 7)
           {
               soc = dribble((WM->getPosOpponentGoal() - 
WM->getAgentGlobalPosition()).getDirection(), DRIBBLE_WITHBALL);
           }
           else
           {
               soc = dribble((WM->getPosOpponentGoal() - 
WM->getAgentGlobalPosition()).getDirection(), DRIBBLE_FAST);
           }

           ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
       }
```

```
 (7) int iIndex;
     bool judge=true;
     for ( ObjectT o = WM->iterateObjectStart( iIndex, 
OBJECT_SET_OPPONENTS);
             o != OBJECT_ILLEGAL;
             o = WM->iterateObjectNext ( iIndex,OBJECT_SET_OPPONENTS ) )
     {
         VecPosition oppPos=WM->getGlobalPosition(o);
         if ( oppPos.getX()>WM->getAgentGlobalPosition().getX())
         {
             judge=false;
         break;
```

```
        }
    }
    if(judge==true)
    {
      VecPosition posGoal( PITCH_LENGTH/2.0,
          (1 -2*(WM->getCurrentCycle()%2)) * 0.4 * SS->getGoalWidth() );
          soc = kickTo( posGoal, SS->getBallSpeedMax() );
  }
```

8:在 playOn 模式下,拿到球后,在本方半场踢到球场中心点;

过了半场,快速带球到对方球门。

```
   double   BallX   = WM->getBallPos() .getX();
       if ( BallX < 0 )
       {
         soc = kickTo( VecPosition( 0, 0) , 2.7) ;
      }
      else if ( BallX > 0)
      {
        VecPosition Goal = WM -> getPosOpponentGoal() ;
        AngDeg ang =( Goal - posAgent) .getDirection() ;
         soc = dribble( ang , DRIBBLE_FAST) ;
      }      ( WM→isBallKickable()  下)
  9         else if ( WM->isBallKickable())                          // if kickable //  如
果球已知，而且当前球在我脚下(可踢)
  {
   ObjectT pos1 =
WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,posAgent);
        ObjectT   pos2 =
WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,pos1);
        if(pos1.getDistanceTo(pos2)>5)
        {
          soc = leadingPass(pos1,1);
      }
      else
      {
        soc    = dribble(0.0,DRIBBLE_FAST);
      }
  }
  10
  else if ( WM->isBallKickable())                  // if kickable //  如果球已
知，而且当前球在我脚下(可踢)
  {
   ObjectT pos1 =
WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,posAgent);
      ObjectT pos2 =
WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,pos1);
      VecPosition pos1pos = WM->getGlobalPosition(pos1);
      VecPosition pos2pos = WM->getGlobalPosition(pos2);
      double   pos1X = WM->getGlobalPosition(pos1).getX();
      double   posAgentX = posAgent.getX();
      double   distance = pos1pos.getDistanceTo(pos2pos);
      if(distance>5&&posAgentX<pos1X)
      {
        soc = leadingPass(pos1,1);
      }
      else
      {
        soc    = dribble(0.0,DRIBBLE_FAST);
      }
  }
  11
   if(posAgent.getX()<0)
```

```
soc=leadingPass(WM->getSecondClosestInSetTo(OBJECT_SET_TEAMMATES,WM->getAgentObjectType()),1.0);
   else
   {
     if(WM->getAgentObjectType()!=OBJECT_TEAMMATE_10)
        soc=leadingPass(OBJECT_TEAMMATE_10,1.0 );
   }
```

12: 在 playOn 模式下,如果在本方半场,则朝前方慢速带球,如果在对方半场,则朝球门快速带球。

```
if(WM->getBallPos().getX()<0)
    {
      AngDeg ang=0.0;
      soc=dribble(ang, DRIBBLE_SLOW);
   }
   else
   {
    VecPosition Goal = WM -> getPosOpponentGoal() ;
     AngDeg ang =( Goal - posAgent) .getDirection() ;
      soc = dribble( ang , DRIBBLE_FAST) ;
   }
```

13:在 playOn 模式下,拿到球后,如果是 2 号,则把球踢到左侧边线,如果是 5 号,则把球踢到右侧边线,并把脖子方向转向球;其他球员则向前带球。

```
     if ( WM->getAgentObjectType() == OBJECT_TEAMMATE_2)
    {
      double   posX = WM->getBallPos() .getX() ;
      VecPosition pos ( posX , -34.0 ) ;
       soc = kickTo( pos , 2.7   ) ;
   }
   else if ( WM->getAgentObjectType() == OBJECT_TEAMMATE_5)
   {
```

```
                double   posX = WM->getBallPos() .getX() ;
               VecPosition pos ( posX , 34.0 ) ;
               soc = kickTo(pos   , 2.7   ) ;
      }
      else
      {
        soc = dribble( 0.0 , DRIBBLE_WITHBALL) ;
      }
```

14:

在 playOn 模式下,拿到球后,如果我是 4 号,则传球给 7 号;否则的话,传球给最近的队友;到对方禁区后以最大速度射向空隙大的球门一侧。

```
      VecPosition pos=WM->getBallPos();
      if(      WM->isInTheirPenaltyArea(pos)     )
      {
              double posGoalieY =
WM->getGlobalPosition(WM->getOppGoalieType()).getY();
              if(   posGoalieY > 0 )
            {
                  soc=kickTo( VecPosition(52.5,-6.5 ) , 2.7) ;
          }
            else
       {
         soc=kickTo( VecPosition(52.5,6.5),2.7);
       }
      }
         else if( WM->getAgentObjectType() == OBJECT_TEAMMATE_4 )
          {
          soc=leadingPass(OBJECT_TEAMMATE_7,1);
          }
          else
```

```
        {
              ObjectT o =
WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,posAgent);
               soc=leadingPass(o,1);
        }
```

(15) 在 playOn 模式下,垂直带球。

```
       if ( WM->isBallKickable())
        {
            VecPosition pos = WM->getAgentGlobalPosition();
             AngDeg ang = -(pos.getY())/fabs(pos.getY()) * 90;
             soc = dribble(ang, DRIBBLE_FAST);
             ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
             return soc;
        }
```

(16) 在 playOn 模式下,拿到球后带球到达球场中心,然后传给最近的球员。

