function (dia, labels = NULL)

{

nodes.id <- sapply(dia$nodes, "[[", "id")

nodes.label <- sapply(dia$nodes, "[[", "label")

nodes.colour <- toupper(substr(sapply(dia$nodes, "[[", "colour"),

2, 7))

from <- nodes.label[match(sapply(dia$edges, "[[", 1), nodes.id)]

to <- nodes.label[match(sapply(dia$edges, "[[", 2), nodes.id)]

if (is.null(labels))

labels <- sort(unique(c(from, to)))

from <- factor(from, levels = labels)

to <- factor(to, levels = labels)

colour <- factor(nodes.colour[match(labels, nodes.label)])

line <- sapply(dia$edges, "[[", 3)

group <- ifelse(is.na(line), 0, as.numeric(line))

code <- c("8", "9", "1", "2", "3", "12", "22", "23", "4",

"5", NA)

type <- c("N", "N", "P", "P", "P", "P", "P", "P", "U", "U",

"Z")

levels <- c("N", "P", "U", "Z")

start <- match(sapply(dia$edges, "[[", 4), code)

end <- match(sapply(dia$edges, "[[", 5), code)

if (any(is.na(start) | is.na(end)))

stop("Dia file contains unknown arrow type")

backward.type <- type[start]

forward.type <- type[end]

edges <- rbind(data.frame(From = from, To = to, Group = group,

Type = factor(forward.type, levels), Pair = 1:length(dia$edges)),

data.frame(From = to, To = from, Group = group, Type = factor(backward.type,

levels), Pair = 1:length(dia$edges)))

edges <- edges[edges$Type != "Z", , drop = F]

attr(edges, "node.labels") <- labels

attr(edges, "node.colours") <- colour

edges

}