```
      if ( WM->isBallKickable())
        {
            VecPosition center(0, 0);
             if (center.getDistanceTo(WM->getAgentGlobalPosition())
< 3)
             {
                 ObjectT mate =
WM->getClosestRelativeInSet(OBJECT_SET_TEAMMATES);
                 soc = leadingPass(mate, 1, DIR_CENTER);
             }
             else
             {

                soc = dribble((center -
WM->getAgentGlobalPosition()).getDirection(), DRIBBLE_SLOW);
             }
             ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
             return soc;
        }
```

(17) 在 playOn 模式下,10 号带球前进,然后 5 号跟着 10 号一起前进,两球员在同一水平线 上,且距离为 5。

```
   if(WM->getPlayerNumber()==5)
         {

            VecPosition
teamOpp=WM->getGlobalPosition(OBJECT_TEAMMATE_10);
        VecPosition targetOpp(teamOpp.getX()+5,teamOpp.getY());
        soc=moveToPos(teamOpp,20);
        ACT->putCommandInQueue( soc );           // move to
strategic pos

ACT->putCommandInQueue( turnNeckToObject( OBJECT_TEAMMATE_10,
soc ) );
          return soc;
```

(18) 在 playOn 模式下, 5 号球员与拿球的对方球员的距离始终为 5。

找到代码:

```
 formations->setFormation( FT_433_OFFENSIVE );//设置球队出场阵形!
       soc.commandType = CMD_ILLEGAL;//初始化 soc 命令对象
```

在该代码后加入:

```
           if (WM->getAgentObjectType() == OBJECT_TEAMMATE_5)
           {
                ObjectT opponent =
WM->getClosestInSetTo(OBJECT_SET_OPPONENTS, OBJECT_BALL);
               VecPosition opponentPos =
WM->getGlobalPosition(opponent);
               VecPosition pos(opponentPos.getX() + 5,
opponentPos.getY());
               soc = moveToPos(pos,PS->getPlayerWhenToTurnAngle());
                ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
               return soc;
             }
```

(19) 在 playOn 模式下,2 号和 4 号一起去盯防对方拿球队员

找到代码:

```
 formations->setFormation( FT_433_OFFENSIVE );//设置球队出场阵形!
       soc.commandType = CMD_ILLEGAL;//初始化 soc 命令对象
```

在该代码后加入:

```
       if (WM->getAgentObjectType() == OBJECT_TEAMMATE_2 ||
WM->getAgentObjectType() == OBJECT_TEAMMATE_4)
           {
                ObjectT opponent =
WM->getClosestInSetTo(OBJECT_SET_OPPONENTS, OBJECT_BALL);
               VecPosition opponentPos =
WM->getGlobalPosition(opponent);
               soc =
moveToPos(opponentPos ,PS->getPlayerWhenToTurnAngle());
                ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(opponent,soc));
               return soc;
             }
```

20:在 playon 模式下,如果是 10 号球员,在可踢球的状态下,如果自身的 x 轴坐标大于 30,则直接朝着里对方球员远的球门点射门。

```
     if ( WM->getAgentObjectType() ==OBJECT_TEAMMATE_10)
     {
     if( posAgent .getX() > 30 )
       {
                double posGoalieY =
WM->getGlobalPosition(WM->getOppGoalieType()).getY();
               if(   posGoalieY > 0 )
               {
                    soc=kickTo( VecPosition(52.5,-6.5 ) , 2.7) ;
               }
               else
        {
          soc=kickTo( VecPosition(52.5,6.5),2.7);
        }
        }
      }
```

21.什么叫做“在 playOn 模式下， 拿球后传球给更靠近对方球门的最近队友。”

——可能是最近的有好几个，选取最靠近对方球门的

在 PlayerTeams.cpp 的 else if (WM->isBallKickable())中

```
ObjectT o=WM->func21();
soc=leadingPass(o,1);
```

在 WorldModle.h 中

```
 ObjectT func21();
```

在 WorldModle.cpp 中

```
ObjectT WorldModel::func21()
{
    int             iIndex;
    ObjectT closestObject;
    double minDis=1000;
    double trueDis;
    VecPosition oppPos;
    VecPosition selfPos=getAgentGlobalPosition();
     for ( ObjectT o = iterateObjectStart( iIndex, OBJECT_SET_TEAMMATES);
                o != OBJECT_ILLEGAL;
                o = iterateObjectNext ( iIndex,OBJECT_SET_TEAMMATES ) )
     {
        oppPos=getGlobalPosition(o);
        trueDis=selfPos.getDistanceTo(oppPos);
        if(trueDis<minDis)
        {
 minDis=trueDis;
 closestObject=o;
        }
        else if(trueDis==minDis)
        {
```

```
   if(getPosOpponentGoal().getDistanceTo(getGlobalPosition(closestObject))>
getPosOpponentGoal().getDistanceTo(oppPos))
   {
     closestObject=o;
   }
          }
        }
        iterateObjectDone( iIndex );
        return closestObject;
  }
  ==================================================================================================
```

22.和书 P209 相似

在 worldModle.h（public）中

```
  ObjectT TeammateInAngle(AngDeg ang1,AngDeg ang2,double dis);
```

在 worldModle.cpp 中

```
  ObjectT WorldModel::TeammateInAngle(AngDeg ang1, AngDeg ang2,
double dis)
  {
        double trueDis;//
        double trueAng;
        VecPosition selfPos=getAgentGlobalPosition();
        int           iIndex;
        for ( ObjectT o = iterateObjectStart( iIndex, OBJECT_SET_TEAMMATES);
                  o != OBJECT_ILLEGAL;
                  o = iterateObjectNext ( iIndex,OBJECT_SET_TEAMMATES ) )
        {
          if(o==getAgentObjectType())
   continue;
```

```
            trueDis=selfPos.getDistanceTo(getGlobalPosition( o ));
            trueAng=(getGlobalPosition( o )-selfPos).getDirection();

               if (ang1<=trueAng&&trueAng<=ang2&&trueDis<dis)
               {
                  return o;
               }
         }
         iterateObjectDone( iIndex );
         return OBJECT_ILLEGAL;//can not find
   }
```

PlayerTeams.cpp 中的 BallKickable

```
   ObjectT o=WM->TeammateInAngle(-30,30,20);
         if(o==OBJECT_ILLEGAL)//
         {
            double
ang=(WM->getPosOpponentGoal()-WM->getBallPos()).getDirection();
            soc=dribble(ang,DRIBBLE_FAST);
         }
         else
         {
            soc=leadingPass(o,1);
         }
```

==

===

23

在 worldModle.h（public）中

```
VecPosition PosToKickTo();
```

在 worldModle.cpp 中

```
VecPosition WorldModel::PosToKickTo()
{
   VecPosition selfPos=getAgentGlobalPosition();
   VecPosition targetPos;
   if(selfPos.getX()<0)//self field
   {
      targetPos.setX(0);
      targetPos.setY(selfPos.getY());
   }
   else//opp field
   {
      targetPos=getPosOpponentGoal();
   }

   return targetPos;
}
```

PlayerTeams.cpp 中的 BallKickable

```
VecPosition targetPos=WM->PosToKickTo();
soc=kickTo(targetPos,SS->getBallSpeedMax());
===============================================
========================================
```

24.我不知道怎么新添加函数，我直接在 PlayerTeams 中写的

在 PlayerTeams.cpp 中的 BallKickable

```
写 if(WM->getAgentObjectType()==OBJECT_TEAMMATE_9)
{
   if(WM->isInTheirPenaltyArea(WM->getAgentGlobalPosition()))
   {
      soc=leadingPass(OBJECT_TEAMMATE_10,1);
```

```
        }
        else
        {
           double
ang=(WM->getPosOpponentGoal()-WM->getBallPos()).getDirection();
           soc=dribble(ang,DRIBBLE_FAST);
        }
    }



    if(WM->getAgentObjectType()==OBJECT_TEAMMATE_10)
        soc=kickTo(WM->getPosOpponentGoal(),SS->getBallSpeedMax());
```

在 PlayerTeams.cpp 中的“///这里就是无球队员的跑位决策”中写

```
if(WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,WM->getBallPos())==OBJ
ECT_TEAMMATE_9)

soc=moveToPos(WM->getPosOpponentGoal(),PS->getPlayerWhenToTurnAngl
e());
      ACT->putCommandInQueue( soc ); // 放入命令队列
      ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) );
    25
    VecPosition
posGoal(PITCH_LENGTH/2.0,(-1+2*(WM->getCurrentCycle()%2))*0.4*SS->getG
oalWidth());

            double ang=(VecPosition(52.5,0)-posAgent).getDirection();
     //            if(WM->getAgentObjectType()!=OBJECT_TEAMMATE_4)
       //          soc=leadingPass(OBJECT_TEAMMATE_4,1.0);
                  if(WM->getAgentObjectType()==OBJECT_TEAMMATE_4)
```

```
              soc=leadingPass(OBJECT_TEAMMATE_7,1.0);
              if(WM->getAgentObjectType()==OBJECT_TEAMMATE_7)

            soc=leadingPass(OBJECT_TEAMMATE_9,1.0);

             if(WM->getAgentObjectType()==OBJECT_TEAMMATE_9)


soc=dribble((VecPosition(52.5,0)-posAgent).getDirection(),DRIBBLE_FAST);


            if(WM->isInTheirPenaltyArea(WM->getBallPos()))
            {
                   if(WM->getAgentObjectType()==OBJECT_TEAMMATE_9)
             soc= kickTo(posGoal,SS->getBallSpeedMax());
            }
```

(26)在 playon 模式下,求出 y 轴等于 0 的两侧的对方球员数量,将球传向对手少的一方,并且 x 轴值最大的队友。

在 WorldModel.h 中：

找到 public:，在之后加上：

```
bool            isOwnSideOpponentMost();
  ObjectT getMaxXTeammateInSide(bool isOwnSize);
```

在 WorldModel.cpp 中：

在开头加上：

```
ObjectT WorldModel::getMaxXTeammateInSide(bool isOwnSize)
{
      int iIndex;
      ObjectT maxMate = OBJECT_ILLEGAL;
      for (ObjectT   o = iterateObjectStart(iIndex, OBJECT_SET_TEAMMATES);
                             o != OBJECT_ILLEGAL;
                             o = iterateObjectNext(iIndex,
OBJECT_SET_TEAMMATES))
            {
                VecPosition oPos = getGlobalPosition(o);
                if ((isOwnSize && oPos.getY() >= 0) ||
                    (!isOwnSize && oPos.getY() <= 0))
                {
                    if (maxMate == OBJECT_ILLEGAL || oPos.getX() >
getGlobalPosition(maxMate).getX())
                        maxMate = o;
                }

            }

            iterateObjectDone(iIndex);
            return maxMate;
  }

    bool          WorldModel:: isOwnSideOpponentMost()
    {
           int ownSideCount = 0;
           int count = 0;

           int iIndex;
       ObjectT maxMate = OBJECT_ILLEGAL;
       for (ObjectT   o = iterateObjectStart(iIndex, OBJECT_SET_OPPONENTS);
                             o != OBJECT_ILLEGAL;
                             o = iterateObjectNext(iIndex,
OBJECT_SET_OPPONENTS))
            {
```

```
            if (getGlobalPosition(o).getY() > 0)
                ownSideCount++;
            count++;
        }
        return ownSideCount > count - ownSideCount;
 }
```

再到 PlayerTeams.cpp 中的 deMeer5()函数中：

找到以下代码：

```
else if ( WM->isBallKickable())                    // if kickable //  如果球已知，而且当前球在我脚下(可踢)
```

将大括号里面的内容修改为下面大括号里的内容：

```
else if ( WM->isBallKickable())
{
        ObjectT mate = WM->getMaxXTeammateInSide(!WM->isOwnSideOpponentMost());
        soc = leadingPass(mate, 1, DIR_CENTER);

        ACT->putCommandInQueue(soc);
        ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
        return soc;
}
```

(27)在 playon 模式下,如果自身 7 米范围内有两个或两个以上的对手的话,则传球到 x 轴值最大的队友。

在 WorldModel.h 中：

找到 public:，在之后加上：

```
ObjectT getMaxXTeammate();
```

在 WorldModel.cpp 中：

在开头加上：

```
ObjectT WorldModel::getMaxXTeammate()
{
        int iIndex;
        ObjectT maxMate = OBJECT_ILLEGAL;
        for (ObjectT   o = iterateObjectStart(iIndex, OBJECT_SET_TEAMMATES);
                            o != OBJECT_ILLEGAL;
                            o = iterateObjectNext(iIndex,
OBJECT_SET_TEAMMATES))
            {
                VecPosition oPos = getGlobalPosition(o);
                    if (maxMate == OBJECT_ILLEGAL || oPos.getX() >
getGlobalPosition(maxMate).getX())
                        maxMate = o;


            }


            iterateObjectDone(iIndex);
            return maxMate;
    }
```

再到 PlayerTeams.cpp 中的 deMeer5()函数中：

找到以下代码：

```
    else if ( WM->isBallKickable())                        // if kickable //  如果球已
知，而且当前球在我脚下(可踢)
```

将大括号里面的内容修改为下面大括号里的内容：

```
            else if ( WM->isBallKickable())                        // if kickable //  如
果球已知，而且当前球在我脚下(可踢)
            {
                Circle cir(WM->getAgentGlobalPosition(), 7);
                int num = WM->getNrInSetInCircle(OBJECT_SET_OPPONENTS,
cir);
                if (num > 2)
                {
                    ObjectT mate = WM->getMaxXTeammate();
                     soc = leadingPass(mate, 1, DIR_CENTER);
                }
                else
                {
                    soc = dribble((WM->getPosOpponentGoal() -
WM->getAgentGlobalPosition()).getDirection(), DRIBBLE_FAST);
                }

                 ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
                 return soc;
            }
   28     else    if(WM->getPlayerNumber()==10)
       soc=moveToPos(WM->getOffsideX()+2,0);
            else if ( WM->isBallKickable())
```

(29)在 playon 的模式下,求出球运动方向的直线方程,并且求出自

己到该直线的距离,如果距离小于 4 的话,那么就垂直跑向该条直线。

找到代码：

```
   formations->setFormation( FT_433_OFFENSIVE );//设置球队出场阵形！
           soc.commandType = CMD_ILLEGAL;//初始化 soc 命令对象
```

在该代码后加入：

```
              Line ballRun =
Line::makeLineFromPositionAndAngle(WM->getBallPos(),
WM->getBallDirection());
                if
(ballRun.getDistanceWithPoint(WM->getAgentGlobalPosition()) < 4)
                {
                    soc =
moveToPos(ballRun.getPointOnLineClosestTo(WM->getAgentGlobalPosition()), 
20);
                              ACT->putCommandInQueue(soc);

ACT->putCommandInQueue( turnNeckToObject(OBJECT_BALL,soc));
                              return soc;
                        }
   30
      else if ( WM->isBallKickable())                          // if kickable //  如果球已
知，而且当前球在我脚下(可踢)
              {
             VecPosition posGoal( PITCH_LENGTH/2.0, (-1 + 
2*(WM->getCurrentCycle()%2)) * 0.4 * SS->getGoalWidth() ); //定义一个射门点
PITCH_LENGTH 是球场的长度。这个点就是按照周期看，交替的打球门的两个死角。
                     soc = kickTo( posGoal, SS->getBallSpeedMax() ); // kick maximal 
//  把球以最大速度踢向那个射门点
                     ACT->putCommandInQueue( soc ); //  放入命令队列
                     ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, 
soc ) ); //  把脖子转向球，也就是一直看着球
                     Log.log( 100, "kick ball" );
     Circle     cir ;
          cir    =Circle (posAgent , 7);
          int    Num =WM->getNrInSetInCircle(OBJECT_SET_OPPONENTS , cir );
           if(Num<=0 )
           {
              AngDeg    angDribble=(VecPosition(53 , 0 ) - 
posAgent).getDirection();
           soc = dribble(angDribble,DRIBBLE_FAST);
           ACT->putCommandInQueue(soc);
           ACT->putCommandInQueue(turnNeckToObject(OBJECT_BALL,soc));
           }
```

```
        }




  31
   else if ( WM->isBallKickable())                    // if kickable //  如果球已
知，而且当前球在我脚下(可踢)
  {
    ObjectT playerTeamBall =
WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,posBall);
    ObjectT playerOppositBall =
WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,posBall);
    VecPosition playerTeamBallpos = WM->getGlobalPosition(playerTeamBall);
    VecPosition playerOppositBallpos =
WM->getGlobalPosition(playerOppositBall);
    if(playerTeamBallpos.getDistanceTo(posBall)<playerOppositBallpos.getDista
nceTo(posBall))
    {
     // int num = WM->getPlayerNumber();
        VecPosition tenPos = WM->getGlobalPosition(OBJECT_TEAMMATE_10);

    if(tenPos.getX()<30&&WM->getAgentObjectType()==OBJECT_TEAMMATE_
10)
        {
          double ballX = posBall.getX();
          double ballY = posBall.getY();
          VecPosition dashPoint(ballX,ballY+10);
          soc = dashToPoint(dashPoint);
        }
        else
        {
          if(WM->isInTheirPenaltyArea(WM->getBallPos()))
        {
          VecPosition posGoal( PITCH_LENGTH/2.0,
                    (-1 + 2*(WM->getCurrentCycle()%2)) * 0.4 *
SS->getGoalWidth() );
          soc = kickTo(posGoal,SS->getBallSpeedMax());
        }
        else
        {
        VecPosition posGoal( PITCH_LENGTH/2.0,
                    (-1 + 2*(WM->getCurrentCycle()%2)) * 0.4 *
SS->getGoalWidth() );
          soc = kickTo(posGoal,SS->getBallSpeedMax());
        }
        }
    }
    else
    {
            if(WM->isInTheirPenaltyArea(WM->getBallPos()))
            {
              VecPosition posGoal( PITCH_LENGTH/2.0,
                        (-1 + 2*(WM->getCurrentCycle()%2)) * 0.4 *
SS->getGoalWidth() );
              soc = kickTo(posGoal,SS->getBallSpeedMax());
            }
            else
            {
            VecPosition posGoal( PITCH_LENGTH/2.0,
                        (-1 + 2*(WM->getCurrentCycle()%2)) * 0.4 *
SS->getGoalWidth() );
              soc = kickTo(posGoal,SS->getBallSpeedMax());
            }
    }
   }
   32
    else if ( WM->isBallKickable())                          // if kickable //  如果球已
知，而且当前球在我脚下(可踢)
    {
    Circle posAgentCir(posAgent,5);
    int num =
WM->getNrInSetInCircle(OBJECT_SET_OPPONENTS,posAgentCir);
    if(num >=5 )
    {
      ObjectT pos1 =
WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,posAgent);
      VecPosition pos1Pos = WM->getGlobalPosition(pos1);
      soc = kickTo(pos1Pos,SS->getBallSpeedMax());
    }
    else
    {
      if(WM->isInTheirPenaltyArea(WM->getBallPos()))
      {
        VecPosition posGoal( PITCH_LENGTH/2.0,
                        (-1 + 2*(WM->getCurrentCycle()%2)) * 0.4 *
SS->getGoalWidth() );
        soc = kickTo(posGoal,SS->getBallSpeedMax());
      }
      else
      {
      VecPosition posGoal( PITCH_LENGTH/2.0,
                        (-1 + 2*(WM->getCurrentCycle()%2)) * 0.4 *
SS->getGoalWidth() );
```

```
        soc = kickTo(posGoal,SS->getBallSpeedMax());
      }
    }
  }
```

33 在本方角球模式下,如果自己是 10 号球员,则跑向角球点,并开球(球可踢,则踢球给 9 号);如果自己是 9 号球员,则跑向距离角球点附近(随机选一点),准备接应球,其他球员跑本位点.

```
 if (WM->isCornerKickUs())
    {
        if (WM->getAgentObjectType() == OBJECT_TEAMMATE_10)
        {
            if (WM->isBallKickable())
                soc = leadingPass(OBJECT_TEAMMATE_9, 1);
            else
                soc = moveToPos(WM->getBallPos(),
PS->getPlayerWhenToTurnAngle());
        }

        if (WM->getAgentObjectType() == OBJECT_TEAMMATE_9)
        {
            VecPosition  ball = WM->getBallPos();
            VecPosition  pos(-(ball.getX())/fabs(ball.getX()) * 5 +
ball.getX(),
                             -(ball.getY())/fabs(ball.getY()) * 5 +
ball.getY());
            soc = moveToPos(pos, PS->getPlayerWhenToTurnAngle());
        }

        ACT->putCommandInQueue( soc );
        ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) );
        return soc;
    }
```

34. //playerteams.cpp(in deMeer5( ))

```
if(WM->isOffsideUs())
     {
    if(WM-> getClosestInSetTo ( OBJECT_SET_TEAMMATES, OBJECT_BALL))
    {
      soc=moveToPos(WM->getBallPos(),20);
```

```
       if ( WM->isBallKickable())
       {
         double dist;
         ObjectT objTea
=WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,WM->getAgentObjectTyp
e(),&dist);
         VecPosition posTea=WM->getGlobalPosition(objTea);
         soc=kickTo(posTea,SS->getBallSpeedMax());
         ACT->putCommandInQueue(soc);
         return soc;
       }
       }
   }

  35.//playerteams.cpp(in deMeer5( ))
  if(WM->isOffsideUs())
      {
     if(WM-> getBallPos ( ).getY()<0)
     {
       if(WM->getAgentObjectType()==OBJECT_TEAMMATE_2)
       {soc=moveToPos(WM->getBallPos(),20);
       if ( WM->isBallKickable())
       {
         double dist;
         ObjectT objTea
=WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,WM->getAgentObjectTyp
e(),&dist);
         VecPosition posTea=WM->getGlobalPosition(objTea);
         soc=kickTo(posTea,SS->getBallSpeedMax());
         ACT->putCommandInQueue(soc);
         return soc;
```

```
        }}

        }
        else
        { if(WM->getAgentObjectType()==OBJECT_TEAMMATE_5)
        {soc=moveToPos(WM->getBallPos(),20);
        if ( WM->isBallKickable())
        {
          double dist;
          ObjectT objTea
=WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,WM->getAgentObjectTyp
e(),&dist);
          VecPosition posTea=WM->getGlobalPosition(objTea);
          soc=kickTo(posTea,SS->getBallSpeedMax());
          ACT->putCommandInQueue(soc);
          return soc;}
        }}
    }
```

```
      if ( WM->getPlayerNumber() == 8 )
           {
           soc = SoccerCommand(CMD_DASH, 80, 45);
               ACT->putCommandInQueue( soc ); // 放入命令队列
               ACT->putCommandInQueue( alignNeckWithBody() );
               return soc;
           }
         if(WM->isOffsideUs())
    {
      ObjectT o;
```

```
o=WM->getSecondClosestInSetTo(OBJECT_SET_TEAMMATES,OBJECT_BALL) ;
        double myPosx;
        double myposy;
        double ballposx;
        double ballposy;
        double dis;
        ballposx=WM->getBallPos().getX();
        ballposy=WM->getBallPos().getY();
        myposy=WM->getAgentGlobalPosition().getY();
        myPosx=WM->getAgentGlobalPosition().getX();
        dis=sqrt(pow(ballposx-myPosx,2)+pow(ballposy-myposy,2));
        if(WM->getAgentObjectType()==o&&dis>7)
        {
          soc=moveToPos( VecPosition(ballposx,ballposy ) , 20 );
        }
        ACT->putCommandInQueue( soc ); //  放入命令队列
                ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) ); //  把脖子转向球，也就是一直看着球*/
     }


            if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//
判断对球的可信度，如果小于某个阈值，则…也就是说，如果很多周期没有看到球
在哪里了
            {
                ACT->putCommandInQueue( soc = searchBall() );     // if ball
pos unknown //执行找球动作！并放入命令队列
                ACT->putCommandInQueue( alignNeckWithBody( ) ); // search
for it //同时把脖子随身体一起转
            }
            else if ( WM->isBallKickable())                         // if kickable //  如
果球已知，而且当前球在我脚下(可踢)
```

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```
  //playerteams.cpp(in deMeer5( ))
  else if(WM->isOffsideUs())
      {
        if((WM->getPlayerNumber()==OBJECT_TEAMMATE_4)&&(WM->
getClosestInSetTo ( OBJECT_SET_TEAMMATES,
OBJECT_BALL)!=OBJECT_TEAMMATE_4))
    soc=moveToPos((WM->getBallPos()+VecPosition(5,0)),20);
              ACT->putCommandInQueue( soc ); // 放入命令队列
              ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) );
      }
```

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```
          if ( WM->isOffsideUs() )
    {
      ObjectT o = WM ->
getSecondClosestInSetTo(OBJECT_SET_TEAMMATES , OBJECT_BALL) ;
      if ( WM ->getAgentObjectType() == o )
      {
            double a   = WM->getBallPos().getX() ;
        double b = WM->getBallPos().getY() ;
        double t ,m ,x2,y1,d,x1,y2;
        t=b/( a-53);
        m=53*t+b;
        d=pow( 2*a+2*t*m,2) -4*( pow( t,2)+1) *(pow(a,2)+pow(m,2)-144) ;
        x1 = ( ( 2*a+2*t*m) +sqrt( d) ) /( 2*( pow( t,2) +1)) ;
         x2 = ( ( 2*a+2*t*m) -sqrt( d) ) /( 2*( pow( t,2) +1)) ;
         y1 = t*x1-53*t ;
         y2 =t*x2-53*t ;
         double y ,x;
         if( y1<y2)
```

```
                {
                   y=y1 ;x=x1;
                }
                else
                   y=y2;x=x2;

                soc = moveToPos( VecPosition( x,y) ,20)   ;
                       }
                        ACT->putCommandInQueue( soc ); //  放入命令队列
                        ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) ); //  把脖子转向球，也就是一直看着球
                        Log.log( 100, "kick ball" );
        }



            /*          if ( WM->isOffsideUs( ) )
        {
            ObjectT o = WM->getClosestInSetTo( OBJECT_SET_TEAMMATES ,)
        }   */
                  if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//
判断对球的可信度，如果小于某个阈值，则...也就是说，如果很多周期没有看到球
在哪里了
                  {
                        ACT->putCommandInQueue( soc = searchBall() );     // if ball
pos unknown //执行找球动作！并放入命令队列
                        ACT->putCommandInQueue( alignNeckWithBody( ) ); // search
for it //同时把脖子随身体一起转
                  }
                  else if ( WM->isBallKickable())                          // if kickable //  如
果球已知，而且当前球在我脚下(可踢)
```

```
    if ( WM->isOffsideUs( ) )
   {
     ObjectT o1 = WM->getClosestInSetTo( OBJECT_SET_TEAMMATES ,
OBJECT_BALL) ;
     if( WM->getAgentObjectType() == o1 )
     {
       if( WM->getGlobalPosition( o1) != WM->getBallPos() )
           soc = moveToPos( WM->getBallPos() ,20) ;
       else
       {
         ObjectT o3 =
WM->getClosestInSetTo( OBJECT_SET_TEAMMATES ,posAgent) ;
         soc = leadingPass( o3 , 1) ;
       }
     }
     ObjectT o2 = WM->getSecondClosestInSetTo(OBJECT_SET_TEAMMATES ,
OBJECT_BALL) ;
     if( WM->getAgentObjectType() != o2)
     {
          double y = posAgent.getY() ;
           VecPosition pos( 52.5, y);
      soc = moveToPos( pos,20) ;
     }
        ACT->putCommandInQueue( soc ); // 放入命令队列
             ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) ); // 把脖子转向球，也就是一直看着球
             Log.log( 100, "kick ball" );
   }
  40
       if ( WM->getPlayerNumber() == 8 )
          {
                soc = SoccerCommand(CMD_DASH, 80, 45);
                    ACT->putCommandInQueue( soc ); // 放入命令队列
                    ACT->putCommandInQueue( alignNeckWithBody() );
                    return soc;
                }
            if(WM->isOffsideUs())
     {
       ObjectT o1;
       o1=WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,OBJECT_BALL) ;
       ObjectT o2;

o2=WM->getSecondClosestInSetTo(OBJECT_SET_TEAMMATES,OBJECT_BALL) ;
       double o2Posx;
       double o2posy;
       o2Posx=WM->getGlobalPosition(o2).getY();
       o2posy=WM->getGlobalPosition(o2).getX();
       if (WM->getAgentObjectType()==o1 )
       {
        if(WM->getGlobalPosition(o1)!=WM->getBallPos())
        {
          soc=moveToPos(WM->getBallPos(),20);
        }
        else
        {
          ObjectT o3 = WM->getClosestInSetTo( OBJECT_SET_TEAMMATES ,
o1) ;
            soc = leadingPass(o3,1);
       }
       }

if(WM->getAgentObjectType()!=o1&&WM->getAgentObjectType()!=o2&&o2P
osx<=42.5&&o2posy<=29)
            {
                soc=moveToPos(VecPosition(o2Posx+10,o2posy+5),20);
            }

                      ACT->putCommandInQueue( soc ); // 放入命令队列

ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) ); // 把脖子转向球，也就是一直看着球*/
         }
```

41

在 PlayerTeams 中的

```
    if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//判断对球的可信度，如果小于某个阈值，则…也就是说，如果很多周期没有看到球在哪里了
                 {
                        ACT->putCommandInQueue( soc = searchBall() );     // if ball pos unknown //执行找球动作！并放入命令队列
                        ACT->putCommandInQueue( alignNeckWithBody( ) ); // search for it //同时把脖子随身体一起转
                 }
```

后面

添加

```
if(WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,WM->getBallPos())==OBJECT_OPPONENT_10)
      {
           if(WM->getPlayerNumber()==4)
      {
         VecPosition pos=WM->getGlobalPosition(OBJECT_OPPONENT_10);
         VecPosition newPos(pos.getX()-5,pos.getY());
      soc=moveToPos(newPos,20);
      ACT->putCommandInQueue( soc );
              ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) );


    }
    else if(WM->getPlayerNumber()==2)
    {
      VecPosition pos=WM->getGlobalPosition(OBJECT_OPPONENT_10);
      VecPosition newPos(pos.getX(),pos.getY()+5);

      soc=moveToPos(newPos,20);
       ACT->putCommandInQueue( soc );
              ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) );

    }
    else if(WM->getPlayerNumber()==3)
    {
      VecPosition pos=WM->getGlobalPosition(OBJECT_OPPONENT_10);
      VecPosition newPos(pos.getX(),pos.getY()-5);

      soc=moveToPos(newPos,20);
      ACT->putCommandInQueue( soc );
             ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) );

    }
    }
```

====================================42=============================

在 PlayerTeams 中的

```
 if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//判断对球的可信度，如果小于某个阈值，则…也就是说，如果很多周期没有看到球在哪里了
        {
            ACT->putCommandInQueue( soc = searchBall() );     // if ball pos unknown //执行找球动作！并放入命令队列
            ACT->putCommandInQueue( alignNeckWithBody( ) ); // search for it //同时把脖子随身体一起转
        }
```

后面

```
if(WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,WM->getBallPos())==OBJECT_OPPONENT_9)
   {
     ObjectT closestObject=OBJECT_TEAMMATE_2;
     VecPosition team=WM->getGlobalPosition(closestObject);
     double minDis=team.getDistanceTo(WM->getGlobalPosition(OBJECT_OPPONENT_9));

     team=WM->getGlobalPosition(OBJECT_TEAMMATE_3);
     double dis=team.getDistanceTo(WM->getGlobalPosition(OBJECT_OPPONENT_9));
     if(dis<minDis)
     {
       minDis=dis;
       closestObject=OBJECT_TEAMMATE_3;
```

```
        }

        team=WM->getGlobalPosition(OBJECT_TEAMMATE_4);

dis=team.getDistanceTo(WM->getGlobalPosition(OBJECT_OPPONENT_9));
        if(dis<minDis)
        {closestObject=OBJECT_TEAMMATE_4;}

        if(WM->getAgentObjectType()==closestObject)
        {
           soc=moveToPos(WM->getGlobalPosition(OBJECT_TEAMMATE_9),40);
        }
        else
        {
           ObjectT
opp=WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,WM->getAgentObjec
tType());
           VecPosition oppPos=WM->getGlobalPosition(opp);
           soc=moveToPos(oppPos,40);

        }
```

====================================43===========
==================

在 worldModel.h 中添加

```
 bool func43()
```

在 worldModel.cpp 中添加

```
bool WorldModel::func43()
{
   ObjectT opp=getFastestInSetTo(OBJECT_SET_OPPONENTS,OBJECT_BALL);
   double oppDisToBall=getGlobalPosition(opp).getDistanceTo(getBallPos());
```

```
        ObjectT
teammate=getFastestInSetTo(OBJECT_SET_TEAMMATES,OBJECT_BALL);
        double
teammateDisToBall=getGlobalPosition(teammate).getDistanceTo(getBallPos());
        if(oppDisToBall<teammateDisToBall)
            return true;
        else
            return false;


    }
```

在 PlayerTeams 中的

```
      if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//判断对
球的可信度，如果小于某个阈值，则…也就是说，如果很多周期没有看到球在哪里
了
                  {
                          ACT->putCommandInQueue( soc = searchBall() );      // if ball
pos unknown //执行找球动作！并放入命令队列
                          ACT->putCommandInQueue( alignNeckWithBody( ) ); // search
for it //同时把脖子随身体一起转
                  }
```

后面添加

```
      if(WM->func43())
      {
          ObjectT
teammate=WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,WM->getBallP
os());
          if(WM->getAgentObjectType()==teammate)
          {
```

```
      soc=moveToPos(WM->getGlobalPosition(teammate),40);
     }
     else
     {
       ObjectT opp=WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,WM->getAgentObjectType());
       VecPosition oppPos=WM->getGlobalPosition(opp);
       soc=moveToPos(oppPos,40);

     }
      ACT->putCommandInQueue( soc ); // 放入命令队列
             ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) );

   }
```

==44==============================

在 PlayerTeams 中的

```
    if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//判断对球的可信度，如果小于某个阈值，则...也就是说，如果很多周期没有看到球在哪里了
          {
             ACT->putCommandInQueue( soc = searchBall() );     // if ball pos unknown //执行找球动作！并放入命令队列
             ACT->putCommandInQueue( alignNeckWithBody( ) ); // search for it //同时把脖子随身体一起转
          }
```

后面添加

```
if(WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,WM->getBallPos())==OBJECT_OPPONENT_11)
    {

      VecPosition oppPos=WM->getGlobalPosition(OBJECT_OPPONENT_11);

      if(WM->getAgentObjectType()==7)
      {
        VecPosition selfPos=WM->getGlobalPosition(OBJECT_TEAMMATE_7);
        double dis=selfPos.getDistanceTo(oppPos);
        if(dis>5)
        {
          soc=moveToPos(VecPosition(oppPos.getX(),oppPos.getY()+4),40);
        }
        else
        {
          soc=intercept(0);
        }
      }
      else if(WM->getAgentObjectType()==8)
      {

        VecPosition selfPos=WM->getGlobalPosition(OBJECT_TEAMMATE_8);
        double dis=selfPos.getDistanceTo(oppPos);
        if(dis>5)
        {
          soc=moveToPos(VecPosition(oppPos.getX(),oppPos.getY()+4),40);
        }
        else
        {
          soc=intercept(0);
      }

    }
     ACT->putCommandInQueue( soc ); //  放入命令队列
                ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) );
```

==45================================

在 PlayerTeams 中的

```
  if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//判断对球的可信度，如果小于某个阈值，则…也就是说，如果很多周期没有看到球在哪里了
          {
                ACT->putCommandInQueue( soc = searchBall() );     // if ball pos unknown //执行找球动作！并放入命令队列
                ACT->putCommandInQueue( alignNeckWithBody( ) ); // search for it //同时把脖子随身体一起转
          }
```

后面添加   if(WM->func43())//dui fang na dao qiu(mo ren shi fang shou mo shou)

```
  {
    if(WM->getAgentObjectType()==OBJECT_TEAMMATE_6)
    {
      VecPosition pos=WM->getGlobalPosition(OBJECT_OPPONENT_9);
      soc=moveToPos(pos,40);
    }
    if(WM->getAgentObjectType()==OBJECT_TEAMMATE_7)
    {
      VecPosition pos=WM->getGlobalPosition(OBJECT_OPPONENT_10);
      soc=moveToPos(pos,40);
    }
```

```
        if(WM->getAgentObjectType()==OBJECT_TEAMMATE_8)
        {
          VecPosition pos=WM->getGlobalPosition(OBJECT_OPPONENT_11);
          soc=moveToPos(pos,40);
        }
         ACT->putCommandInQueue( soc ); // 放入命令队列
                ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) );
          }
```

在 worldModel.h 中添加 bool func43();

在 worldModel.cpp 中添加 bool WorldModel::func43()

```
{
  ObjectT opp=getFastestInSetTo(OBJECT_SET_OPPONENTS,OBJECT_BALL);
  double oppDisToBall=getGlobalPosition(opp).getDistanceTo(getBallPos());


  ObjectT teammate=getFastestInSetTo(OBJECT_SET_TEAMMATES,OBJECT_BALL);
  double teammateDisToBall=getGlobalPosition(teammate).getDistanceTo(getBallPos());
  if(oppDisToBall<teammateDisToBall)
    return true;
  else
    return false；
}
```

46 找到 if (WM->getPlayerNumber() == 8)

```
        {
        soc = SoccerCommand(CMD_DASH, 80, 45);
            ACT->putCommandInQueue( soc ); // 放入命令队列
```

```
              ACT->putCommandInQueue( alignNeckWithBody() );
              return soc;
          }
           if(WM->isOffsideThem())
   {
     if( WM->getAgentObjectType()==OBJECT_TEAMMATE_4)
     {
         VecPosition pos1;
         VecPosition pos2;
         pos1=WM->getBallPos();
         ObjectT o;
         o=WM->getClosestInSetTo(OBJECT_SET_OPPONENTS,pos1);
         pos2=WM->getGlobalPosition(o);
         soc=moveToPos(pos2,20);
         ACT->putCommandInQueue( soc ); // 放入命令队列

ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) ); // 把脖
子转向球，也就是一直看着球
              Log.log( 100, "kick ball" );
     }
   }
          if ( WM->getConfidence( OBJECT_BALL ) < PS->getBallConfThr() )//
判断对球的可信度，如果小于某个阈值，则…也就是说，如果很多周期没有看到球
在哪里了
          {
              ACT->putCommandInQueue( soc = searchBall() );     // if ball
pos unknown //执行找球动作！并放入命令队列
              ACT->putCommandInQueue( alignNeckWithBody( ) ); // search
for it //同时把脖子随身体一起转
          }
   47
                       PlayModeT     pm ;
      if ( WM->isOffsideThem( pm = PM_ILLEGAL) )
     {
            ObjectT otwo    =
WM->getSecondClosestInSetTo( OBJECT_SET_TEAMMATES , OBJECT_BALL);
            if ( posAgent == WM->getGlobalPosition(otwo))
            {
               ObjectT oball =
WM->getSecondClosestInSetTo( OBJECT_SET_OPPONENTS , OBJECT_BALL) ;
               soc = moveToPos( WM->getGlobalPosition( oball ) , 20    ) ;
               ACT->putCommandInQueue( soc ); //  放入命令队列

ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) ); //  把脖
子转向球，也就是一直看着球
                      Log.log( 100, "kick ball" );
          }
     }
```

```
   48          if(WM->isOffsideThem())
     {
       ObjectT o;
```

```
      o=WM->getClosestInSetTo(OBJECT_SET_TEAMMATES,OBJECT_BALL) ;
      double myPosx;
      double myposy;
      myposy=WM->getAgentGlobalPosition().getY();
      myPosx=WM->getAgentGlobalPosition().getX();
      if(WM->getAgentObjectType()!=o&&myPosx>0)
      {
        soc=moveToPos( VecPosition(myPosx-10,myposy ) , 20 );
      }
      ACT->putCommandInQueue( soc ); // 放入命令队列
               ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) ); // 把脖子转向球，也就是一直看着球
    }
  49
  if ( WM->isOffsideThem() )
    {
          Circle cir ( posAgent , 5 ) ;
          int num = 0 ;
         num = WM->getNrInSetInCircle( OBJECT_SET_OPPONENTS , cir ) ;
          if ( num != 0 )
          {
        ObjectT o = WM->getClosestInSetTo( OBJECT_SET_OPPONENTS ,
posAgent) ;
        VecPosition poso = WM->getGlobalPosition(o ) ;
        if ( posAgent.getX() == poso.getX() + 2 && posAgent.getY() ==
poso.getY() )
        {
               soc = moveToPos( posAgent , 20) ;
        }
        else
        {
            VecPosition pos( poso.getX() + 2 , poso.getY() ) ;
              soc = moveToPos(    pos    ,    20 ) ;
          }
             }
             ACT->putCommandInQueue( soc ); //  放入命令队列

ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL, soc ) ); //  把脖
子转向球，也就是一直看着球
                    Log.log( 100, "kick ball" );
    }
   50
              PlayModeT      pm ;
     if ( WM->isOffsideThem( pm = PM_ILLEGAL) )
    {
             if ( WM -> getBallPos() .getX() < 0 )
             {
         if ( WM -> getAgentObjectType() == OBJECT_TEAMMATE_4||    WM ->
getAgentObjectType() == OBJECT_TEAMMATE_5 )
         {
             ObjectT o    = WM ->
getSecondClosestInSetTo( OBJECT_SET_OPPONENTS ,OBJECT_BALL    ) ;
             VecPosition      posopptwo = WM ->getGlobalPosition( o ) ;
             soc = moveToPos( posopptwo , 20 ) ;
             ACT->putCommandInQueue( soc );
             ACT->putCommandInQueue( turnNeckToObject( OBJECT_BALL,
soc ) );
             Log.log( 100, "kick ball" );
        }
           }
    }
```